YuccaMountain.org
Eureka County, Nevada - Nuclear Waste Office

Search

FAQ's — Frenquely Asked Questions

The proposed Yucca Mountain nuclear waste repository is a vast and complex project with a history dating back over 20 years. This FAQ page provides a general overview of the key facts and debates surrounding the issue.

- What happens after the repository closes?
- What are other countries doing about their nuclear waste?
- Print This Page

Question: What is the status of the Yucca Mountain project?

Yucca Mountain was officially designated as the site to store the nation's spent fuel and high-level radioactive waste in 2002. Energy Secretary Spencer Abraham recommended the site to President George W. Bush, who approved it. Nevada Governor Kenny Guinn vetoed the decision, but the veto was overturned by Congress in July 2002.

The Department of Energy (DOE) has subsequently been working on a license application for Yucca Mountain. The DOE must apply to the Nuclear Regulatory Commission (NRC) for a license to build the repository before any construction can begin. The DOE plans to submit its application by late December 2004. Once submitted, the license application will be reviewed by the NRC for three or four years before the Commission makes a decision.

However, a July 2004 court ruling may delay the Yucca Mountain schedule. A federal court in Washington, D.C. threw out an key radiation safety standard that had been set for the repository by the Environmental Protection Agency (EPA). The NRC had also based some of its licensing criteria on the EPA's safety rule.

In terms of transportation, the DOE has not yet identified specific rail and highway routes to be used for shipping waste to Yucca Mountain, with the exception of the Caliente corridor in Southern Nevada. Waste shipments will not begin until 2010 at the earliest.

(last updated Fall 2004)

For the most current information on Yucca Mountain status, visit our What's New Page. For more in-depth information on:

- Yucca Mountain's timeline, visit our timeline page
- repository licensing proceedings, visit our licensing center
- waste transportation, visit our transportation page
- lawsuits affecting the project, visit our legal issues center

Back to Questions

Question: What are spent nuclear fuel and high-level radioactive waste?

Answer:[1] **Spent nuclear fuel** is used fuel that comes mostly from commercial nuclear power plants, as well as from government and university nuclear research reactors and reactors on nuclear submarines and ships. Nuclear reactors use solid, ceramic pellets containing uranium for fuel. The pellets are sealed in strong metal tubes, which are

bundled together to form a nuclear fuel assembly. Depending on the type of reactor, the fuel assemblies can be as long as 16 feet and weigh up to 1,900 pounds.

After three or four years in a reactor, the fuel is no longer efficient as an energy source and the assembly is removed. After removal, the spent nuclear fuel assembly is highly radioactive and thermally hot, and therefore requires shielding and remote handling.

High-level radioactive waste primarily results from defense nuclear activities. When spent nuclear fuel is processed to extract plutonium for nuclear weapons development, liquid high-level radioactive waste is a byproduct. The liquid waste is subsequently solidified. The Department of Energy (DOE) says all high-level radioactive waste destined for the Yucca Mountain repository would be in a solid, stable form before being transported, and cannot burn, explode, or leak.

Spent nuclear fuel and high-level radioactive waste are currently located at 131 sites in 39 states, including commercial power reactor sites and some DOE facilities. These sites are located in a mixture of urban, suburban, and rural environments.

Back to Questions>

Question: Why geologic disposal? Why not other solutions?

Answer: After years of study, the U.S. and most countries around the world have concluded that permanent geologic burial is currently the most acceptable solution for the final disposition of high-level nuclear waste. Other options, such as shooting the waste out into space, are far too risky.

Some countries in Europe and Asia reprocess their nuclear waste. Reprocessing both reduces the volume of spent fuel and provides uranium and plutonium that can be used to produce more energy. However, the U.S. currently opposes reprocessing because of concerns about the proliferation of nuclear material created.

Moreover, liquid high-level radioactive waste is a by-product of reprocessing, and it must be vitrified, or combined with sand and other materials to form a stable glass. The resulting 'glass' presents the same problem as spent fuel: how can we dispose of it?

Geologic disposal offers a multiple-barrier solution. Spent fuel and high-level waste would be placed in specially-engineered casks, then interred deep below the earth's surface in a repository built in a geologically-suitable formation. High-level waste will remain radioactive for hundreds of thousands of years, and there is no way to guarantee that human-engineered waste packages can effectively contain the waste for that long. Geologic disposal provides a second, natural barrier: rocks that would contain waste after containers fail.

