



The OCRWM Enterprise

• NOVEMBER 1999 •



A PUBLICATION OF THE OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT (OCRWM)

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OCRWM Issues Draft Environmental Impact Statement for Yucca Mountain

OCRWM announced, on August 13, 1999, the availability of the *Draft Environmental Impact Statement (EIS) for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada.*

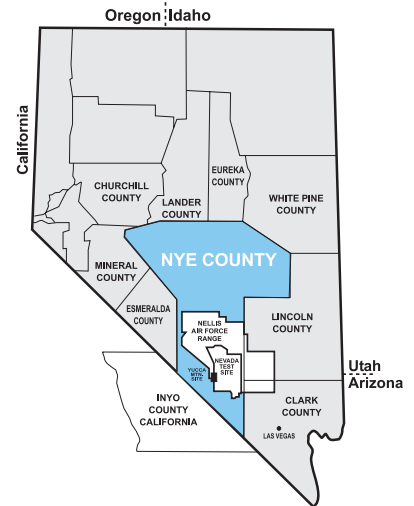
The Draft EIS provides information on potential environmental impacts that could result from a Proposed Action to construct, operate and monitor, and eventually close a repository for the disposal of spent nuclear fuel and high-level radioactive waste at Yucca Mountain in Nevada. The Draft EIS also considers the potential environmental impacts from an alternative, referred to as the No-Action Alternative, under which a repository would not be developed at Yucca Mountain.

The Draft EIS was prepared in accordance with the Nuclear Waste Policy Act of 1982, as amended, the National Environmental Policy Act of 1969 (NEPA), and regulations implementing NEPA as 40 CFR Parts 1500 1508 and 10 CFR Part 1021.

Background

On August 7, 1995, OCRWM published a Notice of Intent (60 FR 40164) to prepare an Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada. The purpose of the Notice of Intent was to

inform the public of the proposed scope of the Repository EIS, to solicit public input, and to announce that scoping meetings would be held from August through



October 1995. During that period, 15 public scoping meetings were held throughout the United States to obtain public comments regarding the scope, alternatives, and issues that should be addressed in the EIS. The scoping period closed on December 5, 1995. Due to subsequent budget reductions, further EIS activities were deferred until Fiscal Year 1997. In May 1997, DOE published *Summary of Public Scoping Comments Related to the Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*, which summarized the comments received by OCRWM during the scoping process

Continued on page 2

Draft Environmental Impact Statement-*continued*

and described how OCRWM planned, at that time, to address issues raised during scoping. A Notice of Availability for the Summary of Public Scoping Comments document was published on July 9, 1997 (62 FR 36789).

Alternatives Considered

The Draft EIS evaluates a Proposed Action and a No-Action Alternative. Under the Proposed Action, OCRWM would construct, operate and monitor, and eventually close a geologic repository at Yucca Mountain for the disposal of as much as 70,000 metric tons of heavy metal (MTHM) of spent nuclear fuel and high-level radioactive waste. The Proposed Action includes the transportation of spent nuclear fuel and high-level radioactive waste to Yucca Mountain from commercial and DOE sites. Under the No-Action Alternative, OCRWM would end site characterization activities at Yucca Mountain, and commercial and Department sites would continue to store spent nuclear fuel and high-level radioactive waste, packaged as necessary for their safe on-site management.

OCRWM developed implementing alternatives and analytical scenarios for estimating, in the Draft EIS, the reasonably foreseeable environmental impacts that could result from the Proposed Action. For example, OCRWM evaluated three thermal load scenarios, which correspond to a relatively high emplacement density of spent nuclear fuel and high-level radioactive waste (high thermal load – 85 MTHM per acre), a relatively low emplacement density (low thermal load – 25 MTHM per acre), and an intermediate case – 60 MTHM per acre. OCRWM recognizes, however, that if the site is approved for development of a repository, the designs of repository surface and subsurface facilities, and plans for the construction, operation and monitoring, and closure of the repository would continue to evolve and would depend on the outcome of the Nuclear Regulatory Commission's licensing review of the repository.

Two national transportation scenarios are evaluated in the Draft EIS. The *mostly legal-weight truck* scenario

assumes that most spent nuclear fuel and high-level radioactive waste would be shipped to the repository by legal-weight truck primarily using interstate highways, although naval spent nuclear fuel would be transported from the Idaho National Engineering and Environmental Laboratory by rail. The *mostly rail* scenario assumes that most spent nuclear fuel and high-level radioactive waste would be shipped to Nevada by rail, with a few exceptions (based largely on the on-site loading limitations at some commercial sites). Those sites would use legal-weight trucks to ship material to the repository.

The Department does not anticipate that either the mostly legal-weight truck or the mostly rail scenario represents the actual mix of truck or rail transportation modes it would use. Nonetheless, DOE used these scenarios as a basis for the analysis of potential impacts to ensure the analysis addressed the range of possible transportation impacts.

The Nevada transportation implementing alternatives parallel the national transportation scenarios; however, because no rail access currently exists to the repository site, the EIS considers different implementing alternatives for the construction of either a new branch rail line to the proposed repository, or an intermodal transfer station with associated highway improvements for heavy-haul trucks.

