

Strategic Plan



2003 - 2013

Office of Civilian Radioactive Waste Management

WMSO

Message *from the* Director



This strategic plan is the cornerstone of our efforts to develop the Nation's first geologic repository that will permanently dispose of spent nuclear fuel and high-level radioactive waste arising from civilian power production and defense nuclear activities. The U.S. Department of Energy's principal mission is national security and, accordingly, our national purpose – safe and secure disposal of nuclear waste – is still clear after more than two decades of extensive scientific study of the Yucca Mountain, Nevada, site.

We are stewards of the Nation's nuclear waste, not just for a few decades after start of repository operations in 2010, but for hundreds and hundreds of years. We consider the Yucca Mountain repository a key strategic resource for the United States, similar to the Nation's Strategic Petroleum Reserve and the stockpile of beryllium. It is a critical asset that will pay immeasurable dividends for our citizens:

- National Security – continuing operations of our nuclear Navy
- Non-Proliferation Objectives – disposing of surplus weapons-grade plutonium
- Energy Security – ensuring that nuclear energy remains an option in satisfying our increasing electricity needs
- Homeland Security – securing the Nation's nuclear material
- Environmental Protection – protecting and cleaning up our environment
- Medical and Scientific Research – ensuring permanent disposal of spent fuel from research reactors

This plan outlines our vision, goals, and strategies for the next 10 years to achieve enduring disposal operations. We will have met this objective when shipments of waste arrive at Yucca Mountain and we safely and securely emplace waste underground. Safe and reliable operation of the Nation's repository system will establish the United States as a world leader in transporting, managing, and disposing of spent nuclear fuel and high-level radioactive waste.

Our program has made significant accomplishments in 2002. We met the DOE's obligations under the Nuclear Waste Policy Act of 1982, as amended, by submitting a Yucca Mountain site recommendation to the President. We responded to inquiries and supported the Federal decision-making that resulted in a Presidential recommendation to Congress, and a designation by Congress of the Yucca Mountain site for development as a geologic repository. This culminated in the joint resolution approving the Yucca Mountain Site, the Yucca Mountain Development Act (Public Law No. 107-200), signed into law by the President on July 23, 2002.

At this critical juncture in our program, we shift from 24 years of scientific study to the next phase of repository development: design, licensing, and construction. During this transition period, several factors will be constant in our lives: continuous change, performance evaluations, and cost improvements. Our success depends on how we perform as a team; and how well we interact with state and local governments, tribal governments, business, and the academic and research community. Our success also depends on project flexibility – we must be able to adjust quickly to changing circumstances to reach the critical milestones on the road to 2010: submittal of our license application to the U.S. Nuclear Regulatory Commission in late 2004, receipt of a construction authorization in 2007, and receipt of a license to receive and possess waste in 2010.

Most importantly, we must merit the trust and confidence of the people of Nevada and the Nation. We must demonstrate to our regulators and the public the safety of the repository and transportation systems. We must practice the principles of quality assurance in conducting the scientific and engineering analyses, preparing designs, and constructing the elements of our waste management system. Finally, we must remain attentive and responsive to the concerns and opinions of our stakeholders, to whom we convey our strategic plan with this document.

Dr. Margaret S.Y. Chu

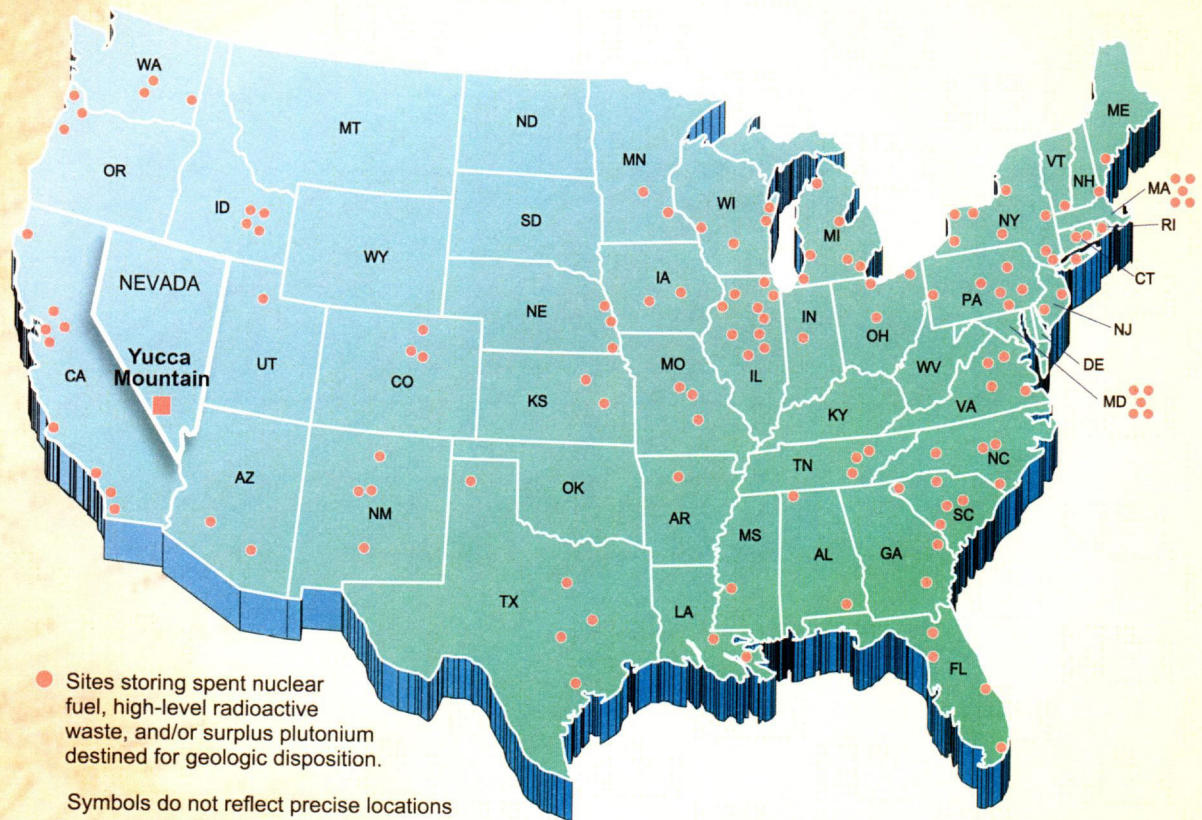
May 2003

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Why Yucca Mountain?

A geologic repository at Yucca Mountain, Nevada, would consolidate spent nuclear fuel and high-level radioactive waste that is currently stored at 131 sites in 39 states.



