A N N U A L R E P O R T

2006

FEDERAL PROGRAMS FOR THE MANAGEMENT OF HIGH-LEVEL RADIOACTIVE WASTE

MONITORING CONDUCTED UNDER MINNESOTA STATUTES 116C.712

Environmental Quality Board

Prepared by:

Jon Larsen

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Acronyms

ASLB	The NRC's Atomic Safety and Licensing Board
BWR	Boiling Water Reactor
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
DOE	Department of Energy
DOT	United States Department of Transportation
EIA	Energy Information Agency
HLW	High Level Waste
ISFSI	Independent Spent Fuel Storage Installation
IRP	Integrated Resource Plan
MPC	Multi Purpose Canisters, designed and certified for transportation, storage, and disposal.
MRS	Monitored Retrievable Storage
MTU	Throughout this report, the term "metric ton" of spent fuel is used as a short-hand for a more technical measurement called metric ton of heavy metal (MTHM), which is DOE's traditional measurement of spent fuel mass. MTHM refers only to the mass of plutonium, uranium, and thorium in the spent fuel. The actual mass of spent fuel is always larger than the mass of its heavy metals.
MWt	Megawatt Thermal
MWe	Megawatt Electric
NMC	Nuclear Management Company
NSP	Northern States Power Company
NRC	Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act
OCRWM	DOE: Office of Civilian Radioactive Waste Management
PBMR	Pebble Bed Modular Reactor
PFS	Private Fuel Storage
PWR	Pressurized Water Reactor
SNF	Spent Nuclear Fuel
Xcel	Northern States Power Company, d/b/a Xcel Energy

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NOTE: The web links cited in this document are current as of its writing. However, because of rapid changes on the internet a linked document may become unavailable when its URL changes. Please contact the EQB at its website for further assistance if necessary.

I. Executive Summary

The U.S. Department of Energy's epic campaign to open a high-level nuclear waste repository at Yucca Mountain, Nevada shifted focus in 2003. After getting past the "site suitability" decision in 2002, the DOE faced the following three major challenges in 2003: (1) preparing the NRC license application; (2) surviving lawsuits, and (3) finalizing a national Strategic Transportation Plan.

The NRC License. In 2002, the Administration and Congress designated Yucca Mountain to be a suitable *site* for a permanent nuclear-waste repository. However, the DOE must still obtain an NRC license for the Yucca Mountain *facility* itself. Officially, the DOE intends to submit a license application to NRC by December, 2004, and to open Yucca Mountain by 2010. Almost everyone except DOE, however, seems to believe that the earliest possible operation date for Yucca Mountain is actually about 2015. Any adverse court decisions could, of course, cause even further delays.

2006 UPDATE

The Department of Energy current statement of intention is to submit a license application to the NRC before June 2008. The full discussion of this issue is found on page 4 of this report. A "best case" estimate of when Yucca Mountain could start receiving spent nuclear fuel now stands at 2017.

Nevada Lawsuits. In January 2003, the State of Nevada sued the federal government in the U.S. Court of Appeals for the D.C. Circuit, challenging the constitutionality of the 2002 site-suitability designation. The D.C. Circuit consolidated this case with five related Nevada lawsuits in 2003, and heard oral arguments in January, 2004.

2006 UPDATE

On July 9, 2004, the Court of Appeals ruled on Nevada's Yucca Mountain Lawsuits. The judges dismissed most of the state's claims, except a key challenge against the Environmental Protection Agency (EPA). The Court ruled that the EPA's 10,000-year safety standard on radiation containment at the site was arbitrary and inconsistent with the congressionally-mandated recommendations of the National Academy of Sciences. The EPA in response has begun a process to amend standards to extend to one million years.

Nuclear Waste Transportation. The DOE had planned to announce by September 2004 its preferred mode and routes for shipping nuclear waste from sites across the country to Yucca Mountain. However, in July 2003, the DOE announced that it would delay the final release of its "Strategic Transport Plan" for two or three additional years, until 2006 at the earliest. In December, 2003 the DOE announced its preferred rail corridor within Nevada. This rail corridor—known as the Caliente corridor—would be used to connect an existing railroad track in Nevada to Yucca Mountain if the DOE selects rail as its preferred transportation method.