The No-Action Alternative considers two scenarios. Scenario 1 assumes that spent nuclear fuel and high-level radioactive waste would remain at the 72 commercial and 5 DOE sites under effective institutional control for at least 10,000 years. For purposes of analysis, OCRWM assumed that the storage facilities would undergo one major repair during the first 100 years and complete replacement every 100 years thereafter. Scenario 2 also assumes spent nuclear

fuel and high-level radioactive waste would remain at the 77 sites, but under institutional control for only about 100 years. The scenario assumes no effective institutional control of the stored material after 100 years.

Public Hearings and Invitation To Comment

The public is invited to provide oral and written comments on the Repository Draft EIS during the public comment period that ends on February 9, 2000.

OCRWM will consider comments received during the comment period in preparation of the Final EIS. Comments received after February 9, 2000, will be considered to the extent practicable. OCRWM will hold 17 public hearings to receive oral and written comments from members of the public. A list of dates, times, and locations of the hearings is located at the end of this article.

Each of the public hearings will include a brief session in which an overview of the Draft EIS will be presented, a general question-and-answer session, and an opportunity to provide comments for the record. Members of the public who plan to present oral comments are asked to register in advance by calling 1-800-967-3477, or they may register at the hearing. *Continued on page 3*

The OCRWM Enterprise is published by the U.S. Department of Energy's Office of Civilian Radioactive Waste Management (OCRWM) to inform the public about OCRWM activities. To be placed on the mailing list for this newsletter, make address corrections, obtain information about the OCRWM Program, or order copies of *The OCRWM Enterprise* or other publications, please contact the:

**U.S. Department of Energy
Yucca Mountain Site
Characterization Office
P.O. Box 30307
North Las Vegas, Nevada 89036-0307
1.800.225.6972**

You are invited to use the many features of the OCRWM Home Page at: <http://www.rw.doe.gov>.

Draft Environmental Impact Statement-continued

Availability of the Draft EIS

Copies of the Draft EIS were distributed to Federal, State, Indian tribal and local officials, agencies, organizations, and individuals who had indicated an interest in the EIS process. Copies of the document may be requested by telephone (1-800-967-3477) or over the Internet via the OCRWM Web site at <http://www.rw.doe.gov> under the listing "Environmental Impact Statement."

Copies of all references considered in preparation of the Draft EIS are available at the following Public Reading Rooms: University of Nevada - Las Vegas, Nevada; University of Nevada-Reno, Nevada; Pahrump Yucca Mountain Science Center, Nevada; and the DOE Headquarters Office in Washington, D.C. Copies of non-copyrighted references are available at the public reading room in Beatty, Nevada, as well as on the Internet via the OCRWM Web site. ■

Written comments, requests for further information on the Draft EIS or the public hearings, and requests for copies of the document (or a CD-ROM version) should be directed to:

Ms. Wendy R. Dixon
EIS Project Manager, M/S 010
U.S. Department of Energy
Office of Civilian Radioactive
Waste Management
Yucca Mountain Site
Characterization Office
P.O. Box 30307
North Las Vegas, Nevada
89036-0307

Telephone 1-800-967-3477
Facsimile 1-800-967-0739

Hearing Dates, Times and Locations

Reno, Nevada

December 1, 1999
2:00 pm - 3:00 pm,
6:00 pm - 10:00 pm
Lawlor Events Center
1664 North Virginia Street
Reno, Nevada 89557

Austin, Nevada

December 7, 1999
11:00 am - 2:00 pm,
5:30 pm - 9:30 pm
Austin Town Hall
137 Court Street
Austin, Nevada 89310

Crescent Valley, Nevada

December 9, 1999
10:00 am - 1:00 pm,
6:00 pm - 10:00 pm
Crescent Valley Town Hall
5045 Tenabo Avenue
Crescent Valley, Nevada 89821

Las Vegas, Nevada

January 11, 2000
11:00 am - 2:00 pm,
6:00 pm - 10:00 pm
Grant Sawyer State Building
555 East Washington
Las Vegas, Nevada 89101

Salt Lake City, Utah

January 13, 2000
10:00 am - 1:00 pm,
6:00 pm - 10:00 pm
Salt Lake City Hilton Inn
150 West 500 South
Salt Lake City, Utah 84101

St. Louis, Missouri

January 20, 2000
11:00 am - 2:00 pm,
6:00 pm - 10:00 pm
America's Center
701 Convention Plaza
St. Louis, Missouri 63101

**To request a copy
of the
Draft Environmental
Impact Statement,
contact:
U.S. Department of Energy
Yucca Mountain Site
Characterization Office
P.O. Box 30307
North Las Vegas, Nevada
89036-0307
Telephone:
1.800.967.3477**