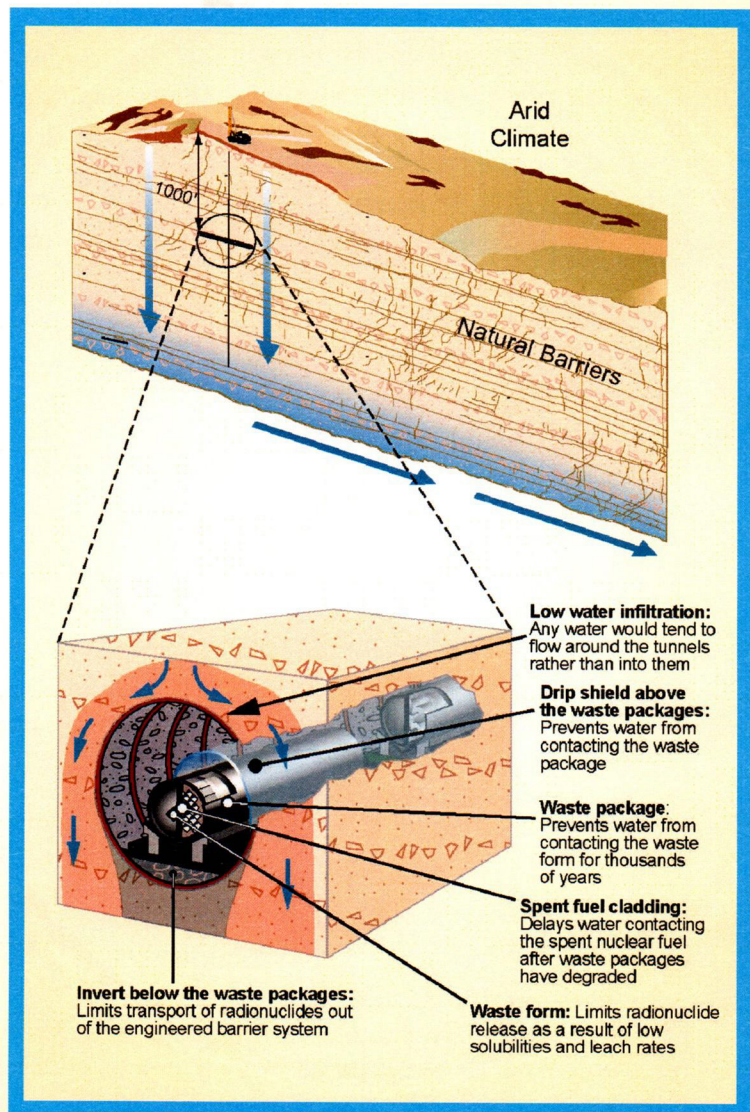
The Repository at Yucca Mountain is:

- Isolated from large population centers
- In a desert location
- In a closed hydrologic basin
- Secured 1,000 feet under the surface
- Surrounded by military and other Federal land
- Protected by multiple natural geologic barriers and robust engineered barriers

Yucca Mountain: Safety Through Multiple Barriers

The repository will rely on natural barriers and engineered features working together to limit the amount of water that can contact waste forms, dissolve them, and transport radionuclides out of the repository. Natural forces cause the very small amount of available water to flow around, rather than into, the tunnels. Drip shields, waste packages, and cladding (metal tubes holding fuel pellets) are made of metals that resist corrosion, further protecting the waste forms, which are ceramic and glass. Yucca Mountain scientists have:

- Mapped geologic features
- Excavated more than 200 pits and trenches to obtain material for direct observation
- Drilled more than 450 boreholes
- Constructed 6.5 miles of exploratory tunnels to provide access to rock formations that would be used for the repository
- Examined over 13,000 engineered material samples to determine corrosion resistance
- Instrumented more than 25 wells to measure fluctuations in the water table and study infiltration and precipitation



Developing a Strategic Resource

A Solution for Our Future

On July 23, 2002, the President signed into law a joint resolution clearing the way for submission of a license application to the U.S. Nuclear Regulatory Commission – the next critical step towards a permanent solution for the radioactive waste problem, disposal of waste, in Yucca Mountain. As a result, the DOE's Office of Civilian Radioactive Waste Management (OCRWM) will now focus its efforts on licensing, building, and operating the repository, and developing the transportation system needed to accept, ship, and dispose of waste.

Key Provisions of the Nuclear Waste Policy Act of 1982, as amended

- Establishes a schedule for the siting, construction, and operation of geologic repositories by the DOE
- Establishes Federal responsibility and policy for the disposal of high-level radioactive waste and spent nuclear fuel
- Establishes the Nuclear Waste Fund to ensure that the costs of disposal are borne by those responsible for generating the waste and spent fuel
- Establishes the Nuclear Waste Technical Review Board to evaluate the technical and scientific validity of activities undertaken by the DOE
- Authorizes the U.S. Environmental Protection Agency to promulgate radiation protection standards for repositories
- Authorizes the U.S. Nuclear Regulatory Commission to promulgate technical requirements and criteria for approving and disapproving applications to construct, operate, and close repositories

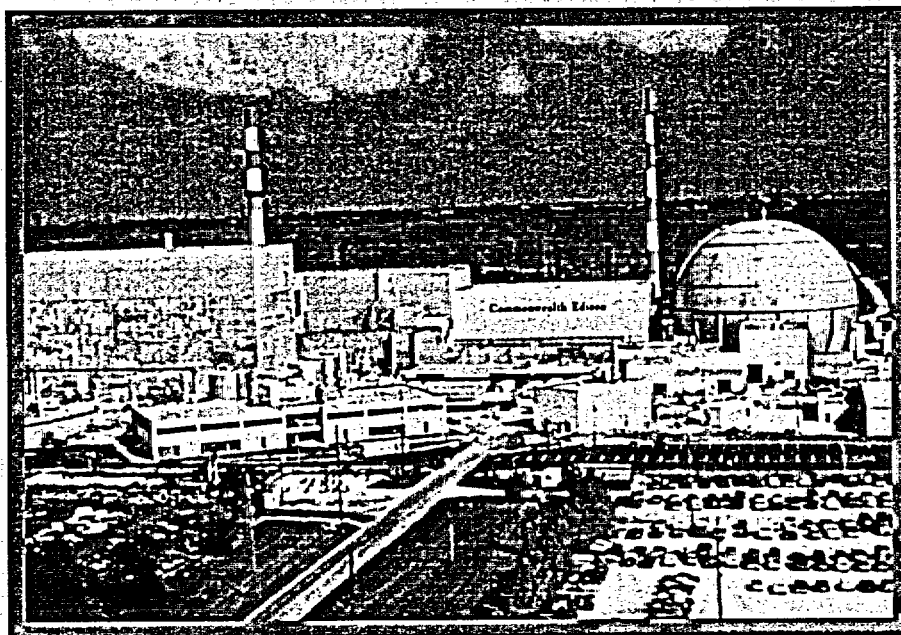
The responsible management and disposal of these materials is a critical part of the DOE mission to meet its statutory obligations in the Nuclear Waste Policy Act of 1982 (NWPA), as amended, regarding high-level radioactive waste and spent nuclear fuel.