Minnesota Developments. In 2003 the Minnesota Legislature authorized enough additional dry casks at Xcel's Prairie Island plant to allow it to continue to operate until at least 2013 and 2014, when the NRC operating licenses of the two units expire. In addition, Xcel's Monticello plant will run out of spent-fuel storage capacity by 2010, at the same time its current NRC license expires. If Xcel extends its NRC licenses at one or both plants and no national spent-fuel storage site is yet available, Xcel may need more on-site storage capacity to keep the plants running. Therefore, the 2003 state legislation also gave the Public Utilities Commission (PUC) authority to allow such future on-site capacity increases. The Legislature, however, reserved the right to review the PUC decision. Xcel anticipates filing a certificate-of-need application with the PUC for a dry-cask storage facility at Monticello by early 2005 if it decides to pursue an NRC license extension for that plant.

2006 UPDATE

Monticello has received its license renewal to be able to operate until 2030. An Environmental Impact Statement (EIS) was prepared and found adequate for the dry cask storage Certificate of Need process at Monticello. Xcel has already filed letters of intent to apply for renewal for its Prairie Island I and II plants, which will be up for renewal in 2013 and 2014, respectively. Monticello has had a minor incident (which did result in a radioactive release) in January 2007 which is discussed below under "Incidents".

II. Introduction

The Environmental Quality Board is directed by statute to file a report to the legislature every year that summarizes federal government efforts to manage high-level radioactive wastes. (Minnesota Statutes § 116C.712, subdivision 5.) The EQB has prepared these reports since 1987.

This 2006 Annual Report summarizes developments occurring since the last report. A list of resources is provided in Appendix B.

The EQB's January 2002 Annual Nuclear Report provides a chronology of significant events regarding nuclear power, beginning with the adoption of the Atomic Energy Act of 1954 and continuing through December 2001 (in Appendix A of the 2002 Report). The 2002 EQB Annual Report also contains a detailed description of Minnesota's two nuclear power plants—Prairie Island Plant and Monticello Plant- owned by Xcel Energy, and an analysis of potential nuclear waste transport routes and schedules. This information is not repeated here. The January 2002 report is on the web at: http://www.eqb.state.mn.us/pdf/2002/NuclearReport.pdf

III. Yucca Mountain

A. Background

The federal government has been attempting to site and construct a national repository for spent nuclear fuel and other highly radioactive wastes since the Nuclear Waste Policy Act was passed in 1982. Under 1987 amendments to the Act, the Department of Energy

is limited to studying only the suitability of the Yucca Mountain site in Nevada for housing a deep underground repository. Yucca Mountain is about 90 miles northwest of Las Vegas, Nev.

The project calls for the construction of tunnels 1,000 feet into the earth, where up to 77,000 metric tons of high-level radioactive wastes would be stored. The amount of waste that is expected to be generated by operating nuclear power plants during their operating lives, considering re-licensing efforts, is about 105,000 MTU. Therefore, Yucca Mountain as presently authorized cannot hold all the waste that is expected to be generated. The wastes would be shipped by truck and rail to Yucca Mountain from locations around the country.

2006 UPDATE

Information from the Nuclear Energy Institute web site summarizes the issue thusly:

Concern: The nuclear waste storage facility at Yucca Mountain as planned is not large enough to store all off the used nuclear fuel and defense-related waste that has been and is being produced.

Answer:

- The capacity of a repository at the Yucca Mountain site has been determined politically, not scientifically. Congress limited the capacity of the Yucca Mountain repository to 70,000 metric tons of heavy metal or equivalent in the 1982 Nuclear Waste Policy Act.
- As of 2002, there are about 44,000 metric tons of commercial used nuclear fuel and about 12,000 metric tons of defense high-level radioactive waste awaiting disposal at Yucca Mountain. An additional 2,000 metric tons is generated each year. Given that DOE expects to begin receiving up to 3,000 metric tons a year of used fuel beginning in 2010, the 70,000 metric ton political limit will not be reached until at least 2036.
- Scientific analysis demonstrates that the Yucca Mountain site is physically capable of holding much more used fuel. DOE's Environmental Impact Statement showed that the site could safely dispose of 120,000 metric tons. Some scientists believe that repository capacity could be as high as 200,000 metric tons.
- Congress has plenty of time to decide whether it wants to authorize a second repository or increase the capacity at Yucca Mountain. The Nuclear Waste Policy Act directed DOE to report to Congress between 2007 and 2010 on the need for a second national repository. (http://www.nei.org/doc.asp?catnum=2&catid=197)

Editor's note: the NEI information is somewhat dated, using 2002 as a starting point and 2010 as an opening date for receiving waste at Yucca Mountain. Annual generation of nuclear waste continues at similar rates today, and is stored elsewhere, presumably bound for disposal at Yucca Mountain. It is not likely that transport of nuclear waste would be authorized at any annual rate far greater than that cited above, so it seems likely that the "political limit" of capacity at Yucca Mountain would still not be attained by 2036.