Additionally, by locating the repository deep in the earth, spent fuel and high-level waste would be less vulnerable to sabotage and accidents.

However, geologic disposal contains its own risks. At Yucca Mountain, an underground repository could be susceptible to seismic activity, volcanism, and water percolation. If the radiation were to leak, it could contaminate underground water supplies for Amargosa Valley.

Back to Questions

Question: What are the characteristics of the Yucca Mountain site?

Answer:[2] Yucca Mountain is a 1,200-foot high flat-topped volcanic ridge extending six miles from north to south. It is located in Nye county, Nevada, 90 miles northwest of Las Vegas on federally-owned land on the edge of the Nevada Test Site. Yucca Mountain is comprised of "tuff," a rock made from compacted volcanic ash formed more than 13 million years ago. Yucca Mountain has a desert climate and receives about six to seven inches of rain and snow per year. The Mountain has a deep water table. The repository would be built approximately 1,000 feet below the land surface and 1, 000 feet above the water table.

Back to Questions

Question: Why Yucca Mountain?

Answer: Yucca Mountain was selected as the site for the nation's nuclear waste repository in a process that began in 1982, when Congress passed the Nuclear Waste Policy Act (NWPA).

NWPA established a comprehensive policy for permanent geologic disposal of the nation's spent fuel and high-level radioactive waste. The Act laid out a step-by-step process for the government to search, study, select, and ultimately, construct a nuclear waste repository by the year 1998. NWPA directed the Department of Energy (DOE) to choose three potential sites for geologic disposal, analyze them in detail, and select the most suitable for recommendation to the President. If the President agreed with the recommendation and officially designated the site, the governor of the site's state could veto the decision, but the governor's veto could be overturned by a simple majority in both houses of Congress. All of this was supposed to happen before 1998, when the government had promised to start taking waste from the nation's nuclear power facilities.

By December 1984, the DOE had narrowed the candidates for repositories to sites in Texas, Washington State, and Nevada, at Yucca Mountain. However, the estimated characterization cost, $60 million for each site, had already grown to more than a billion dollars per site. As a result, Congress decided to select only one site for continued study. In 1987, Congress amended NWPA to name Yucca Mountain the sole site to be considered for a nuclear waste repository.

There is ongoing debate about whether Yucca Mountain is the nation's best place for a nuclear waste repository. The DOE maintains that Yucca Mountain was selected because it was consistently ranked as the site that possessed the best technical and scientific characteristics to serve as a repository. The Department says that Yucca Mountain is a good place to store waste because the repository would be:

- In a desert location
- Isolated away from population centers (Las Vegas, the nearest metropolitan area, is 90 miles away)
- Secured 1,000 feet under the surface
- In a closed hydrologic basin
- Surrounded by federal land
- Protected by natural geologic barriers
- Protected by robust engineered barriers and a flexible design

However, the State of Nevada and other groups believe politics played a huge role in the decision. Notably, when the 1987 NWPA amendments were passed, the Speaker of the House of Representatives was Jim Wright, from Texas, and the House majority leader was Tom Foley, from Washington State. Nevada was the smallest and politically weakest state of the three.

The State believes Congress sacrificed fairness for expediency with the 1987 NWPA amendments. As science and technology writer Gary Taubes pointed out, "By choosing Yucca Mountain as the only option for a nuclear-waste facility, Congress put the DOE in an untenable position. In effect, it sent the department out to prove that Yucca Mountain would work as a repository, rather than to do a dispassionate analysis of whether it could work or was the best possible site." (read article: **http://www.landercounty.com/yucca/history01.htm**)

There is also ongoing debate over whether the geologic features and proposed engineered barriers at Yucca Mountain will provide sufficient isolation for permanent disposal. A number of interested parties believe Yucca Mountain has certain characteristics that pose a concern for long-term isolation of highly radioactive material. The State of Nevada's Agency for Nuclear Projects has expressed concern about several of Yucca Mountain's geologic characteristics:[3]

- Yucca's location in an active seismic (earthquake) region
- the presence of numerous earthquake faults (at least 33 in and around the site) and volcanic cinder cones near the site
- the presence of pathways (numerous interconnecting faults and fractures) that could move groundwater (and any escaping radioactive materials) rapidly through the site to the aquifer beneath and from there to the accessible environment.
- evidence of hydrothermal activity within the proposed repository block

Back to Questions

Question: Would a repository at Yucca Mountain protect public health and safety? Who is responsible for health and safety standards?