Our mission is a serious undertaking, and the challenge is great for the country. We are not confronting a hypothetical problem. We have a substantial amount of radioactive waste in this country – nearly 100 million gallons of high-level radioactive waste that must be solidified into stable glass logs prior to disposal and more than 40,000 metric tons of spent nuclear fuel, with more created every day. We have an ethical responsibility to solve this problem now, to minimize the risks to this generation and to future generations. Therefore, our real choice is between a single, secure site, deep underground at Yucca Mountain, or making do with what we have now – surface storage of the waste at aging civilian and defense nuclear facilities located at 131 sites scattered across 39 states that were never intended to isolate these wastes through the millennia.

Most of the existing storage sites are near large population centers, and because nuclear reactors require abundant water for cooling, most of these sites are also located near rivers, lakes, and seacoasts. While they are safe in the near-term, these sites were not intended to become permanent disposal sites. If left where they are indefinitely, these stored materials could become a serious threat to nearby populations and the environment if not perpetually maintained and safeguarded.

Every one of those sites was built on the assumption that it would have a limited lifetime.

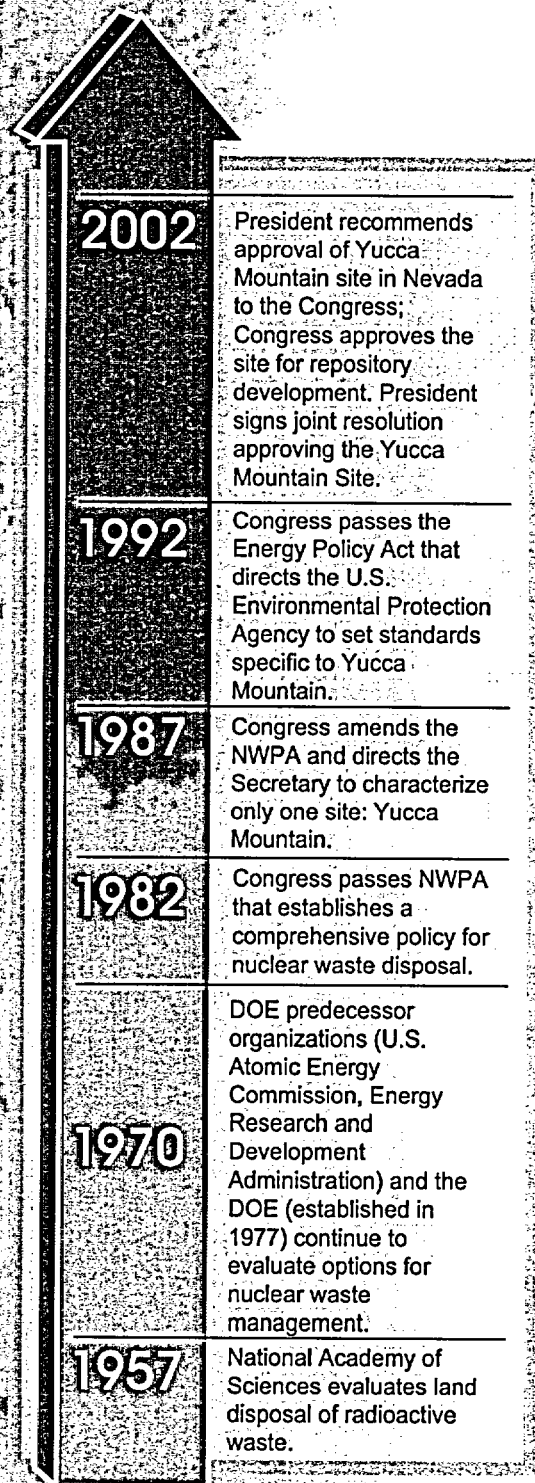
As time goes by, every site is closer to the limit of its life span – safe for today, but a question mark in decades to come. Licenses for these types of sites are issued by the U.S. Nuclear Regulatory Commission for a relatively short period of time, typically 20 to 40 years, in contrast to the thousands of years that the waste will remain hazardous.



One of the many nuclear power plants located across the nation with accumulating spent nuclear fuel.

Program Drivers

A Crucial Mission: The National Interest



2002	President recommends approval of Yucca Mountain site in Nevada to the Congress; Congress approves the site for repository development. President signs joint resolution approving the Yucca Mountain Site.
1992	Congress passes the Energy Policy Act that directs the U.S. Environmental Protection Agency to set standards specific to Yucca Mountain.
1987	Congress amends the NWPA and directs the Secretary to characterize only one site: Yucca Mountain.
1982	Congress passes NWPA that establishes a comprehensive policy for nuclear waste disposal.
1970	DOE predecessor organizations (U.S. Atomic Energy Commission, Energy Research and Development Administration) and the DOE (established in 1977) continue to evaluate options for nuclear waste management.
1957	National Academy of Sciences evaluates land disposal of radioactive waste.

For more than half a century, since nuclear science helped us win World War II and initiate the Atomic Age, scientists have known that the Nation would need a secure, permanent facility in which to dispose of radioactive wastes. For decades, certain activities in the United States have produced spent nuclear fuel and high-level radioactive waste: generating commercial electric power; producing nuclear weapons; operating the Navy's nuclear-powered vessels; and research and development. The radioactive materials produced or used in these processes have accumulated since the mid-1940s at sites now managed by the DOE, and since 1957 at commercial reactors and storage facilities across the country.

It is time to move forward — for many reasons. The United States disposal policy supports vital national and international goals. As the Secretary noted in his comprehensive statement of recommendation, developing a Yucca Mountain repository "will be a critical step forward in addressing our Nation's energy future, our national defense, our safety at home, and protection for our economy and environment."

Accordingly, the Yucca Mountain repository is a strategic resource, an investment for our future that will only increase in value for hundreds of years to come.

National Security

A repository is important to our national security because it supports a strong U.S. Navy. About 40 percent of our Navy's principal

combat vessels, including submarines and aircraft carriers, are nuclear powered. They have played a major role in every significant military action in which the United States has been involved for some 40 years.

Periodically, these vessels must be refueled and the spent fuel removed. This spent fuel is currently stored temporarily at surface facilities. A geologic repository offering permanent disposal for this material ensures future operational capabilities of the U.S. Navy and helps preserve our status as a world power.