B. The 2002 Site Designation

On February 14, 2002, twenty years after the passage of the Nuclear Waste Policy Act, DOE Secretary Abraham recommended to the President that Yucca Mountain is a suitable site for a permanent repository for high level nuclear waste. This historic step triggered a series of activities at the federal level. The next day, President Bush, per the NWPA requirements, notified Congress that he also considered Yucca Mountain to be qualified for construction authorization.

On April 8, 2002, Nevada Governor Kenny Guinn filed a "notice of disapproval" of the recommendation made by the President. Governor Guinn issued an 11 page document citing reasons for disapproval, including the state of the science of repository design, the legal status, four existing and two pending lawsuits by the State of Nevada, national security issues associated with transportation of the waste in the wake of 9/11, the existence of an alternative to Yucca Mountain, and waste ownership and storage by DOE at the reactor site.

After Nevada's filing of the disapproval of the President's decision, Congress was forced to pass a Joint Resolution approving the Yucca Mountain site if the project was to continue. The House of Representatives passed the necessary resolution, House Joint Resolution 87, on a vote of 306-117. The Senate also voted to override Nevada's veto, by a margin of 60-39. (S.J.R. 34).

On July 23, 2002 President Bush completed the process of overriding the veto of the State of Nevada by signing House Joint Resolution 87. This action moved the issue of a permanent repository from the political arena to the regulatory arena and set the stage for a license application by DOE to the NRC.

C. The NRC License

Although the federal government in 2002 determined that Yucca Mountain is a "suitable" site for a permanent high-level nuclear-waste repository, another major regulatory hurdle remains: the U.S. Department of Energy must still obtain licenses for construction and operation of the Yucca Mountain facility itself. These licenses are issued by the independent federal agency with responsibility for ensuring the safety of nuclear facilities: the Nuclear Regulatory Commission (NRC).

NRC License Timeline

Officially, DOE maintains it will submit an application to the NRC for the Yucca Mountain construction license by December 2004. The NRC licensing process is expected to take a minimum of three years. Theoretically, therefore, the NRC could issue a construction license for Yucca Mountain by early 2007, and Yucca Mountain could begin accepting nuclear spent fuel as soon as 2010. Almost no one except DOE, however, seems to expect that DOE will be able to submit an adequate license application by December 2004, or that the licensing and construction will occur as

planned. Most observers, including the federal General Accounting Office, believe that the earliest possible operation date for Yucca Mountain is actually about 2015.

Pre-Licensing Consultation

The NWPA requires DOE to interact with the NRC in pre-licensing consultation before submitting the application. The specific purpose of this pre-licensing consultation process is to allow addressing the complex technical health and safety issues present at the potential repository site early in the review process. The NRC has structured this pre-licensing program around “key technical issues” such as volcanoes, earthquakes and radioactivity transport. As of August 2002, all nine key technical issues identified by the NRC have been assigned a "closed-pending" status by NRC staff, which means that DOE has agreed to provide information that, in the NRC staff's view, should close the issue. But at the same time, this characterization does not imply that the staff has prejudged the outcome of the review of that information. Details on the status of this technical pre-licensing review is available at the following web site:
http://www.nrc.gov/waste/hlw-disposal/reg-initiatives/list-status-kti.html

The NRC has also put together a detailed plan for how it will review the Yucca Mountain license application once they receive it. That NRC plan can be found at:
http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1804/

2006 UPDATE

The Department of Energy (DOE) on July 19, 2006 announced that it would submit a license application to the Nuclear Regulatory Commission (NRC) for a nuclear waste repository at Yucca Mountain, Nevada, no later than June 30, 2008.

The Department of Energy (DOE) has announced that the license application for the Yucca Mountain repository faces additional delays. According to DOE spokesman Craig Stevens, there is as of yet no specific date set for the submission of the license application for the proposed nuclear waste repository. The Yucca Mountain site must be granted a license by the NRC before DOE can move forward with the construction and operation of the proposed facility. NRC is a federal agency that regulates all of the nation’s nuclear facilities, with the exception of the nuclear weapons complex.

One issue that must be resolved before DOE can submit the license application is the preparation and release of research documents. Under NRC rules, DOE cannot file the application until six months after it has publicly released all background documents supporting research on the Yucca Mountain Project. The documents must be prepared electronically and released on an internet database known as the Licensing Support Network (LSN).