Yucca Mountain Snow Scene

Annual Report to Congress: 1998 Was a Pivotal and Productive Year for OCRWM

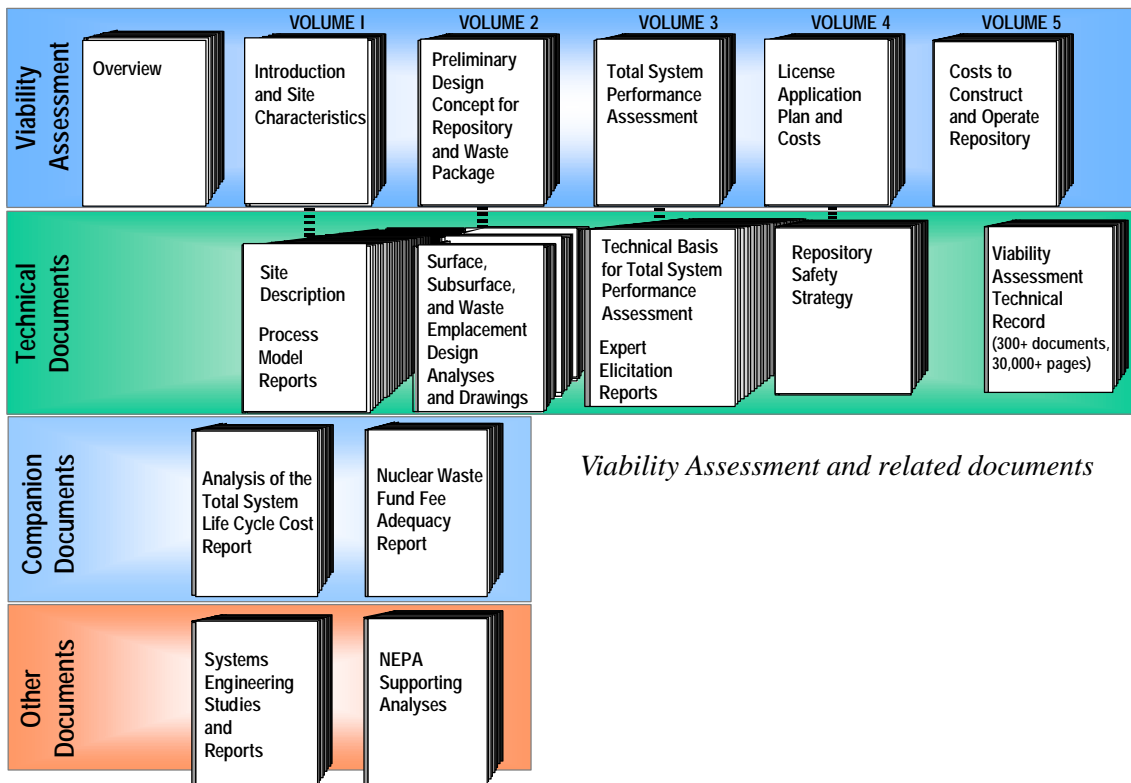
Fiscal Year 1998 was a pivotal year in the history of OCRWM, and one of the most productive, according to *OCRWM's Annual Report to Congress* released in June 1999. Dominating the year was the work of completing the *Viability Assessment of a Repository at Yucca Mountain*.

The Viability Assessment documented what OCRWM had learned from 15 years of studies, and it explained how OCRWM plans to proceed. While the Viability Assessment was not a decision on the suitability of the Yucca Mountain site for repository development, it clearly identified the remaining key uncertainties about repository system performance and explained the work required to reduce them. Other Program highlights addressed in the Annual Report included:

- OCRWM conducted a total system performance assessment of the proposed repository system based on the latest reference design and information about the site. To ensure that data collection, analysis, and interpretation methods were sound, OCRWM consulted independent experts and received formal peer reviews.
- To generate the data that performance assessment modelers and designers need, OCRWM undertook two major construction projects: excavation of a cross-drift, a 2.68-kilometer (1.67-mile) tunnel that crosses the repository block, and construction of a test facility at Busted Butte, a formation near Yucca Mountain that is continuous with the formation that underlies the proposed repository horizon. Construction was completed within the fiscal year, and testing is under way, giving scientists

direct access to host rock that is yielding valuable information.

- OCRWM's scientific investigations centered on two questions: (1) By what pathways and mechanisms, in what quantities, and at what rates could water reach waste packages, corrode them, and transport radionuclides to the accessible environment? (2) How will heat generated by radioactive decay of waste affect those phenomena?
- Fiscal Year 1998 brought a change in policy on repository closure. Under current NRC rules, a repository would have to remain open for at least 50 years after the start of waste emplacement, so its performance could be monitored. To allow future generations the choice of monitoring repository performance for more than 50 years, OCRWM adopted a policy that repository design



Annual Report to Congress - *continued*

not preclude keeping the facility open for 100 years, or with reasonable maintenance, for up to 300 years.

- With consolidation of responsibility for all NRC quality assurance (QA) oversight functions under a single office, the Office of Quality Assurance, OCRWM realized annual savings of approximately \$4 million, enhanced the independence of QA personnel, and achieved greater consistency in the interpretation of QA program requirements.

- OCRWM began a 5-year cooperative agreement with the University and Community College System of Nevada to provide for a program of scientific and engineering research. It is intended to generate, for the public and the Yucca Mountain Site Characterization Project, an independent body of scientific and engineering data about Yucca Mountain through collaboration among independent university and college researchers and project scientists and engineers.

- In support of the U.S. geologic disposal program, OCRWM continued to pursue international efforts through existing and renewed bilateral

agreements with other nations and through formal membership in international organizations. The focus of these efforts is technical work that will enhance our scientific investigations of the Yucca Mountain site.