Non-Proliferation Objectives

The repository is important to promote non-proliferation objectives. The end of the Cold War has brought with it the welcome challenge of disposing of surplus weapons-grade plutonium as part of the process of decommissioning weapons we no longer need. A geologic repository supports our pledge to decommission our weapons, thus strengthening the commitment of other nations, such as Russia, to decommission their own. Disposal of spent nuclear fuel in a geologic repository, rather than reprocessing it to remove usable plutonium, also makes plutonium less likely to fall into the hands of terrorists or non-nuclear rogue states.

Energy Security

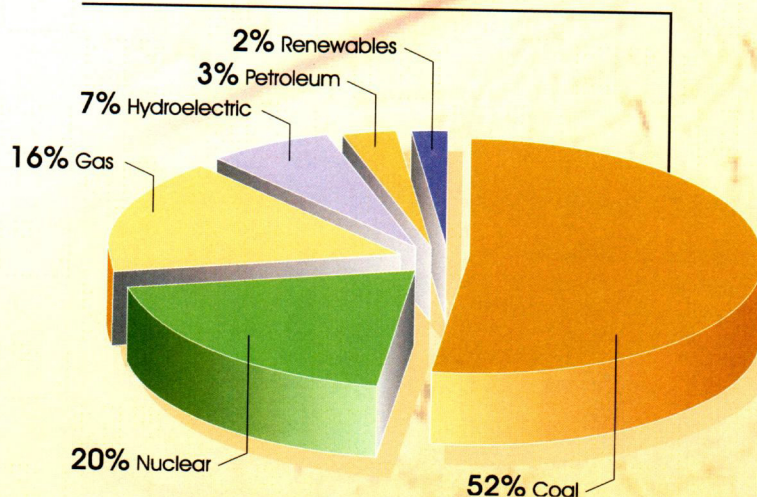
A repository is important to our energy security. Nuclear power provides 20 percent of the Nation's electricity generation. We must ensure that nuclear power can remain part of our domestic energy production capacity. Without the stabilizing effects of nuclear power, energy markets

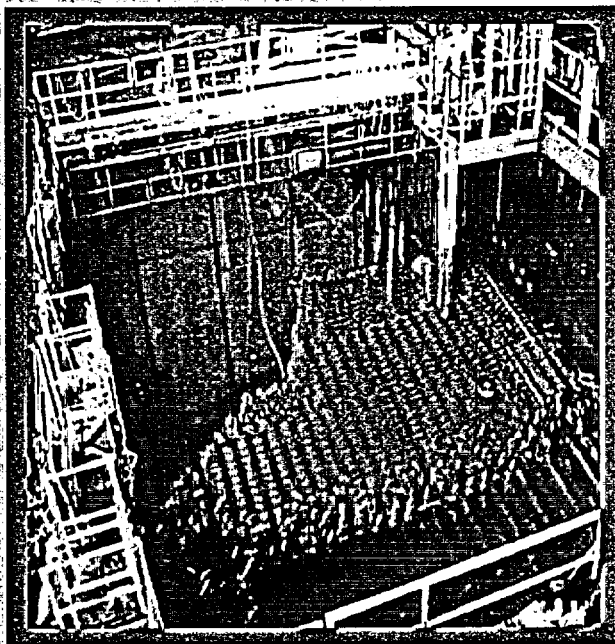
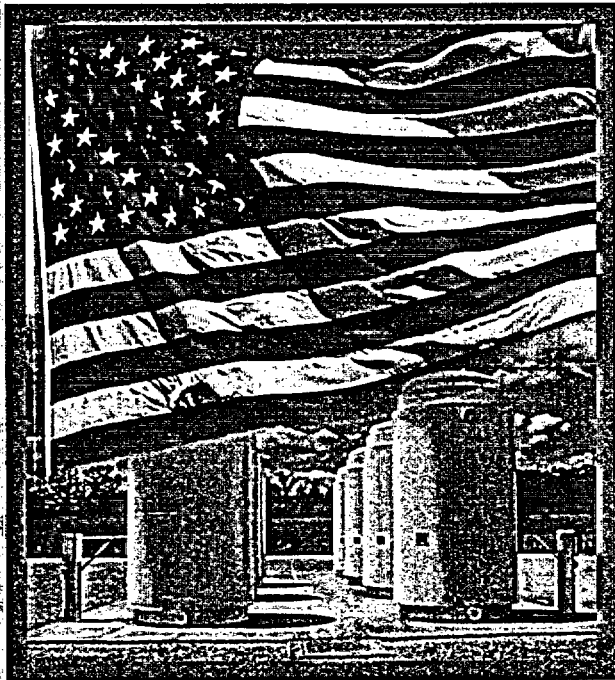


Profile of our Nuclear Navy:

- 55 nuclear-powered fast attack submarines
- 18 nuclear-powered ballistic missile submarines
- 9 nuclear-powered aircraft carriers in service
- 1 nuclear powered aircraft carrier under construction

A Balanced Energy Policy **U.S. 2000 Net Electricity Generation**





Spent nuclear fuel is stored in pools of water at reactor sites and in dry casks at temporary storage sites.

will become more exposed to price spikes and supply uncertainties. Nuclear power is important to sustainable growth because it produces no air pollutants, such as sulfur and particulates, or greenhouse gases. Resolving the nuclear waste problem by establishing a geologic repository will remove a key obstacle to the use of nuclear power to meet the Nation's growing energy needs.

Homeland Security

Developing a repository is a key component of our strategy to secure the nation's nuclear materials from the threat of terrorism. Facilities currently housing spent nuclear fuel were intended to do so only on a temporary basis. Nuclear power plants are among the most formidable structures in existence and well-trained and well-armed security forces guard them. Spent nuclear fuel is and can be safely managed at one site or at many dispersed sites. But protective strategies for spent fuel can be designed and carried out with more speed, agility, and cost control at a single geologic repository than at 131 individual sites.

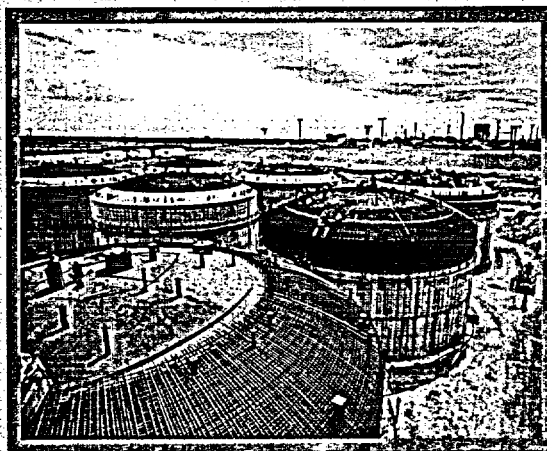
A state-of-the-art geologic repository at Yucca Mountain can offer additional protection from terrorist attack and sabotage by reducing the number, attractiveness, and ease of access to potential targets for nuclear terrorism. Further, a geologic repository at Yucca Mountain offers unique security features. These include deep underground emplacement of waste, a remote location, restricted access on Federal land, restricted airspace, and close proximity to Nevada Test Site security.