DOE originally attempted to issue database certification for the LSN in June of 2004. However, the State of Nevada challenged the database, saying DOE had left out millions of pages of documentation in the rush to meet its deadline. A three-judge NRC licensing

board agreed with the state and ordered the Energy Department to fix problems with the database before again seeking certification.

Once DOE submits the license application to NRC, the commission will have three years with a possible one-year extension to review all of the material before deciding whether to grant a license for the construction and operation of a repository at Yucca Mountain.

NRC has established an electronic hearing room at a facility in Las Vegas in preparation for the licensing hearings. View the documents currently available on the Licensing Support Network. Eureka County's LSN website at also online at: www.eureka.lsndocuments.com (Information from yuccamountain.org)

The earliest that Yucca Mountain could begin receiving spent nuclear fuel is 2017.

D. Litigation

There are numerous lawsuits related to Yucca-Mountain moving through state and federal courts. However, the most important currently are a series of lawsuits filed by the State of Nevada. In January 2003, the State of Nevada sued the federal government in the U.S. Court of Appeals for the D.C. Circuit, challenging the constitutionality of the 2002 site suitability designation. The D.C. Circuit subsequently consolidated this case with five previous Nevada lawsuits. On January 14, 2004, the DC Circuit heard more than three hours of oral argument in the consolidated cases. The D.C. Circuit is expected to decide these cases by sometime in mid-2004. However, since the losing party is certain to file an appeal to the U.S. Supreme Court, these cases are not likely to be resolved until 2005.

The Nevada Arguments

The State of Nevada lawsuits can be broken down into the following six major issues:

1. *The Constitutional Case Against the United States*. Primary issue: Whether the federal government's decision to single out one state to bear an unwanted nationwide burden, allegedly without a compelling technical or other objective reason, violates the principles of federalism in the Tenth Amendment and other constitutional provisions. In this case, Nevada argues that "the national government lacks the power to require a sovereign state to singularly bear the burden, and thereby relieve all other states from bearing any burden, of resolving a perceived serious problem of national scope, unless either (1) the sovereign State consents to the imposition of such a unique burden; or (2) Congress imposes such a burden on a particular State for compelling reasons justified by neutral, objective criteria." During oral argument, the D.C. Circuit panel focused on the fact that the federal government actually owns the Yucca Mountain area, not the state.

2. *The Site Suitability Case Against the DOE.* Primary issue: Whether the U.S. Department of Energy's (DOE) site suitability rules[1] violate the Nuclear Waste Policy Act because, allegedly, they are primarily based on the long-term safety of waste containers and other engineered barriers rather than site-specific geologic criteria. Nevada argues that the DOE should have declared the Yucca Mountain site unsuitable in 1998-1999 when it discovered the location was geologically unfit. The National Association of Regulatory Utility Commissioners has been granted leave to participate as amicus curiae in this proceeding.

3. *The EIS Case Against DOE.* Primary issue: Whether the Department of Energy's Environmental Impact Statement is procedurally and substantively deficient for numerous reasons, thereby violating provisions of both the National Environmental Policy Act and the Nuclear Waste Policy Act. Nevada claims that DOE's repository design, which includes a temporary above-ground storage facility, is contrary to law and that the EIS was released without a Record of Decision.

4. *The Recommendation Case Against the DOE.* Primary issue: Whether the Department of Energy's recommendation that Yucca Mountain is a suitable site for a nuclear-waste repository and the President's subsequent determination are void because of the inadequacies described in the *Site Suitability* and *EIS* cases above. Nevada claims that the decisions were based on unlawful DOE rules that fail to follow procedures established by the NWPA.

5. *The Radiation Standard Case Against EPA.* Primary Issue: Whether the Environmental Protection Agency's (EPA) radiation exposure standards for Yucca Mountain, which were issued in 2001, are adequate to protect the public's long-term health and safety as defined in the Nuclear Waste Policy Act and other laws. Nevada claims that the primary radiological protection standards are based on a 10,000 year regulatory time period, which is contrary to the one million year recommendation of the National Academy of Sciences. During oral argument, the D.C. Circuit did partly focus on EPA's rationale for limiting the risk calculation to a 10,000 year time period, when the maximum threat of exposure allegedly occurs much later.

6. *The Licensing Standard Case Against the NRC.* Primary Issue: Whether current Nuclear Regulatory Commission licensing standards for Yucca Mountain,[2] promulgated in 2001, violate crucial provisions of the Nuclear Waste Policy Act, the National Environmental Policy Act and other laws. This case challenges the

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[1] *General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories; Yucca Mountain Site Suitability Guidelines*; 10 C.F.R. Parts 960 and 963," published at 66 Fed. Reg. 57,298 (Nov. 14, 2001).