Answer: Under the Energy Policy Act, the Environmental Protection Agency (EPA) is responsible for setting radiation protection standards for the Yucca Mountain repository. In 2001, the EPA issued a final safety rule outlining a 10,000 year limit on radiation containment at the site. Similarly, the Nuclear Regulatory Commission (NRC) established 10,000 year compliance periods that DOE must meet in order to qualify for a license to construct the repository.

Under these standards, the DOE is required to prove that spent fuel and high-level radioactive waste would be safely stored at Yucca Mountain for 10,000 years. However, in July 2004, the U.S. Court of Appeals in Washington, D.C. vacated the EPA's 10,000 year standard. The State of Nevada had filed suit against the EPA, saying the 10,000 year period was both insufficient and illegal. The EPA had been required by law to base the safety standard on the recommendations of the National Academy of Sciences. The Academy, however, said the radiation safety standard should be set when the waste would be at its peak radiation levels - at least 300,000 years from the time the waste is sent to Yucca.

The Court upheld Nevada's claim, ruling that the EPA deliberately rejected the National Academy of Sciences' recommendation. The EPA must promulgate another rule, or Congress must pass legislation to allow the 10,000 year standard. Visit the **What's New** page and the **Litigation** page for the most current information on this issue.

Despite the ruling on the 10,000 year standard, the DOE maintains that a repository at Yucca Mountain "will perform in a manner that protects public health and safety." DOE engineers have designed waste canisters with two-inch walls of stainless steel protection, covered by half an inch of Alloy 22, a corrosion-resistant nickel-metal alloy. When studies revealed that there would be much more water percolation, or dripping, within Yucca Mountain than previously expected, engineers designed special titanium drip shields to be placed over the waste canisters.

The State of Nevada, however, says that the drip shields and DOE's reliance on waste packages underline the fact that Yucca Mountain is geologically unsuitable for a repository. The State points to the possibility of volcanism and seismic activity, and notes that the area is one of the most geologically active in the country. The Agency for Nuclear Projects also remarks that "the Yucca repository is the only repository under consideration in the world that is located above the water table, not below it."

The DOE says experts have calculated the risk of a volcano disrupting a repository to be virtually nonexistent. The Department also maintains that a repository would withstand the effects of an earthquake due to its location far below the earth's surface. Because vibratory ground motion decreases with depth, earthquakes have much less impact underground than on or near the surface.

On a national level, the DOE says a repository at Yucca Mountain would protect public health and safety by removing nuclear waste from 131 sites around the country and consolidating it into just one place.

Nevada lawmakers, however, call this the "one waste, one place" myth. They point out that by the time Yucca Mountain is filled to capacity, nuclear power plants around the country will have produced almost as much waste as they currently store. The Yucca Mountain repository would have a capacity of 77,000 tons In 2003, there was already 46,000 tons of high-level waste stored around the country, and nuclear power facilities produce an additional 2,000 tons of waste a year.

Back to Questions

Question: How would nuclear waste be transported to Yucca Mountain?

Answer: Spent nuclear fuel and high-level radioactive waste would be placed into large, robust metal casks and then shipped by truck and train across the country to Yucca Mountain. The Department of Energy (DOE) has not yet selected most shipping routes, nor has it determined the number of truck versus train shipments. Waste transportation to Yucca will not begin until 2010 at the earliest.

Waste transportation is a complex, critical issue. DOE has predicted that between 10.4 and 16.4 million people will live within one-half mile of a transportation route in 2035[4]. Among key transportation concerns are:

- safety
- risk of sabotage or terrorist attacks
- transportation routes
- cask testing
- truck versus rail shipments
- emergency response
- accident liability

Back to Questions

Question: What are the national transportation routes?