Environmental Protection

A repository is important in our efforts to protect the environment. The Federal government needs to enhance and implement an environmentally sound disposition plan for fifty years of accumulation of defense wastes now located in Tennessee, Colorado, South Carolina, New Mexico, New York, Washington, and Idaho. It is past time for us to do so. Among the wastes currently at these sites, approximately 100 million gallons of high-level liquid radioactive waste are stored in, and in some instances have, unfortunately, leaked from, temporary holding tanks. These materials must be converted to glass logs for disposal at Yucca Mountain. About 2,100 metric tons of solid spent nuclear fuel from plutonium-production reactors are stored at the Hanford Nuclear Reservation in the State of Washington. In addition, we are also responsible for disposing of spent commercial fuel now located in 39 States.

Medical and Scientific Research

The U.S. government has provided nuclear fuel for use in nuclear research reactors in both domestic and foreign universities and laboratories. Research reactors provide a wide range of benefits, including the production of radioisotopes for medical uses, such as body-scan imaging and cancer treatment. To limit the risk to the public, and to support nuclear non-proliferation objectives, these laboratories are required to return the U.S.-origin spent fuel from both domestic and foreign research reactors. These spent fuels are temporarily stored at the Savannah River Site, South Carolina, and at the Idaho National Engineering and Environmental Laboratory while awaiting disposal in a permanent repository.



Environmental Cleanup

Storage tanks for liquid nuclear wastes under construction at the site in Hanford, Washington. Tanked waste will be processed into stable solid glass logs at Hanford and shipped to a geologic repository for disposal.

Defining Our Mission

Mission

Our mission is to manage and dispose of high-level radioactive waste and spent nuclear fuel in a manner that protects health, safety, and the environment; enhances national and energy security; and merits public confidence.

Envisioning Our Future

Vision

We are valued by our nation for integrity, safety, security, and efficiency for achieving enduring operations for spent fuel and high-level waste disposal at Yucca Mountain.

Core Values *for* Our Program

We have identified essential core values that will guide the conduct and performance of all participants in the OCRWM Program:

Excellence in Safety, Security, and Quality

We assign top priority to the safety and health of our workers and the public, to the protection of the environment, and to the integration of security and quality into our products. We fully endorse a safety conscious work environment.

Effective Communication

We communicate with honesty, responsibility, and timeliness among ourselves and with our stakeholders.

Accountability

We take responsibility for our actions, admitting our mistakes, accepting their consequences, and honoring our commitments.

Self-Critical Analysis

We examine and evaluate our processes through organizational self-assessments and effective corrective action processes that help us recognize and build on our strengths and address our weaknesses.

Enhancing Teamwork

We constantly strive to enhance and emphasize the effectiveness of our team.

Resource Stewardship

We serve as diligent stewards of our human, financial, material, and environmental resources.

Program Assumptions

- A geologic repository remains the focus of the national program for management and permanent disposal of spent nuclear fuel and high-level radioactive waste.
- Funding for the OCRWM Program will be sufficient to allow the Program to meet key Program milestones.
- The current regulatory framework will be stable.
- Cleaning up the environmental legacy of nuclear weapons production and civilian research and development programs will remain a national priority.
- Nuclear non-proliferation will remain an important national concern.
- The U.S. Navy's evolving defense demands will require new nuclear-powered vessels and continued generation of spent fuel from their operation.
- Nuclear power's share of electricity generation in the United States will continue.
- The need for a second repository will be considered in the 2007-2010 time frame, as required by the Nuclear Waste Policy Act of 1982, as amended.
- Confirmatory and other scientific investigations will continue during construction and operation of the repository.

Strategic Outlook

New Horizons: Post-Site Characterization

Fiscal years (FYs) 2003 through 2013 are critical to the disposal effort. The DOE plans to submit a license application to the U.S. Nuclear Regulatory Commission (NRC) in December 2004. In order to accomplish this schedule goal with constrained resources, the DOE will carefully track and manage completion of the technical basis for licensing and the development of the license application itself. The strategy for reaching this aggressive goal includes deploying surface and subsurface facilities in phases and drawing on existing NRC-licensed technologies and other experience already gained by commercial utilities. One of the keys to DOE's ability to succeed will be maintaining a nuclear culture with a clear focus on achieving safe and sound results.

The DOE plans to begin receiving waste in 2010. To meet that milestone, the NRC must first grant the Program a construction authorization to build a repository and then a license to receive and possess waste. The Program must have constructed the necessary repository facilities and deployed transportation system by 2010 to begin operations.

Construction is a significant part of developing the geologic repository. The Program estimates that it will require \$8.0 billion during the period from 2004 through 2010 to build the repository surface and underground facilities, and to deploy a transportation system to move commercial spent nuclear fuel and other high-level radioactive wastes to the site. The needed funding will average nearly \$1.1 billion a year – several times higher than the annual amounts previously appropriated to the Program. However, the Program has a goal of reducing total system life-cycle costs through enhancements achieved in science and technology, design, and by advancing schedule milestones. Four strategic directions form the foundation of our path forward: Phased Development, Cost Reductions and System Enhancements, an Alternative Program Funding Mechanism, and Accelerating Operations Post-2010.

Phased Development Approach

Originally, the Program had planned to complete all of the repository's surface facilities and a large portion of its underground facilities before the first shipment of waste to the repository. The phased development approach divides the surface and underground facilities into several phases so that the repository can be constructed and operated in stages, rather than all at once. This approach will allow the Program to begin disposal and continue performance confirmation at far less cost. Further, costs can be more effectively

controlled to support long-term needs and avoid short-term funding spikes. This approach also provides time to maintain the flexibility to adapt to future needs and circumstances, and to take advantage of lessons learned and incorporate improvements in design and operations throughout the lifetime of the repository.

Phased development will not change either the fundamental design of the repository or the approach to licensing. Only the approach to construction of the repository will change. The license application to the NRC will not only present the repository as it will be when completed, but will also show that it will fully protect public health and safety and the environment during and after disposal of the entire authorized inventory of 70,000 metric tons of spent nuclear fuel and high-level radioactive waste. In the license application, the Department will seek permission under existing regulations to construct the entire facility and emplace the entire inventory. However, the first stage of operation will begin in 2010, after only the initial surface and underground phases have been constructed and enough of the transportation system has been developed to begin shipping waste to the repository.