[2] *Disposal of High-Level Radioactive Waste in a Proposed Geologic Repository at Yucca Mountain, Nevada*, 10 C.F.R. Part 63, published at 66 Fed. Reg. 55732 - 55816 (Nov. 2, 2001).

NRC's final rule entitled on numerous health and safety grounds.

Summaries of the lawsuits are available on the State of Nevada's web pages. However, the most comprehensive information, including legal briefs, is available at the following web site:

http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_waste/hi-level/yucca/articles.cfm?ID=10882

Other Litigation

1. *The Nuclear Energy Institute v. Environmental Protection Agency*. The Nuclear Energy Institute, a nuclear industry group, has also taken the Environmental Protection Agency to court regarding its radiation protection standards. The NEI objects to the EPA ground water standard as overly strict, saying the rules had little scientific backing and don't comply with current law. The lawsuit seeks deletion of the ground water standard. The case has been combined with other lawsuits challenging EPA regulations.

2. *United States v. State of Nevada*. (District Court Nevada, filed 2000). This case challenges the State of Nevada's denial of a water use permit to the DOE.

2006 UPDATE

On July 9, 2004, the Court of Appeals dismissed most of the state's claims, except a key challenge against the EPA. The Court ruled that the EPA's 10,000-year safety standard on radiation containment at the site was arbitrary and inconsistent with the congressionally-mandated recommendations of the National Academy of Sciences. The Court also struck down the Nuclear Regulatory Commission's licensing standards insofar as they include a 10,000 year compliance limit. The National Academy of Sciences said the radiation safety standard should be set at a higher limit, 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 EPA was required by law to base its rule on NAS' recommendation, but chose to set the standard at 10,000 years instead.

Nevada officials believe the ruling will significantly delay or even scrap the project. State Attorney General Brian Sandoval claimed a sound victory for Nevada, saying that the EPA would have to form a new rule with a tougher standard - a standard the Energy Department would not be able to meet due to Yucca Mountain's allegedly inferior geology. This "is a fatal blow to the repository," Sandoval said. DOE itself has expressed doubts in the past about being able to meet a longer time limit. As quoted by the Court, former project director Lake Barrett wrote in 1999 that a safety standard significantly longer than 10,000 years would be "unworkable and probably unimplementable."

The Environmental Protection Agency has responded by engaging in a process to amend the standards in question. Based on the ruling by the US Court of Appeals for the District of Columbia Circuit EPA has proposed amendments to two of the three standards that extend coverage beyond 10,000 years to 1 million years.

Individual Protection Standard
The original individual protection standard sets an overall dose limit of 15 millirem per year for residents living in the vicinity of Yucca Mountain during and up to 10,000 years after the repository closes. The overall annual dose limit takes into account exposure through all pathways.

The amendments add a limit of 350 millirem (3.5 millisieverts) per year from 10,000 years up to 1 million years. During that time period, they limit the maximum radiation from the facility so that people living close to Yucca Mountain for a lifetime during the 1 million-year time frame will not receive total radiation any higher than natural levels people currently live with in other areas of the country.

Human Intrusion Standard
The original human intrusion standard sets a dose limit of 15 millirem per year during and up to 10,000 years after the repository closes. However, it takes into account only releases caused by a borehole going through a waste container and into the underlying ground water.

The amendments add a limit of 350 millirem (3.5 millisieverts) per year from 10,000 years up to 1 million years. During that time period, they limit the maximum radiation from the facility so that people living close to Yucca Mountain for a lifetime during the 1 million-year time frame will not receive total radiation any higher than natural levels people currently live with in other areas of the country.

Ground Water Protection Standard
The original ground water protection standard provides the same dose and concentration limits as EPA's drinking water standards. EPA included this standard to protect the aquifer underlying Yucca Mountain as a resource for future generations. It was also included so that the standards would be consistent with the agency's national policy for the protection of ground water resources.

The proposed amendments do not alter the ground water protection standard; the U.S. Court of Appeals for the District of Columbia Circuit dismissed all challenges to the ground water protection standard.

Before the Yucca Mountain repository can open and accept waste, the Department of Energy must demonstrate to the Nuclear Regulatory Commission that it can meet the standards both under normal conditions and also in the unlikely event of "human intrusion" - if actions such as drilling for water or other resources breach the waste containers. In both situations, the public must not be exposed to more than 15 millirem of radiation per year up to 10,000 years and to no more than 350 millirem between 10,000 and 1 million years.