- Under current planning assumptions, a geologic repository will house commercial spent nuclear fuel (including mixed oxide spent nuclear fuel resulting from disposition of surplus weapons-usable plutonium), DOE and naval spent nuclear fuel, high-level radioactive waste, and immobilized plutonium waste forms. A notable achievement in Fiscal Year 1998 was execution of two memoranda of agreement: one with DOE's Office of Environmental Management; one with the Office of Nuclear Energy, Science and Technology's Naval Nuclear Propulsion Program. These memoranda, developed through years of close coordination, define in detail each party's responsibilities for a broad range of managerial, procedural, technical, and financial matters.

- OCRWM completed a total system life-cycle cost (TSLCC) analysis. The

analysis projects a total future cost to complete the Civilian Radioactive Waste Management Program, through repository closure in 2116, of \$36.6 billion in constant 1998 dollars.

- OCRWM completed a fee adequacy assessment, which analyzes whether the fee paid by commercial utilities into the Nuclear Waste Fund is likely to cover all costs of disposing of commercial spent nuclear fuel, and concluded that there is no need at this time to change the fee.

- Information Management and Y2K Compliance: OCRWM completed validation and implementation of all mission-critical systems ahead of the Department's stretch goal of January 31, 1999; all non-mission-critical systems were validated and implemented ahead of the Secretary's stretch goal of March 31, 1999. ■

Copies of the Annual Report may be requested by calling 1-800-225-6972. The entire report can also be accessed on OCRWM's Web site at <http://www.rw.doe.gov>.

OCRWM Selects Enhanced Repository Design

Following completion of the work to produce the viability assessment, OCRWM began an evaluation of alternatives to the viability assessment reference design for the repository and waste packages. The goal of this evaluation was to develop a diverse range of conceptual repository designs that work well in concert with the Yucca Mountain site and to select the next generation design. The Nuclear Waste Technical Review Board had emphasized the need to evaluate alternatives to the viability assessment reference design, based on the

importance of reducing uncertainties in repository performance. In particular, the Board highlighted the merits of a lower temperature design in reducing the significance of these uncertainties.

Under the direction of OCRWM, the management and operating contractor evaluated alternative designs, using what was learned in the viability assessment to guide the selection of the next generation design concept that will be used for determining the suitability of the site. Based on this technical evaluation

integrated with program policy considerations of fairness and equity within and between generations, and taking into account input from the Board and other interested parties, OCRWM announced its intention to select the next generation design concept in September 1999.

This repository concept can be characterized as a lower thermal loading design compared to the viability assessment reference design, although it was not the coolest design considered. This design uses more extensive thermal

Continued on page 6

OCRWM Selects Enhanced Repository Design-continued

management techniques than the viability assessment reference design. These thermal management techniques include thermal blending of fuel assemblies, closer spacing of the waste packages, wider spacing of the emplacement drifts, and preclosure ventilation.

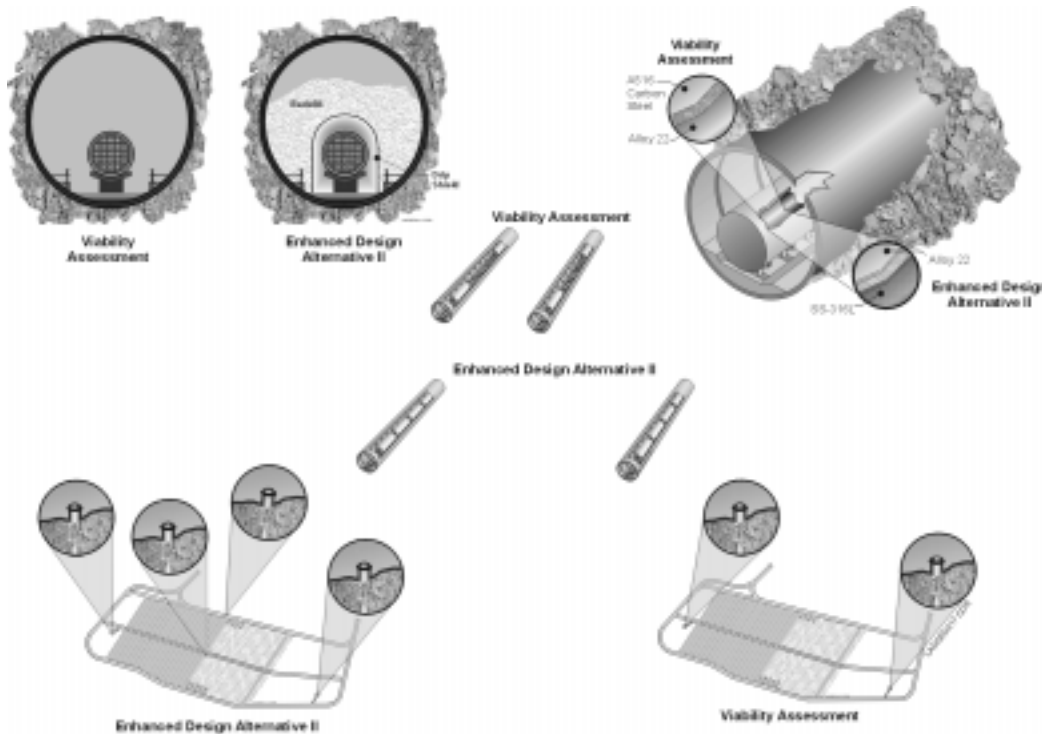
This design differs from the viability assessment reference design in a number of other aspects. While both use a two-layer waste package, the selected design places the corrosion-resistant material on the outside, rather than on the inside, to provide long-term protection to the more corrosion-susceptible structural material. The selected design also adds more defense-in-depth with a titanium drip shield covered by backfill to protect the waste packages from possible dripping water while they are still hot enough to be susceptible to localized corrosion. Finally, the design concept uses steel structural materials in the drifts instead

of concrete. This change helps to avoid the possible impacts of the concrete on mobilization and movement of radio-nuclides.