One of the outgrowths of this phased development approach will be the ability to conduct systematic reviews of the Program to evaluate progress toward waste minimization, as this relates to the geologic repository. Methods to minimize the handling of wastes could reduce radiological exposures to workers and enhance operational efficiency.

Cost Reductions and System Enhancements

In 2002, the Program introduced a Cost Reductions and System Enhancements initiative that, together with phased development of the repository, will improve safety, operations, schedule, and cost over the many decades of the repository's operating life. Through a newly formed Science and Technology Program, this effort will further engage the expertise of the National Laboratories and universities. This program will provide visible continuity for recommendations from sources such as the Nuclear Waste Technical Review Board and the international scientific community. Together, we will seek to increase confidence in the repository by advancing scientific and technical understanding of the waste isolation processes at Yucca Mountain and exploring technological improvements that could enhance repository performance.

This initiative also includes activities to refine and optimize the repository system design and operating plans, based on laboratory and university research, value engineering, and the experience from the initial period of repository operation, so that improvements can be incorporated in later phases. Reviews will be performed to ensure the most efficient and cost-effective handling and transportation of wastes, logistical configurations, and best management practices are implemented. The DOE has chosen the goal of reducing total life cycle costs by as much as 25%, as safe and effective means are found to support this objective.

Alternative Funding Mechanism

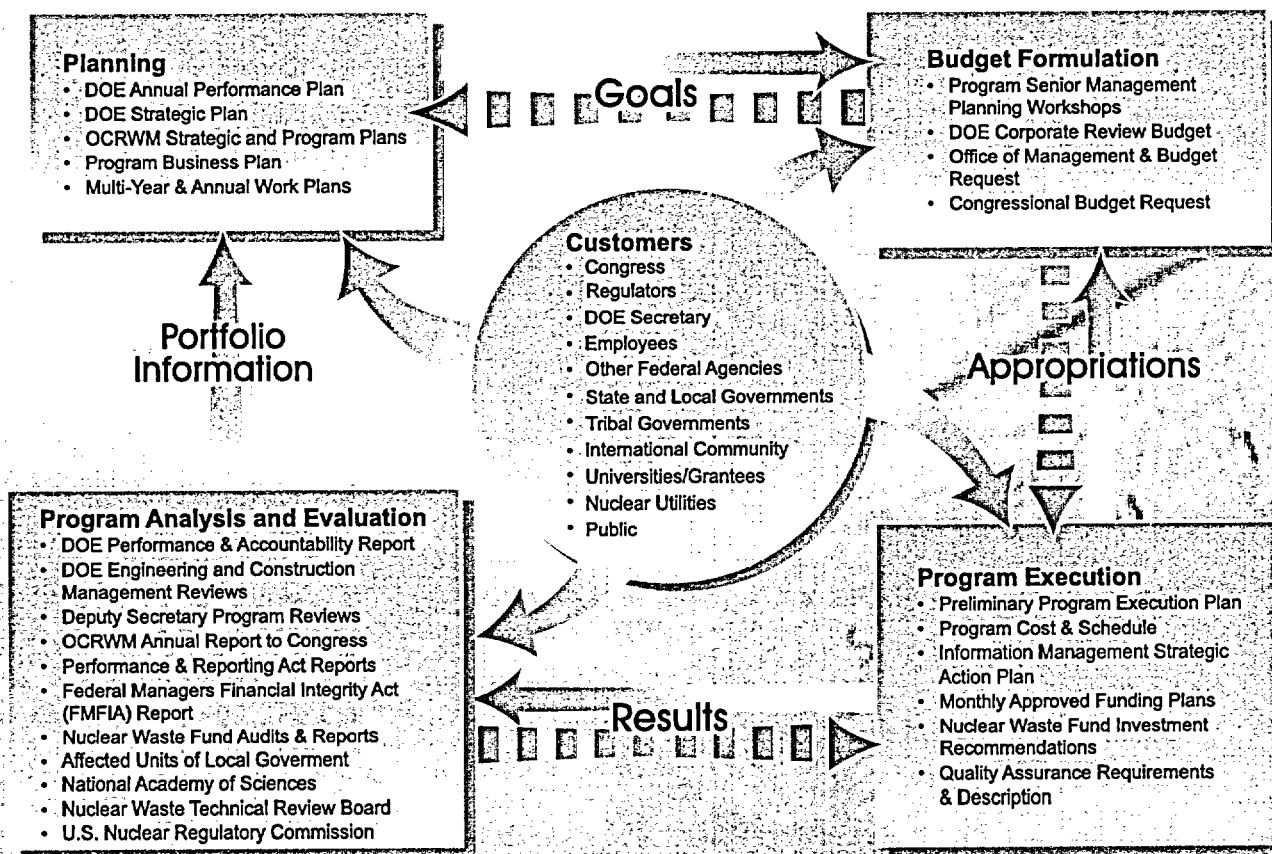
The Program will need increased access to the Nuclear Waste Fund to pay for the construction and operation of the repository. Although the Program was designed to be self-funding, budget control legislation passed after the Nuclear Waste Policy Act constrained Program funding. Realizing the potential conflict with the Program's growing needs, Congress requested a report on "Alternative Means of Financing and Managing the Civilian Radioactive Waste Management Program." The report, completed in August 2001, suggested alternative ways to make more of the money paid by the utilities available to the Program. Some of these changes can be accomplished under existing law; some would require new legislation. The Administration has proposed discretionary adjustments for spending above a base level of funding in FY 2004 and FY 2005 for Yucca Mountain. These adjustments would be expected to continue with each reauthorization of the Budget Enforcement Act until the repository facility is completed.