Additional information addressing a longer time-frame safety period is available in a report to the Environmental Protection Agency, Office of Radiation and Indoor Air prepared by S. Cohen &Associates (http://www.state.nv.us/nucwaste/news2007/pdf/epa061211cohen.pdf).

E. Nuclear Waste Fund

DOE has had ongoing problems with securing adequate funding for Yucca Mountain even though the Nuclear Waste Policy Act established a special fund for the project. The Nuclear Waste Fund (NWF) is a separate account originally intended to be a source of funds for locating and constructing a national repository for high level nuclear wastes. The fund is generated primarily from fees paid by the owners and generators of civilian nuclear power plants. The fee is 1 mill (0.1 ¢) per kilowatt-hour of electricity generated and sold. Other funding includes any appropriations made by the Congress into the NWF. Funds for DOE expenses associated with Yucca Mountain have come out of the Nuclear Waste Fund and from Department of Defense appropriations.

Legislative Efforts

Consumers of nuclear-generated electricity pay nearly $775 million a year into the Nuclear Waste Fund to finance the repository program, and interest on the fund is accruing at about $400 million annually. Despite pressures to expedite the Yucca Mountain process, Congress has historically appropriated an average of less than one-fourth of the fees paid by consumers for the program over the past five years. The fund has a balance of more than $14 billion, monies that Congress has used to fund other programs. Minnesota's total contribution to the fund was $473 million through June 30, 2003.

In 2003, several parties again pushed to reclassify the fund so that Congress could no longer use it for other purposes. First, in a Nov. 24, 2003 letter to the Office of Management and Budget (OMB), the National Association of Regulatory Utility Commissioners (NARUC) urged President Bush to change the funding mechanism for the federal Nuclear Waste Fund as part of the DOE budget request for fiscal year 2005. Also, Illinois Reps. John Shimkus and Bobby Rush have introduced a bill (H.R. 3429) that would ensure that funds paid to the Nuclear Waste Fund by consumers are spent on the proper disposal of the nation's used nuclear fuel and allow for appropriate funding increases to keep the planned Yucca Mountain repository on schedule.

The Shimkus-Rush legislation contains provisions for reclassifying the treatment of the Nuclear Waste Fund by defining fund contributions as offsetting collections between the 2005 and 2010 fiscal years. According to this approach, only net spending above the annual fee income, now about $750 million, would be subject to discretionary budget caps. The bill also would allow rolling over the fund balance for a given year into succeeding years and would give the program access to the fund's income as needed. In February 2004, DOE Secretary Abraham proposed similar legislation. Additional details and briefings on the funds status and future can be found on the Nuclear Energy Institute web site at: www.nei.org .

2005 Budget

For Fiscal Year 2005, the Administration has requested a 50 percent increase in DOE's Yucca Mountain budget compared to the previous year's budget for a total of $880 million. The following web site and related links contain detailed information on historic and current Yucca Mountain budgets:
http://www.ocrwm.doe.gov/about/budget/money.shtml

2006 UPDATE

The FY2006 Budget briefing from the Office of Civilian Nuclear Waste Management indicates that the actual appropriation for FY 2005 was $413 million. The FY 2006 request at the time of this briefing was $427.3 million, with a final appropriation of about $445 million.

The Office of Radioactive Waste Management requests $544.5 million for FY 2007 for further development of the Yucca Mountain Project, a $99 million increase from the final FY 2006 appropriation, excluding funds for the Integrated Spent Fuel Recycling Facilities. These funds will support ongoing efforts to develop a license application to the NRC. The FY 2007 budget request includes $67.8 million for the development of transportation infrastructure such as rail lines, casks and rail cars, and establishing a long-term procurement plan for transportation activities.

The remainder of the request is devoted to the development of nuclear safety programs and the management and scientific work for the Yucca Mountain Project by Sandia National Laboratories.

(extracted from Department of Energy FY 2007 Budget press release available at http://www.energy.gov/news/3150.htm)

Nuclear Waste Fund Litigation

DOE was required by the Nuclear Waste Policy Act to begin acceptance of spent fuel by January 31, 1998, in return for the nuclear utilities paying into the Nuclear Waste Fund. Further, DOE entered into contracts with each of the utilities to accept the spent fuel from utilities in a certain sequence over a period of years. That date passed and a number of the utilities sued for partial breach of contract. Federal courts found in two separate cases that the government had an unconditional obligation to accept the waste and should be held liable for damage payments to the contract holding utilities.[3] By late 2002, 60 separate suits had been filed making claims totaling several billion dollars. In January 2004, there was an additional last-minute flurry of utility filings as the applicable six-year statute of limitations approached.