Answer: Major transportation routes have not been formally identified by the DOE. The Energy Department says rail route consideration would involve the distance to be traveled, the number of interchanges between railroads, and operational input from carriers.

For the highway shipments, special Department of Transportation (DOT) guidelines dictate that waste would travel on Interstate highways, beltways, or bypasses. State and tribal routing agencies, following DOT regulations, may designate alternate highway routes through their jurisdictions. Shipment routes will be surveyed and approved by the Nuclear Regulatory Commission (NRC).

Currently there are no rail routing regulations such as there are for highway routing of radioactive waste, and none are anticipated, according to Nevada transportation expert Robert Halstead. Rail rights-of-way are privately owned and restrict the regulatory abilities of state, tribal, and local governments. As a result, units of government below the federal level will have only limited input into routing rail shipments of spent fuel. Federal law

requires that the DOT study both dedicated (radioactive waste only) and general-commerce trains to identify the advantages and disadvantages for each mode of transport.

Back to Questions

Question: What are the transportation routes in Nevada?

Answer: In 2004, the Department selected the Caliente corridor in Southern Nevada as the preferred option for a rail route to Yucca Mountain. Waste would be shipped on existing rail lines or highway routes to Caliente, in southeastern Nevada. The Caliente rail line would curve west around Nellis Air Force Base and then down to Yucca Mountain (**see map**). The rail line would cover a distance of 319 miles and is estimated by the DOE to take 4 years to build at a cost of $800 million. In accordance with the National Environmental Policy Act, DOE must complete an Environmental Impact Statement on the rail corridor before construction can take place.

In a March 2004 supplemental document to the Record of Decision on Caliente, DOE revealed that legal-weight trucks might be used to ship casks of waste on existing Nevada highways for up to 6 years while the rail line is under construction. Under this scenario, waste shipped on existing rail lines across the U.S. would be transferred to trucks at intermodal stations in Nevada. These intermodal stations would need to be constructed.

Back to Questions

Question: Will the waste be transported by truck or train?

Answer: The DOE says it would use some combination of trains and trucks to move spent nuclear fuel and high-level radioactive waste to Yucca Mountain. The method of transport would depend, in part, on the cask handling capability and the transportation infrastructure of the individual sites of origin. Some sites, for example, do not have the capability to handle large rail casks, so trucks would be used.

The DOE has announced a mostly rail preference, since shipping waste by train would be more efficient and involve less accident risk. However, the DOE has not yet said whether it will rely primarily on freight trains or on dedicated trains (trains used solely for nuclear waste transport). Dedicated trains would be preferable to mixed freight trains because there are more options for routing and they offer advantages for emergency response and shipment security.

Back to Questions

Question: Can waste be safely shipped to Yucca Mountain?

Answer: The U.S. has a good safety record of nuclear material transportation. Since 1965, government and industry groups have transported more than 10,000 spent fuel assemblies in more than 2,700 shipments over more than 1.6 million miles. While there have been a

few accidents (four highway and four rail) involving the transport vehicles, none has resulted in the breach of a cask or the release of radioactive materials.

However, spent fuel and high-level radioactive waste would be shipped to Yucca Mountain on an unprecedented scale. According to a recent study completed by the National Academy of Sciences, just one year of waste shipments to Yucca Mountain would exceed all shipments made in the past 30 years. Kevin Crowley, director of the study, said research is showing 2,500 tons of spent nuclear fuel were shipped in the United States by truck or rail between 1964 and 1997. In the future, DOE estimates shipping 3,000 tons of spent nuclear fuel to Yucca Mountain annually for 24 years.

Back to Questions

Question: Are the transportation casks safe?

Answer: Casks used to contain the spent fuel and high-level radioactive waste are an important part of transportation safety. All casks must be certified by the Nuclear Regulatory Commission (NRC). To be certified, each transportation cask design must be able to withstand all of the following tests, in the given sequence:

- A drop from 30 feet onto an unyielding surface,
- A drop from 40 inches onto a shaft 6 inches in diameter,
- A fully engulfing fire at 1475 F for 30 minutes, and
- Immersion in 3 feet of water

The State of Nevada and other groups remain concerned, however, because these tests are conducted on computer models or on smaller-scale models of the casks. The State has long advocated full-scale testing of several truck and railroad cask designs, as well as rigorous stress testing to determine a cask's breaking point. In May 2004, the NRC authorized new testing of a full-sized cask, but only in a crash and fire scenario.