Accelerating Operations Post-2010

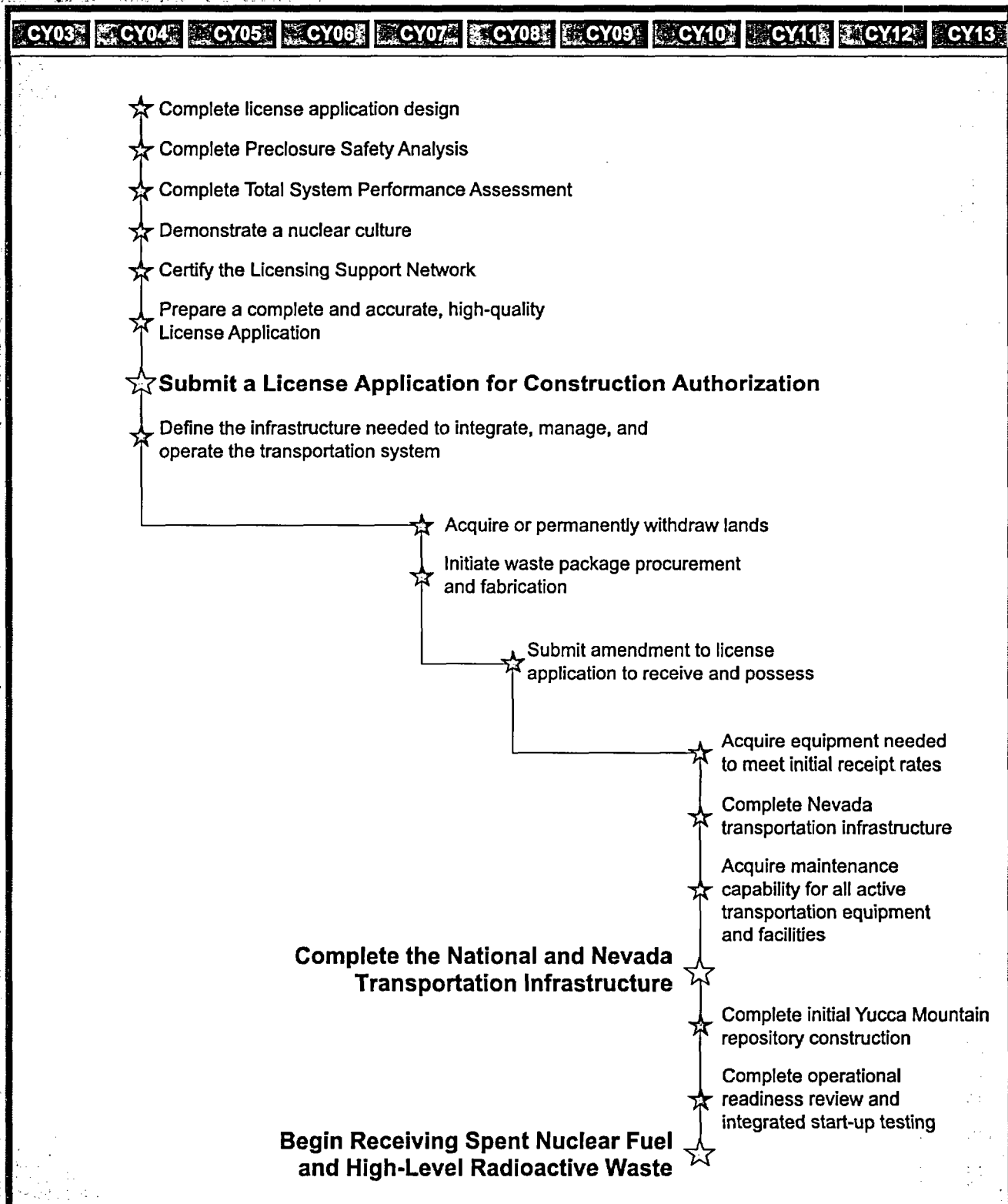
Following the initiation of receipt of spent nuclear fuel and high-level radioactive waste at the repository in 2010, the Program will accelerate operations to achieve steady-state receipt rates. As operational systems are proven to work safely and effectively, faster handling and underground emplacement will become feasible and as additional phased construction modules are completed, operational capacity will increase. Expanding the transportation network and gaining the confidence that comes with experience will allow the shipment of more material from temporary storage sites to a repository without diminishing safety or quality. System enhancements and significant cost reductions are expected to come to fruition as the Nation's disposal system comes fully on-line. Among the benefits of accelerated operations would be achieving the fastest feasible receipt of all waste destined for the repository, thereby securing the waste and solving this national problem sooner than now anticipated. Accelerated receipt of high-level waste materials could also have the added effect of allowing DOE and other sites to be decommissioned on a much earlier timetable than currently planned.

Implementing Our Strategy

The Program's Strategic Plan stands at the top of our hierarchy of planning and is linked to the Department's Strategic Plan and to all Program planning, budget, project, and evaluation activities. The strategies to achieve our goals translate into a supporting Multi-Year Program Plan that drives decision-making and budget development. From the Program Plan will flow the Annual Work Plans with performance metrics, business acquisition plans, and the Management and Operating Contract or performance agreement.



Schedule Goals



Program Strategic Performance Goals

- PG1 Submit a License Application for construction authorization to the NRC
 - PG1-1 Complete License Application design for a Yucca Mountain repository
 - PG1-2 Complete Preclosure Safety Analysis for the license application
 - PG1-3 Complete Total System Performance Assessment for the license application
 - PG1-4 Demonstrate a nuclear culture that will support the license application
 - PG1-5 Certify the Licensing Support Network
 - PG1-6 Prepare a complete and accurate, high-quality license application
- PG2 Complete initial National and Nevada transportation infrastructure to support shipment of spent nuclear fuel and high-level radioactive waste to Yucca Mountain
 - PG2-1 Define the infrastructure needed to integrate, manage, and operate the transportation system
 - PG2-2 Acquire equipment needed to meet initial receipt rates
 - PG2-3 Complete Nevada transportation infrastructure
 - PG2-4 Acquire maintenance capability for all active equipment and facilities
- PG3 Begin receiving spent nuclear fuel and high-level radioactive waste for disposal in the Yucca Mountain repository
 - PG3-1 Acquire or permanently withdraw lands for the geologic repository operations area
 - PG3-2 Initiate waste package procurement and fabrication
 - PG3-3 Submit amendment to license application to receive and possess spent nuclear fuel and high-level radioactive waste
 - PG3-4 Complete initial Yucca Mountain repository construction
 - PG3-5 Complete operational readiness review and integrated start-up testing
- PG4 Continue activities to optimize the National disposal system
 - PG4-1 Maintain constant focus on ways to reduce total life cycle costs
 - PG4-2 Continue Science and Technology Program to advance scientific and technical understanding
 - PG4-3 Establish the United States as a world leader in radioactive waste management and disposal through ongoing international cooperation
 - PG4-4 Apply systems engineering and best-practices management systems to streamline operations while preserving quality and safety

Goals & Strategies

Submit License Application for Construction Authorization – 2004

COMPLETION
DATE

PG1-1 Complete License Application design

2004

- Complete surface, sub-surface, and waste package designs
- Update Site Description Document
- Provide information feeds to Total System Performance Assessment and Preclosure Safety Analysis

PG1-2 Complete Preclosure Safety Analysis

2004

- Identify potential events and their probabilities of occurrence
- Assess adequacy of facilities to perform as intended
- Identify any limits on design or operations
- Describe means to mitigate or prevent accidents

PG1-3 Complete Total System Performance Assessment

2004

- Develop methods and approach for Total System Performance Assessment
- Prepare process model and abstraction Analysis and Modeling Reports
- Update features, events, and processes database
- Prepare Total System Performance Assessment Modeling and Analysis Report