Indiana Michigan Power is the first case that has reached trial. The U.S. Court of Federal Claims began proceedings on March 1, 2004. The plaintiff seeks $107.7 million. In initial arguments there was disagreement between the parties on when the repository will be ready to accept waste. DOE maintains that its target date of 2010 is achievable, but an

[3] *Indiana Michigan Power Co. v. Department of Energy*, 88 F.3d 1272 (D.C. Cir. 1996); Northern States Power Company, et.al, Petitioners, v. *United States Department of Energy and United States of America,* 128 F.3d 754 (D.C. Cir. 1997).

expert witness for the plaintiff forecasts initial waste acceptance for this first-of-a-kind facility may be 2015 or later.

F. National Transportation Plan

The Department of Energy anticipates that private contractors will be used to transport spent nuclear fuel from reactor sites throughout the U.S. to the Yucca Mountain facility in Nevada. Nearly every state in the continental United States will be crossed with rail or truck shipments of the high-level radioactive wastes. The rate at which waste can be shipped to Yucca Mountain from all locations in the U.S. is known as the waste acceptance rate. Xcel also assumes that acceptance rates for fuel shipments to Yucca Mountain will be at a rate of 3000 metric tons/year, as most recently published by the DOE. The acceptance rate influences how long it will take to ship all the waste from a particular location to Yucca Mountain.

2003 Transportation Activities

DOE delayed one major decision on nuclear waste transport in 2003, but did make two preliminary transport-related announcements. DOE had planned by September 2004 to announce its preferred nuclear waste transport mode and routes in a "Strategic Transportation Plan." However, in July 2003, DOE announced that final decisions on the strategic plan were on hold for two or three more years.

In November 2003, DOE released one preliminary document: a *Guide to Stakeholder Interaction*s. This document describes how DOE will involve the public as it develops the transportation strategic plan. In addition, in December 2003 the DOE announced its preferred rail corridor within Nevada. This rail corridor—known as the Caliente corridor—would connect an existing Nevada railroad track to Yucca Mountain if the DOE selects rail as its preferred transportation method. See Appendix C. If DOE does select rail as its preferred transport mode, DOE would still have to complete an EIS on the specific rail alignment within the corridor before making any final decisions. In addition, the NRC would have to grant a license for the facility itself before DOE could begin construction of the dedicated track.

Separately, the General Accounting Office (GAO), an investigative arm of Congress, issued a study in August 2003 that concluded that the likelihood of widespread harm to human health and the environment from nuclear waste transport is extremely unlikely. See http://www.world-nuclear.org/opinion/gao-transport.pdf. The State of Nevada and various watchdog groups, of course, dispute these findings, stating that the GAO did not properly take into account terrorist issues and other available research. See http://www.state.nv.us/nucwaste/trans.htm

Likely Routes

There are many factors that influence the calculation of a date when all the waste stored at Prairie Island will be removed. The date that Yucca Mountain actually opens and the

operating life of the Prairie Island facility are major factors in any estimation of a date by which all waste will leave the plant site. Xcel now assumes for planning purposes that the Yucca Mountain site will most likely not be available until 2015.

A detailed description of likely national and state transportation routes, and timelines is provided in the 2003 Annual Nuclear Report. Appendix C of the 2003 Report includes two scenarios for final waste removal: one that may represent the least time to remove all waste from the plant site, and one that represents a longer timeframe for removal, based on extended operations of the Minnesota nuclear plants and Yucca Mountain becoming available in 2015. In the second, "maximum spent-fuel" scenario, Prairie Island would continue operating until 2034. Under this scenario, about 30 dry-casks of a new type would be required at Prairie Island, and the last shipment would leave Prairie Island for Yucca Mountain in about 2062.

The 2003 report is available at:
http://www.eqb.state.mn.us/pdf/2003/nuclearwastereport2003.pdf

2006 UPDATE

A review of websites completed in late 2006 indicates that the technical task of finalizing the "Strategic Transport Plan" continues with the involvement of stakeholders, such as state governments, tribes, and nuclear storage casksuppliers. The Nuclear Energy Institute website (http://www.nei.org/index.asp?catnum=1&catid=15) offers a number of links to the relevant documents. The Strategic Transport Plan is expected to feature rail and barge as the preferred mode; with states being allowed to participate in designating alternative routes when highways are involved, as long as they meet DOE criteria. The Strategic Transport Plan negotiation process was extended 2006 with the stakeholders, but has not been finalized. The Caliente Corridor remains the preferred route in Nevada. Dedicated trains are planned to be used throughout the United States.

