

## Licensing Yucca Mountain

The Nuclear Regulatory Commission received an application from the Department of Energy on June 3, 2008, for a license to construct and operate the nation's first geologic repository for high-level nuclear waste at Yucca Mountain, Nev. Submittal of the application marks a major milestone in the nation's policy on management of high-level nuclear waste, as the focus shifts from DOE's efforts to determine a suitable site and design for a repository to the NRC's independent, thorough and rigorous review of the repository design to determine whether it can safely contain the nation's high-level nuclear waste.

Receipt of the application initiated the NRC review along two concurrent processes. The first process is the technical licensing review by the NRC staff, to assess the technical merits of the repository design and formulate a position on whether to issue a construction authorization for the repository. The second process is the adjudicatory hearings before one or more of the NRC's Atomic Safety and Licensing Boards, which will hear challenges by a number of parties to the technical and legal aspects of the DOE application. Based on the results of the licensing review and the hearings, the Commission will determine – solely on the technical merits – whether to authorize construction of the Yucca Mountain repository.

This Fact Sheet explains these two concurrent processes to show how NRC will ultimately decide whether to authorize construction of a high-level nuclear waste repository at Yucca Mountain, approximately 100 miles northwest of Las Vegas.

### Background

The Nuclear Waste Policy Act of 1982 gave DOE the responsibility to construct and operate a geologic repository for high-level waste. The NRC was given responsibility for regulating geologic disposal of the waste. In 1987, Congress directed DOE to focus solely on Yucca Mountain as the site of a repository. DOE made its determination in 2002 that Yucca Mountain would be a suitable location; President George W. Bush and Congress accepted that determination and directed DOE to submit its license application.



**Yucca Mountain**

High-level nuclear waste consists primarily of spent fuel from the nation's commercial nuclear power plants, spent fuel from U.S. Navy reactors, and certain waste generated by DOE during development of nuclear weapons. The repository is to hold about 77,000 tons of high-level waste. Approximately 57,000 tons of commercial spent fuel are already in temporary storage at nuclear power plants across the country.

## Licensing Review Process

### *Docketing Review and Environmental Determination*

The NRC staff's review of the application began with an initial look at the application to determine whether it was sufficiently complete to docket the application and begin a thorough technical review, and examination of DOE's environmental documents to determine whether the NRC can adopt DOE's Environmental Impact Statement (EIS) on the proposed repository in whole or in part. On Sept. 8, 2008, the NRC staff formally docketed the application and adopted the EIS, subject to additional supplementation by DOE on groundwater analyses.



**Entrance Tunnel at  
Yucca Mountain**

The decision to docket the application triggered a three-year schedule set by Congress for the NRC to reach a decision on whether to approve construction. The NRC may give notice to Congress of the need for an additional year to complete the review.

### *Licensing Review*

Once the application was docketed, the NRC's technical staff in the Office of Nuclear Material Safety and Safeguards initiated a detailed, thorough and comprehensive review. This review involves more than 100 staff and contractor employees with expertise in several technical and scientific disciplines, including geochemistry, hydrology, climatology, structural geology, volcanology, seismology and health physics, as well as chemical, civil, mechanical, nuclear, mining, materials and geological engineering. Staff members at NRC's headquarters in Rockville, Md., the Region IV office in Arlington, Texas, and the NRC's Las Vegas office are participating. The Center for Nuclear Waste Regulatory Analysis in San Antonio, Texas, a federally funded research and development center, will provide technical assistance to the NRC.

Throughout the review, the NRC staff will request additional information from DOE to help clarify the application. These requests and DOE's responses will be publicly available, unless they contain sensitive security, privacy or proprietary information.

In March 2009, the NRC published a final rule implementing the U.S. Environmental Protection Agency's radiation protection standard for the Yucca Mountain facility. EPA's standards, published in the *Federal Register* on Oct. 15, 2008, set standards for the period beyond 10,000 years after the facility is closed, supplementing its previous protection standards for the period up to 10,000 years.

At the completion of its technical review, the NRC staff will issue a Safety Evaluation Report (SER) containing its findings on the repository design. The SER will determine whether the proposed facility will meet NRC regulations to protect public health and safety and whether construction of the facility may be authorized.

### **The Adjudicatory Process**

The NRC published a notice of opportunity to request a hearing on Oct. 22, 2008. Adjudicatory hearings are conducted by the Atomic Safety and Licensing Board Panel, which currently consists of 16



**ASLB Hearing Room,  
Rockville, Md.**

full-time judges and several more part-time judges, all with legal or technical expertise. The panel has appointed multiple boards of three judges to hear a variety of legal and technical contentions regarding the Yucca Mountain application.

A total of 319 contentions were filed by 12 groups petitioning to become parties to the hearing.