OCRWM added conditions on the design to permit the repository to be kept open, with only routine maintenance, for approximately 125 years from the start of waste emplacement, while permitting the repository to be closed safely during the period from 50 years to approximately 125 years from the start of waste emplacement. Also, the design will not preclude keeping the repository open, with appropriate maintenance and monitoring, for 300 years. OCRWM will continue to examine the uncertainties associated with thermally driven processes and evaluate design options that can increase the efficiency of heat removal.

With these conditions, the design concept provides the flexibility to keep

the rock temperatures below boiling if the repository is kept open for approximately 125 years. The concept also provides the flexibility to increase the rock temperatures, should new scientific and engineering data show that such an alternative is beneficial. Furthermore, it preserves the flexibility for future generations to determine whether to close the repository early or to keep it open for as long as 300 years with appropriate maintenance and monitoring, based on their own judgments regarding the significance of uncertainties. To reflect the effect of the design in reducing the cumulative uncertainty in estimates of long-term repository performance, OCRWM is updating the repository safety strategy and re-focusing its site characterization efforts to reflect the design evolution. ■



Comparison of Key Design Attributes Between Enhanced Design Alternative II and the Viability Assessment Design (in-drift barriers, waste package materials, waste package and drift spacing, and subsurface ventilation).

Nuclear Waste Technical Review Board Holds Three Public Meetings and Issues Two Reports

Board Meetings

During the first nine months of 1999, the Nuclear Waste Technical Review Board (the Board) held three full Board meetings to discuss issues related to the Office of Civilian Radioactive Waste Management's (OCRWM) Program. The Board meetings provide the public with an opportunity to observe the Board, the Department of Energy's (DOE) OCRWM staff and contractors, and other scientists exchange information on technical issues. At the January meeting in Las Vegas, Nevada, the Board focused on the evaluation of alternative designs, results of the viability assessment, and progress in design, science, and regulatory criteria. At the June meeting in Amargosa Valley, Nevada, the focus was on DOE's analysis comparing possible repository designs and the status of scientific studies related to the characterization of the Yucca Mountain site. At the September meeting in Alexandria, Virginia, the focus was on the repository safety strategy and model validation.

Lake H. Barrett, OCRWM's Acting Director, updated the Board at all three meetings on recent developments related to the waste management program. Such developments included proposed legislation affecting the repository program, waste acceptance litigation, the program budget, ongoing revisions to the regulatory framework for a repository, the near-term milestones of issuing the draft environmental impact statement, completing the work to determine if the site is suitable and, if suitable, to support a Secretarial decision on whether to recommend the site to the President. In addition, the Acting Director addressed progress in the evolution of repository design.

1999 Reports to Congress and the Secretary of Energy

In April 1999, the Board released two reports to the U.S. Congress and the Secretary of Energy, the first entitled *Moving beyond the Viability Assessment*, and the second summarizing Board activities from January to December 1998.

In its viability assessment report, the Board offered its views on DOE's December 1998 *Viability Assessment of a Repository at Yucca Mountain*. The Board recognized the importance of the successful and timely completion of the viability assessment. The Board agreed with DOE's conclusions that no features or processes have been found that would disqualify the site, the site continues to merit study, and work should proceed to support a decision on site recommendation. The Board discussed the need to address key uncertainties that remain about the site, including the performance of the engineered and the natural barriers. The Board addressed DOE's plans for reducing these uncertainties and suggested that consideration be given to alternative repository designs, including ventilated low-temperature designs that have the potential to reduce uncertainties and simplify the analytical bases for site suitability and licensing.

In its summary report, the Board discussed the research needs identified in DOE's 1998 viability assessment of the Yucca Mountain site, including plans to gather information on the amount of water that will eventually seep into repository drifts, whether formations under the repository will retard the migration of radionuclides, the flow-and-transport properties of the groundwater that lies approximately 200 meters beneath the repository ho-

lition, and long-term corrosion rates of materials that may be used for the waste packages. The Board found that the testing and research plans in the viability assessment are generally consistent with those identified by the Board.

The DOE provided responses to the Board's reports in September 1999. The responses addressed the particular issues raised by the Board and acknowledged that the input from the Board contributed to the quality of the viability assessment. ■

Information about the Board and its activities can be found at its Web site, <http://www.nwtrb.gov>, along with instructions on requesting specific information via e-mail. To receive copies of the Board's reports, please contact the Nuclear Waste Technical Review Board, 2300 Clarendon Boulevard, Suite 1300, Arlington, Virginia 22201, or call (703) 235-4473.

DOE Releases Accelerator Transmutation of Waste Report

On November 1, the Department of Energy released a report describing a roadmap for developing accelerator transmutation of waste (ATW) technology and outlining the many issues associated with ATW that must be resolved in order to determine its future technical viability. The report, "*A Roadmap for Developing Accelerator Transmutation of Waste Technology*," was mandated by Congress in the 1999 Energy and Water Appropriations Act.