Back to Questions

Question: Will the shipments be secure?

Answer: In light of the September 11, 2001 terrorist attacks, shipping thousands of tons of highly toxic radioactive waste across America has serious implications. Waste shipments could be easy and predictable targets for terrorists.

The Nuclear Regulatory Commission (NRC) has established safety rules designed to protect the public from harm that could result from sabotage or terrorist attack on waste shipments. These security measures include:

- escorts for all shipments
- monitoring through a communication center with 24-hour staffing
- safeguarded schedule information
- coordinated logistics with local law enforcement agencies

DOE would be required to follow these rules when shipping waste to Yucca Mountain.

Back to Questions

Question: What if a transportation accident occurs?

Answer: In an emergency such as a radiological rail accident, state, local, and tribal governments would be responsible for responding to the accident, with federal assistance available on request. Federal law requires that DOE provide states and tribes with technical assistance and money to train people in radiological emergency response, but not provide the training itself. According to the DOE, this assistance would begin 3 to 5 years before shipments start. If an accident were to occur, DOE has special-response teams in eight coordinating offices across the country who would be available to assist.

Nevada Transportation expert Robert Halstead said the state is concerned about accidents and emergency response along rail corridors, where access is often difficult, and a number of questions about emergency radiological response remain unanswered. He cited the difficulties of planning for radiological accidents along rail lines; there is a lack of access along rail corridors, and private ownership of rail rights-of-way makes it uncertain who would control accident sites.

The state is concerned about the effects of the rail corridor on the overall health of communities through which the train travels. Current NRC regulations allow certain amounts of neutron and gamma radiation to be emitted from shipping casks during routine operations and transport (1,000 mrem/hour at the cask surface, and ten mrem/hour 2 meters from the cask surface). The health effects of these low levels of radiation are not fully understood; any emission from casks could increase health risks.

Back to Questions

Question: Who is liable if a radioactive shipment is involved in an accident?

Answer: Liability for a nuclear accident, whether along a truck or rail route or at a nuclear reactor site, is determined by the Price-Anderson Act. The Price-Anderson Act was first passed in 1957 as an amendment to the 1954 Atomic Energy Act. Originally enacted to help an infant industry get off the ground, the purpose of the act is to protect the nuclear industry from a potential accident liability so large that it would threaten the future of nuclear power, and to ensure that the public would be compensated for any damage resulting from a nuclear accident. The act was amended in 1998 to bring the nuclear-related activities of the Department of Energy (DOE) and its contractors under the same liability coverage - meaning that any accident occurring during the transportation and storage of nuclear waste would also be covered under the Price-Anderson Act.

Under the act's "no-fault" liability system, the amount nuclear power utilities must pay in the event of a catastrophic reactor accident is capped. Reactor owners must obtain $200 million in liability coverage from a private insurance company. If an accident were to

exceed $200 million in damages, each of the country's 103 reactor operators must pay up to $88 million per reactor. Therefore, privately financed insurance would cover a total of $9.3 billion in damages. In exchange for this limit on financial liability, in the event of an "extraordinary nuclear occurrence," nuclear utilities must waive legal defenses against paying claims. This is intended to relieve victims of the necessity of proving negligence.

In the event of an "extraordinary" accident involving DOE contractors, as would be the case with nuclear waste transportation, an indemnity agreement would be arranged. This means that the contractors would not be held liable - even if proven so in a court of law - and the government would pay all damages incurred up to the commercial reactor liability limit. In both cases, whether the accident involved a nuclear power utility or a DOE contractor, if the damage costs exceeded the $9.3 billion liability limit, it would be up to Congress to enact legislation to provide full compensation to the public.

However, critics of the Price-Anderson Act question whether the coverage it provides is adequate. A 1982 Nuclear Regulatory Commission study found that a severe nuclear accident could cost as much as $560 billion in 1999's dollars. The $9.3 billion provided by the industry would therefore cover less than two percent of the damages incurred in such an accident, leaving the industry largely immune while the government foots the vast majority of the bill. "The nuclear industry is the only industry in America that is absolved of any guilt or liability for any accident, even if it is their own fault," said Representative Shelley Berkley, D-Nev.