### ***Licensing Support Network***

Actually, preparation for the adjudicatory process began well before DOE submitted its license application. To promote fairness to all potential parties, transparency for all interested members of the public, and efficiency in the hearing process, the NRC created a Web-based Licensing Support Network. The LSN is capable of containing up to 50 million pages of material designated by the parties as relevant to the proceeding, some of which is expected to be entered into evidence during the Yucca Mountain hearings. These documents are available for anyone to access at <http://www.lsnnet.gov>.

The hearing process established by the NRC for the Yucca Mountain construction authorization proceeding requires DOE to certify that its documents related to the Yucca Mountain application are available on the LSN at least six months before submitting the application. Others wishing to participate must also certify the availability of their relevant documents on the LSN no later than ninety days after DOE's certification.

### ***The Hearing Process – Standing and Contentions***

For the Yucca Mountain construction authorization proceeding, hearings before the ASLB will follow a formal, trial-type process. To be admitted as a party to the proceeding, potential parties must satisfy three requirements – they must demonstrate “standing,” they must file at least one litigable contention, and they must be able to demonstrate compliance with the documentation requirements of the LSN.

To demonstrate standing, a potential party would have to show that they have an interest that will be affected by the proposed licensing action and that could be harmed by the outcome of the proceeding. A litigable contention would be a specific concern or issue material to the licensing of Yucca Mountain that the potential party seeks to bring to the ASLB for litigation in the proceeding. A contention usually alleges that the applicant has failed to satisfy some legal or technical regulatory requirement.

Nevada (as the host state) and Nye County (as the host county), for example, automatically have standing, but still must submit at least one litigable contention in order to be parties to the proceeding. Other affected local governments, counties or Indian Tribes, as well as members of the public, may also become parties if they meet the applicable requirements.

The NRC staff and the applicant (DOE) are automatically parties to any proceeding.

Interested states, counties, local governments, and Indian Tribes can also seek permission to participate as “interested governmental participants,” which would allow them to participate without filing a contention.

### ***Prehearing Conferences***

Three ASLBs – each consisting of three judges – were appointed to consider the standing of petitioners and the admissibility of their contentions. These boards heard oral arguments March 31-April 2, 2009, from potential parties about why they have standing and why their contentions should be admitted into the hearing. These pre-hearing oral arguments were open to the public and broadcast over the Internet.

The principal venue for the prehearing conferences was the NRC's Las Vegas Hearing Facility, a multimedia facility established specifically for the Yucca Mountain proceeding. Other conferences could be held at the NRC hearing room at agency headquarters in Rockville, Md.



**Las Vegas Hearing Facility**

### ***Evidentiary Hearings***

One or more ASLBs may hear evidence and issue decisions on admitted issues contesting DOE's application, or the NRC staff's determination regarding adoption of the DOE Environmental Impact Statement. Participants will include DOE, the NRC staff and any parties and interested governments that have been admitted to the proceeding. An ASLB may also hold "limited appearance" sessions, at which members of the public may make brief oral statements concerning the proposed repository, and may invite the public to submit written statements.

At an evidentiary hearing, parties and interested governments will present witnesses, conduct cross-examination and make oral arguments before the ASLB regarding the contested safety and environmental issues. The NRC staff position will be based on its Safety Evaluation Report on the proposed facility and its Environmental Impact Statement adoption review. DOE, the NRC staff, admitted parties and interested governments can submit written testimony and exhibits to the ASLB, and those materials will become part of the public record of the proceeding (unless they contain sensitive information).

The ASLBs are likely to issue several decisions on contentions before the final decision on construction authorization is issued. Parties may seek Commission review of these decisions. The Commission's final decision may be appealed to a U.S. Court of Appeals.

If construction of the Yucca Mountain repository were to be authorized, before beginning to operate the facility DOE would have to update the application requesting authorization to receive and possess high-level waste at Yucca Mountain. This application would also be subject to the technical review and hearing processes.

Additional information on the Yucca Mountain licensing review and the regulation of high-level nuclear waste is available on the NRC Web site at <http://www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html>.

### **Regulations**

The NRC's regulations can be found in Title 10, Code of Federal Regulations (10 CFR). The primary regulations relevant to the Yucca Mountain review and hearings include:

- 10 CFR Part 2 – Rules of practice for domestic licensing proceedings and issuance of orders; Subpart J and Appendix D.
- 10 CFR Part 51 – Environmental protection regulations for domestic licensing and related regulatory functions (10 CFR 51.109).
- 10 CFR Part 63 – Disposal of high-level radioactive wastes in a geologic repository at Yucca Mountain, Nev.
- 10 CFR Part 71 – Packaging and transportation of radioactive material.

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