If ATW is pursued, future development of the technology should be based on the findings of the science-based roadmap in the report. The report identifies a six-year, \$281 million research and development project needed to address open technical issues. The report also notes that ATW's potential role is as a complement to geologic disposal. Any decision to pursue ATW would follow evaluation of technical viability, costs, nonproliferation issues, and leverage for enhancing geologic disposal.

Upon releasing the report, Under Secretary of Energy Ernest J. Moniz said, "The team's work on the ATW technology roadmap is thorough, based on extensive international input, and has provided us with real insights into the technological challenges that must be resolved to further address the viability of an ATW system."

Transmutation of waste is a process in which long-lived radioisotopes are converted to short-lived radioisotopes by neutrons from an accelerator. If ATW technology could be successfully implemented to overcome all technical issues, it could potentially facilitate the long-term management of a repository system.

The roadmap report identifies several technical issues that must be resolved and outlines a six-year science based program to begin addressing these issues. In addition, the report identifies possible collaborative efforts with other countries; outlines

the institutional challenges of an ATW program; discusses possible benefits to other programs; and provides an estimate of the life-cycle costs to transmute and process the current projected inventory of civilian spent nuclear fuel.

The report concludes that implementation of ATW technology will require years of additional research and will require a significant investment in research and development funding. In addition, complex institutional and public acceptance issues regarding acceptance of this technology would have to be addressed.

The report is a synthesis of information gathered from worldwide experts, national laboratory staff and individual consultants on developing ATW technology and is available on the Energy Department's home page at www.rw.doe.gov. ■

President Clinton Nominates Dr. Ivan Itkin for OCRWM Director's Post

President Clinton has nominated Dr. Ivan Itkin to be the Director of OCRWM. Dr. Itkin brings an extraordinary record, technical background, and understanding of public service to the position. He has a Ph.D. in mathematics from the University of Pittsburgh, a Masters of Science degree in Nuclear Engineering from New York University, and a Bachelor of Science degree in Chemical Engineering from

the Polytechnic Institute of Brooklyn. He has worked for 16 years as a nuclear scientist for Westinghouse Corporation Atomic Laboratory, where he designed reactors for nuclear propulsion systems for submarines.

He has been extensively involved in community activities and brings unusual credentials in public service. He served in the Pennsylvania State House of Representatives for 26 years,

chaired the House Mines and Energy Management Committee, was Majority Leader and Democratic Whip, and last year was the Democratic candidate for Governor of Pennsylvania.

The Senate Energy and Natural Resources Committee approved Dr. Itkin's nomination as Director on September 22. Final approval awaits a vote by the full Senate. ■

NRC Holds Public Meetings on Proposed Criteria

The U.S. Nuclear Regulatory Commission (NRC) held public meetings on June 15, 1999, in Amargosa Valley,

Nevada; on June 16, 1999, in Las Vegas, Nevada; and on June 17, 1999, in Caliente, Nevada, to discuss its pro-

posed regulations for a licensing decision on a possible future high-level waste repository at Yucca Mountain.

NRC Holds Public Meetings on Proposed Criteria - *continued*

Based, in part, on public comments received at earlier public meetings, in Las Vegas and Beatty in March, the Commission had extended the public comment period for the proposed regulations to June 30, 1999. The purpose of the most recent public meetings was to continue the dialogue initiated in March, and for NRC staff members to expand earlier responses to specific questions and concerns raised by members of the public at the March meetings.

The meetings began with an overview of NRC's potential licensing role and oversight responsibilities for the proposed repository at Yucca Mountain. Presentations followed on the timing and content of the proposed rule, the protectiveness of the proposed overall performance objective, requirements for multiple barriers, and NRC's role and responsibilities for regulating the safety of spent fuel shipments to the proposed repository. Several opportunities for questions and discussion were afforded throughout all three meetings.

DOE strongly endorses NRC's use of risk-informed, performance-based licensing criteria in the proposed site-specific regulation for Yucca Mountain. This approach is consistent with NRC's

ongoing emphasis on regulations that give the highest attention to the issues of most importance to protection of public health and safety. The elimination of subsystem performance objectives and siting criteria found in the generic NRC regulations for repositories, in favor of overall performance objectives, allows both DOE as applicant and NRC as regulator to place emphasis on the key technical issues related to health and safety aspects of repository performance. DOE believes that the proposed rule would be effective in protecting the health and safety of the public from potential risks associated with a high-level radioactive waste repository at Yucca Mountain, Nevada.

The U.S. Nuclear Regulatory Commission (NRC) is proposing licensing criteria for disposal of spent nuclear fuel and high-level radioactive waste in the proposed geologic repository at Yucca Mountain. These criteria will address the performance of the repository system at Yucca Mountain, a system that must comprise both natural and engineered barriers.

The proposed requirements are designed to implement a health-based, safety objective for long-term reposi-

tory performance that is fully protective of the public health and safety, and the environment, and is consistent with national and international recommendations for radiation protection standards.

Also included are licensing procedures, criteria for public participation, records and reporting, monitoring and testing programs, performance confirmation, quality assurance, personnel training and certification, and emergency planning. The proposed criteria will apply specifically and exclusively to the proposed repository at Yucca Mountain.