Submit License Application for Construction Authorization – 2004

PG1-4 *Demonstrate a nuclear culture*

- Identify roles, responsibilities, authority, and accountability needed for this mission and align Program organization accordingly
- Embrace and implement quality requirements within line organizations as an integral part of day-to-day operations
- Establish policy, conduct training, and monitor Program for Safety Conscious Work Environment
- Establish and maintain effective Federal and contractor Employee Concerns Programs

PG1-5 *Certify the Licensing Support Network*

- Develop Licensing Support Network hardware and software infrastructure
- Perform operational tests
- Screen records and populate Licensing Support Network system

PG1-6 *Prepare complete and accurate, high-quality license application*

- Develop technical data and analyses inputs
- Develop draft sections of Safety Analysis Report and General Information
- Conduct integrated reviews of license application chapters
- Supplement Environmental Impact Statement, if necessary

**COMPLETION
DATE**

2004

2004

2004

Complete Initial National and Nevada Transportation Infrastructure

COMPLETION DATE

PG2-1 *Define infrastructure needed to integrate,
manage, and operate the transportation system*

2004

- Finalize Federal Program management organization
- Develop national transportation project plans

PG2-2 *Acquire equipment needed to meet initial
receipt rates*

2010

- Reach decision on initial national transportation mode
- Integrate transportation system design with repository facilities
- Procure shipping vehicles and equipment
- Procure certified shipping casks

PG2-3 *Complete Nevada transportation
infrastructure*

2010

- Reach decision on preferred Nevada transportation mode
- Integrate national transportation system with Nevada component
- Meet state and local regulatory requirements

PG2-4 *Acquire maintenance capability for all
active equipment and facilities*

2010

- Plan and develop emergency response capabilities
- Develop and implement quality and safety inspection and testing programs
- Identify and locate cask maintenance facilities
- Coordinate vehicle maintenance capabilities and facilities

Begin Receiving Spent Nuclear Fuel and High-Level Waste – 2010

PG3-1 *Acquire or permanently withdraw lands*

- Identify boundaries based on regulatory compliance, repository operations, and institutional considerations
- Obtain jurisdiction and control or permanent withdrawal and reservation of lands for geologic repository operations area
- Obtain water rights needed for geologic repository operations area

PG3-2 *Initiate waste package procurement and fabrication*

- Complete waste package design and any appropriate prototype development
- Ensure compatibility of waste package with handling and emplacement systems
- Procure materials and fabrication services
- Establish schedules for delivery of packages

PG3-3 *Submit amendment to license application to receive and possess*

- Evaluate whether activities at the geologic repository operations area will conform with the license application as amended
- Ensure that protective measures can and will be taken at any time in the event of a radiological emergency
- Establish that all applicable requirements have been satisfied

PG3-4 *Complete initial Yucca Mountain repository construction*

- Achieve substantially complete construction of the geologic repository operations area for initial operations
- Ensure conformity with the license application as amended
- Provide infrastructure for simultaneous further construction and repository operations

PG3-5 *Complete operational readiness review and integrated start-up testing*

- Perform and document operational readiness review
- Conduct integrated start-up testing
- Demonstrate emergency planning and response capabilities

**COMPLETION
DATE**

2007

2007

2008

2010

2010

Continue activities to optimize the national disposal system

PG4-1 *Maintain constant focus on ways to reduce total life cycle costs*

- Review design solutions for cost-effectiveness and added value
- Evaluate acquisition and development strategies to maximize operational efficiencies
- Coordinate with waste generators and incorporate waste minimization strategies

PG4-2 *Continue Science and Technology Program to advance scientific and technical understanding*

- Engage the expertise of national laboratories, universities, and oversight entities
- Seek and adapt innovative technologies and strategies
- Continue investigations of natural and man-made analogues

PG4-3 *Establish the United States as a world leader in radioactive waste management and disposal through ongoing international cooperation*

- Seek involvement of international agencies and technical organizations
- Exchange strategies and technologies with other nations
- Participate in conferences and organized discussions with other radioactive waste management and disposal programs

PG4-4 *Apply systems engineering and best-practices management systems to streamline operations while preserving quality and safety*

- Maintain cost, schedule, and technical baselines through change control process
- Employ and evaluate indicative performance metrics to gauge success in meeting goals and objectives
- Seek continuous improvement in all Program activities

ONGOING ACTIVITIES

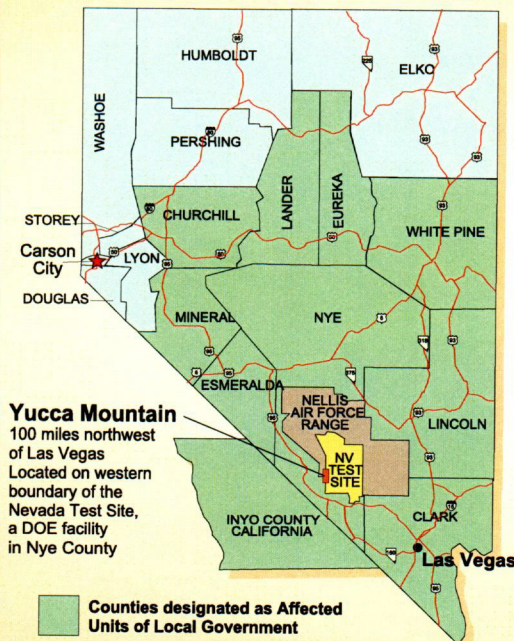
Partnering for Success

Bringing Value to the Nation and Local Communities

The Nuclear Waste Policy Act of 1982, as amended, established public participation as a key component of Program activities. Thus, the Program will continue and expand our partnering and collaborating with our stakeholders, including local and state governments (specifically the host state – Nevada, and the host county – Nye County); Native American Tribal governments; business communities; utilities; research and technology entities; national laboratories; universities and colleges; international interests; and the public. Historically, the nine counties that border Nye County have been identified as affected units of local governments, and these are similarly included in partnering activities.

We will maintain and establish new partnerships as the Yucca Mountain Project evolves from site characterization through the various phases of design and licensing, construction, operations, and final closure. These long-standing relationships and collaborations will serve to protect the health, safety, well being, and environment of citizens potentially affected by the repository program.

Partnerships with Nevada Counties



Technology Partnerships with Universities and National Laboratories:

- University and Community College System of Nevada
- Historically Black College and University Undergraduate Scholarship Program
- DOE Graduate Fellowship Program
- National Labs: Sandia, Oak Ridge, Lawrence Berkeley, Pacific Northwest, Los Alamos, Lawrence Livermore, and Argonne

Future Partnerships with Businesses:

- Disposal Package Manufacturing
- Transportation Cask Development and Manufacturing
- Construction of Facilities, Road, and Utilities
- Site Security Service
- Safety and Environmental Activities
- Worker Support Services
- Other Service Contractors

Contacts

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