In light of the September 11 terrorist attacks, some consumer and environmental groups are calling for a thorough reassessment of nuclear security before Price-Anderson is reauthorized. The act has also been criticized for precluding victims of a nuclear accident from directly suing those companies responsible. Yet another concern is that by absolving DOE contractors of accountability, the indemnification clause of the act discourages safe and conscientious handling of nuclear materials.

In 2002, Congress renewed the provisions of the Price-Anderson Act that protect DOE contractors at government facilities in case of an accident. Provisions related to insurance for commercial nuclear power plants were not extended. See our **transportation** page for more information on the Price-Anderson Act.

Back to Questions

Question: How could the transportation of nuclear waste affect property values?

Answer: In the event that the Yucca Mountain repository is opened, trucks and trains would begin transporting waste to the site from across the country. In areas where rail lines would be needed, or where bypasses or overpasses are necessary, the government would buy the land, or if landowners were unwilling, the land would be condemned and bought under the government jurisdiction of eminent domain.

A number of issues may affect property owners and residents. Communities along a rail or highway route could be affected largely by emergency response, health and safety issues and quality of life considerations. Property values along shipments routes could decrease.

It is unclear how property values statewide in Nevada would be affected by a nuclear waste repository. Real estate values are influenced by what occurs in the economy and state leaders are concerned that a nuclear waste repository would tarnish the image of Nevada as a tourist mecca, thereby reducing income from tourism.

Although the DOE has selected the Caliente rail corridor, it is still unclear exactly how residents will be affected and whether they will receive any compensation. In Eureka County, Nevada's 2004 Caliente Rail Line Scoping Comments, the county noted that construction and operation of a rail line through southern Nevada could have negative effects on water resources, grazing, and mining. Additionally, socioeconomic impacts could aversely affect economies, property values, tourism, and recreation. At the same time, the project could bring some economic opportunities to the region. To this end, the County encouraged DOE to allow shared use of the rail line to benefit industries such as mining and agriculture.

The DOE has said construction on the Caliente rail line might not be finished until up to 6 years after waste shipments to Yucca Mountain begin. This means rail shipments on the Caliente line would not occur until 2016, although waste shipments by truck could begin as early as 2010.

Back to Questions>

Question: Would communities know when to expect shipments of spent nuclear fuel and high-level radioactive waste?

Answer:[5] In order to protect the shipments, the Nuclear Regulatory Commission (NRC) requires shippers of radioactive materials to safeguard information about the exact time of shipments. For this reason, the public would not be notified in advance of spent nuclear fuel and high-level radioactive waste shipments.

However, to ensure that state and other officials are prepared for the shipments, the NRC requires governors or their designees to be notified when and where spent nuclear fuel and high-level waste shipments would be coming through their jurisdictions. The NRC has proposed changes to its regulations to include Native American governments under its notification rule. As required by the regulations, the DOE would notify state and tribal points of contact at least seven days prior to shipments. The points of contact would then work with local officials to prepare for shipments.

Back to Questions>

Question: What are the alternatives to Yucca Mountain? What alternative technologies might eliminate the need for a repository?

Answer: The DOE says alternative technologies and options have been, and will continue to be, evaluated for the responsible management of high-level radioactive waste.

According to the State of Nevada's Agency for Nuclear Projects, some of the alternative

technologies to geologic disposal include:

- use of nanotechnology to separate and neutralize waste elements
- transmutation to convert waste elements into less harmful materials
- genetically engineered microbes to "eat" the waste elements
- reprocessing to remove useable fuels and higher-level radionuclides
- high-energy magnetic fields to separate waste components

However, some of these options, such as transmutation and reprocessing, produce liquid high-level waste as a by-product. Although the overall volume of high-level waste would be reduced in these processes, the resulting liquid waste would still need to be dealt with.

The State of Nevada has suggested a dry storage alternative to a nuclear waste repository at Yucca Mountain. The Nuclear Regulatory Commission (NRC) has determined that spent nuclear fuel can safely be stored at nuclear reactor sites in robust dry storage casks for at least the next 100 years. Utilities have already built 24 dry storage facilities and are planning an additional 21, as of late 2003.