To obtain information on this rulemaking, write to the Chairman, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff. The NRC's Web site also contains detailed information and public meeting transcripts at <http://www.nrc.gov>.

Certain documents related to this rulemaking, including comments received and the regulatory analysis, may also be examined at the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC. ■

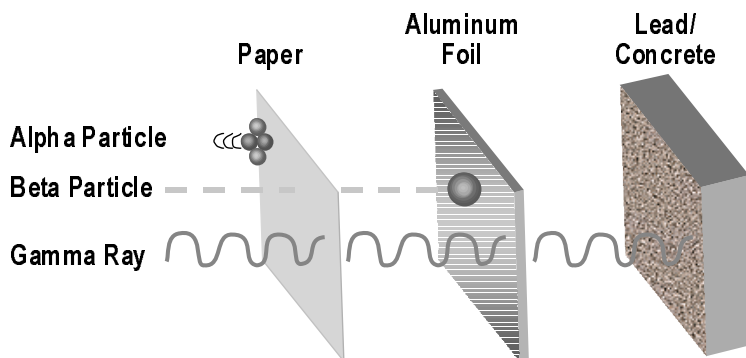
EPA Proposes Yucca Mountain Radiation Protection Standards

On August 27, 1999, the U.S. Environmental Protection Agency (EPA) proposed site-specific environmental radiation protection standards for Yucca Mountain, Nevada (64 Federal Register 46976 to be codified at 40 CFR Part 197), (Proposed August 27, 1999).

EPA sought comments from interested parties on these standards, which would require that the annual radiation dose for a "maximally exposed individual" living nearby be no more than 15 millirems. The standard also proposes groundwater radiation protection and other requirements. A 90-day public comment period opened the day the proposed standards were published in the *Federal Register*. Comments should be submitted to:

Air Docket
U.S. EPA, Room M-1500
(Mailcode 6102)
401 M St. SW
Washington, DC 20450
Attn: Docket No. A95-12

During the 90-day comment period, EPA held public hearings on the proposed Yucca Mountain standards in Washington, DC; Amargosa Valley, Nevada; Las Vegas, Nevada; and in Kansas City, Missouri. ■



Radiation comes in three forms: alpha, beta, and gamma. The amount of material needed to stop each radiation form is illustrated above.

Department Convenes International Conference on Geologic Repositories

The Department of Energy convened the International Conference on Geologic Repositories in Denver, Colorado, October 31 through November 3, 1999. DOE worked with the International Atomic Energy Agency (IAEA), and the Organization of Economic Cooperation and Development's Nuclear Energy Agency to bring together experts from around the world to address the policy and technical implications of geologic disposal of spent nuclear fuel and high-level radioactive waste.

"All nuclear states face spent nuclear fuel and radioactive waste problems. In the United States, we are moving forward with geological disposal of these materials. We will

share the results of our own experience and progress and welcome the input of others," said Secretary of Energy Bill Richardson upon announcing the conference at the IAEA General Conference last fall.

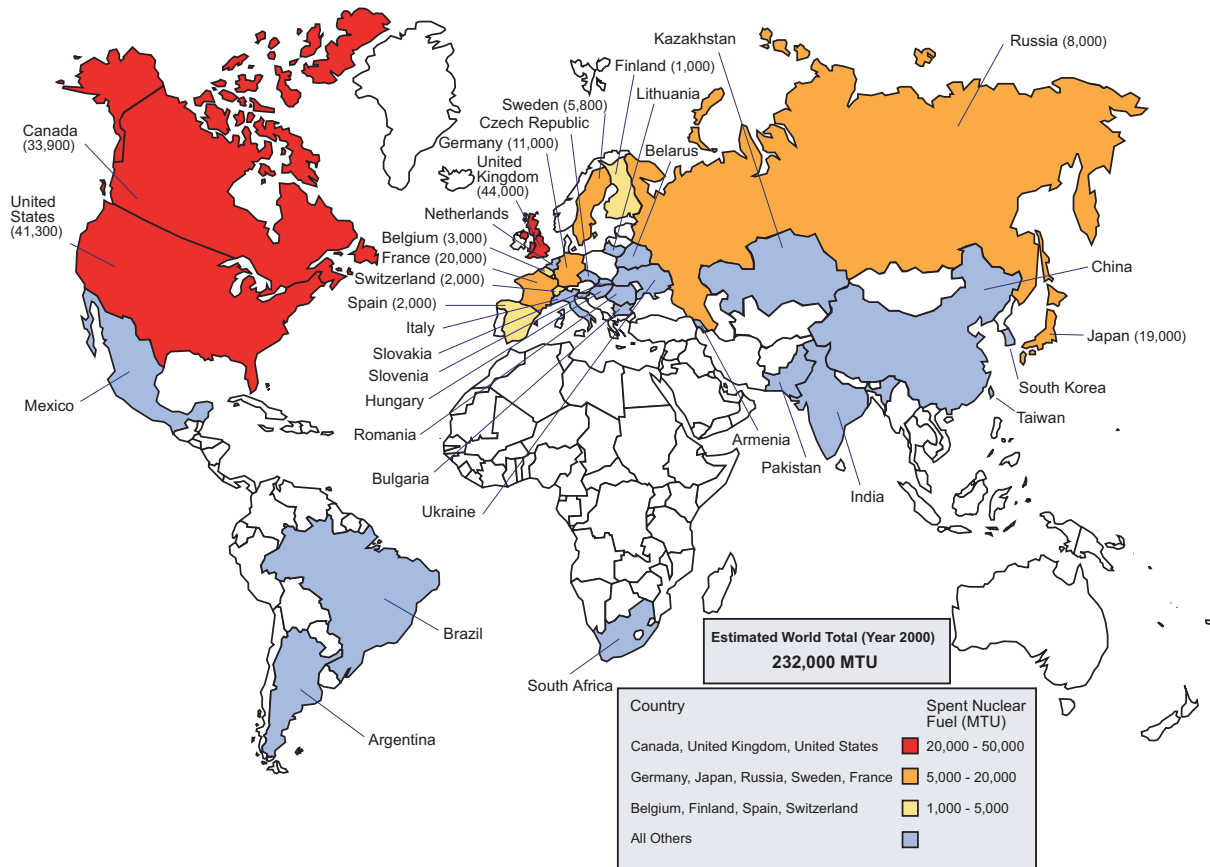
OCRWM coordinated conference content with other Departmental programs and worked out logistics with host city Denver officials.

On Sunday, October 31, there was a welcoming reception in the evening, followed Monday, November 1, by a plenary session that featured presentations by high-level policy officials from nuclear nations and a keynote address by Secretary Richardson. On Tuesday, conference workshops and breakout

sessions included topics related to the technical, safety, security and public openness aspects of geologic repositories. Site tours to the Waste Isolation Pilot Plant in New Mexico and Yucca Mountain in Nevada were arranged for those interested on Wednesday, November 3.

OCRWM coordinated the timing of the international conference in cooperation with the National Academy of Sciences, which held a technical workshop on geologic disposal in Irvine, California, on November 4-5, 1999.

For more information on the Department's conference, contact Renee Jackson at (202) 586-2283. ■



world snf hqcc.fh7

As of February 5, 1999

This figure depicts the amount of spent nuclear fuel generated by those nations with nuclear power facilities dedicated for the use of generating electricity for commercial use.

OCRWM Releases First Program Business Plan

On August 18, 1999, the Office of Civilian Radioactive Waste Management (OCRWM) released its first Program Business Plan (Plan). OCRWM's Program Business Plan describes the business strategy for the Program from the present through 2010 and discusses various contracting opportunities. OCRWM anticipates several significant acquisition activities over the next decade if Yucca Mountain is approved as the site for the Nation's Monitored Geologic Repository. The Plan provides a historical and prospective overview of the Program, as well as estimated costs based on the Program's ad-

herence to the schedule provided in the *Viability Assessment of a Repository at Yucca Mountain*, released in December 1998. The Plan was developed as a tool to reflect the diverse and complex activities scheduled over the next 10 years, as well as the necessary integration to begin emplacement operations at Yucca Mountain in 2010, assuming adequate funding is provided by Congress. A team of acquisition and technical resource professionals at Yucca Mountain generated the Plan, with support from OCRWM Headquarters and the Department's Procurement and Assistance Management organization.

The catalyst for the Plan was the draft acquisition letter establishing requirements for long-range acquisition planning consistent with Program risk management and operational requirements. The Plan was extensively reviewed within the Department, including the Secretary's office and externally by the Office of Management and Budget. It has been recognized as a model for the Department to follow. It is available on the internet at: <http://www.rw.doe.gov/progdocs/busplan/busplan.htm>. ■

December 1999

SAT/SUN	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
/			DOE/YMSCO DEIS Public Hearing Reno, NV <i>1</i>	OCRWM Program Status and Issues Review Forrestal, Vienna, VA, Las Vegas, NV (Videoconference) <i>2</i>	<i>3</i>
<i>4</i>		DOE/YMSCO DEIS Public Hearing Austin, NV		DOE/YMSCO DEIS Public Hearing Crescent Valley, NV	
<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
<i>11</i>		ACNW Meeting Rockville, MD	→		
<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>
<i>18</i>					
<i>19</i>	<i>20</i>	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>
<i>25</i> Christmas Day					
<i>26</i>	<i>27</i>	<i>28</i>	<i>29</i>	<i>30</i>	<i>31</i>

OCRWM-sponsored meeting codes:

(P) Public Participation (O) Open to the public [Name] OCRWM Speaker

This information is current as of 09/29/99. Information listed here is obtained from internal and external sources that are considered reliable, but accuracy is not guaranteed. For the most current information, call the event contact person, identified on the final page, or call (202) 488-6720.

January 2000

SAT/SUN	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<i>1</i> New Year's Day					
<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
<i>8</i>		DOE/YMSCO DEIS Public Hearing Las Vegas, NV		DOE/YMSCO DEIS Public Hearing Salt Lake City, UT	
<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>
<i>15</i>			DOE/YMSCO DEIS Public Hearing St. Louis, MO		
<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>	<i>20</i>	<i>21</i>
<i>22</i>		NWTRB Full Board Mtg. Las Vegas, NV	→		
<i>23</i>	<i>24</i>	<i>25</i>	<i>26</i>	<i>27</i>	<i>28</i>
<i>29</i>					
<i>30</i>	<i>31</i>			<i>Continued on</i>	

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