The State says dry storage is a cheaper and safer alternative, one that would allow time for the development of other waste disposal technologies and eliminate the risk of transporting thousands of tons of nuclear waste across the country. In a 2003 document (If not Yucca Mountain, Then What?), the Nevada Agency for Nuclear Project outlined the advantages of dry storage:

- Keeping spent fuel in dry storage would allow the government to search for a new repository or develop alternative technologies while preserving the future use of spent fuel as an energy resource.
- Dry storage facilities permit easy human monitoring and maintenance. Their safety records worldwide are unblemished.
- Leaving spent fuel in local dry storage facilities would save federal money by eliminating the costs of shipping nuclear waste to Yucca Mountain.
- Dry storage facilities are located away from metropolitan areas and are heavily guarded. The industry, the U.S. General Accounting Office, and the NRC have repeatedly proclaimed these facilities safe against terrorists and natural disasters.
- A DOE study concluded that the cost of continued storage at reactors is not high enough to affect the economic competitiveness of nuclear power as an energy option.
- Dry storage facilities are in locales that now share the risks and benefits of nuclear electric plants. These communities have well-established emergency plans and workforces familiar with nuclear power.

Nevada also advocates government management of dry storage facilities, as has occurred at the PECO Peach Bottom Plant in Pennsylvania. In July 2000, DOE and PECO Energy reached an agreement where the government took title to the spent nuclear fuel, but left it

in dry storage at PECO's site. The agreement put an end to PECO's lawsuit against the government for not taking the spent fuel by 1998 as had been promised. The State of Nevada says such agreements could effectively end utility rate bases and state utility commissions' jurisdiction and lawsuits, as well as allow utilities to take waste liabilities off their corporate books.

Back to Questions

Question: What happens after the repository closes?

Answer: DOE's current plan is to monitor the potential repository for 50-300 years once the last waste package has been disposed. After the monitoring phase, DOE plans to seal the tunnels and post a guard at the gate for as long as necessary. It is impossible to predict which government institutions may evolve or disappear over the next 10,000 years, so at the time of permanent closure DOE plans to use "passive" measures to warn people against disturbing the site. Monuments, warning markers, and widespread records would be used to inform people of the contents of the Yucca Mountain site and to keep people from intruding into the site.[6]

For more on the difficulties of designing long-lasting, comprehensive warning signs, read the Summer 2003 *Nuclear Waste Update* article, "Universal Warning Sign: Yucca Mountain."

Back to Questions

Question: What are other countries doing about their nuclear waste?

Answer: After years of study, most countries have concluded that permanent geologic burial is the most acceptable solution for the final disposition of high-level nuclear waste. Countries in Europe and Asia also reprocess their nuclear waste. Reprocessing both reduces the volume of nuclear waste and provides uranium and plutonium that can be used to produce more energy. However, some nations regard spent fuel as waste and have rejected reprocessing as a viable option due to economic, environmental, and proliferation concerns. Those countries that do reprocess nuclear waste are planning to entomb the remaining wastes in underground repositories with other high-level wastes that have accumulated. Those that do not reprocess plan to bury their spent fuel as is. In the meantime, the wastes are being kept in various types of interim storage facilities.

The issue of nuclear waste storage and disposal is complex and fraught with controversy. As in the United States, nearly every nuclear waste disposal program around the world has fallen behind schedule due to scientific uncertainty and public opposition. **Click here** for a brief synopsis of how other countries are dealing with their own nuclear waste (*written in 2001*).

Back to Questions

Print This Page

Visit the archived edition of FAQs

---

1. Source for this answer: OCRWM FAQs (http://www.ocrwm.doe.gov-ymp-sr-faq.pdf)

2. Source for this answer: EPA FAQs (http://www.epa.gov/radiation/yucca/faqs.htm)

3. Source for this paragraph: EPA FAQs (see link above)

4. Source: Congressional testimony of Robert Halstead, Nevada Transportation Advisor (http://www.yuccamountain.org/leg/halstead042502.html)

5. Source for this answer: OCRWM Transportation FAQs (http://www.ocrwm.doe.gov/wat/pdf/snf_transfaqs.pdf)

6. Source: EPA FAQs (see #2)