The State of Nevada brought suit against the U.S. Department of Energy (DOE) over the adequacy of the Final Environmental Impact Statement (FEIS) with regard to transportation of nuclear wastes to Yucca Mountain. On August 8, 2006 the District of Columbia Court of Appeals denied the Nevada petition, finding the FEIS adequate and that the DOE decision to select the Caliente Corridor was not arbitrary or capricious.

(see http://www.state.nv.us/nucwaste/news2006/pdf/appeals20060808nepa.pdf)

IV. Monitored Retrievable Storage

A. Background

The 1987 NWPA amendments authorized the use of a centralized Monitored Retrievable Storage (MRS) facility to store spent fuel temporarily until a permanent repository is available. Since the early 1990s there have been several public and private efforts to open above-ground "interim" nuclear waste storage sites. However, the law prohibits

DOE from building an interim facility until it is certain that a permanent repository will be built. Also, NWPA (Sec 145) requires that any MRS facility not be located in the State of Nevada. A federal MRS facility is unlikely under the present statutory mechanism.

B. Private Fuel Storage, LLC

Several private waste storage initiatives have been proposed over the years, but the most prominent proposal currently involves a consortium of eight nuclear utilities, led by Xcel Energy. The group, Private Fuel Storage, LLC (PFS), applied to the NRC in 1997 for a license to build a commercial spent fuel storage facility on the Utah reservation of the Skull Valley Band of Goshutes. The level of commitment by some of the utilities and the status of the NRC license application for this private facility remains uncertain, however.

Participant Commitment

During Senate debate in 2002 on the Joint Resolution, six of the eight utilities announced their intention to withdraw from participation in the private facility as long as Yucca Mountain proceeded in a "timely fashion." The only two utilities not to announce withdrawal were Xcel and Dairyland Power Cooperative. Since the six utilities signing the letter did not define what they meant by "timely fashion," their long-term interests in the Utah project are unclear.

NRC License

The Atomic Safety and Licensing Board (ASLB), the technical review board of the NRC, made several initial rulings in 2003 in the project's favor. However, in March 2003, the ASLB ruled that the possibility of a fighter jet from the nearby Air Force training range crashing into the proposed above-ground facility presented a credible safety risk. The ASLB therefore required an analysis of the potential consequences of such a crash if one did occur. The ASLB in late 2003 delayed its decision on this complex matter, but may rule on the issue in the first half of 2004.

More specifically, the NRC licensing process this reporting period included the following activities:

- On March 10, 2003, the ASLB ruled that it could not recommend a license for the PFS facility unless they presented further evidence that the consequences of a hypothetical aircraft crash at the site would not exceed federal safety limits. PFS is appealing the ruling at the same time it is moving forward with a request for an ASLB decision on the issue of the consequences of the impact of such a crash;

- In separate 2003 rulings, the ASLB found that (1) the PFS facility is designed to withstand earthquakes, (2) that PFS has the financial ability to build and operate the facility in accordance with regulations, and (3) the PFS proposed rail line route was the best alternative available; and

- In November 2003 NRC (1) directed the ASLB to attempt to complete hearings and issue decisions by the end of 2003 (although the ASLB has not met this deadline), and (2) allowed intermediate rulings by the ASLB to be immediately reviewed by the NRC instead of waiting for final ASLB decision.

- In January 2004, the U.S. Court of Appeals for the D.C. Circuit heard arguments in a State of Utah suit challenging whether the NRC even has the authority to license a private "away-from-reactor" nuclear spent fuel storage facility.

According to Xcel, if the NRC issued a construction license in 2004, construction could start in early 2005 and operation could start in 2007.[4] Overall, though, the fate of this private interim storage effort remains uncertain.

2006 UPDATE

The Nuclear Regulatory Commission has issued a license to Private Fuel Storage, LLC, to construct and operate an independent spent nuclear fuel storage facility in Skull Valley, Utah.

PFS, a consortium of nuclear power utilities, intends to construct the site on the Reservation of the Skull Valley Band of Goshute Indians, about 50 miles southwest of Salt Lake City. The facility is intended for temporary above-ground storage, in large cylindrical casks, of up to 44,000 tons of spent nuclear fuel from U.S. commercial nuclear power plants.

Although the license, issued Feb. 21, is effective immediately, it does not authorize PFS to begin immediate construction of the facility. Rather, it conditions construction authorization on the company first arranging for adequate funding. In addition, PFS must obtain necessary approvals from other agencies, including the Bureau of Land Management, the Bureau of Indian Affairs, and the Surface Transportation Board.

The license is effective for a period of 20 years.

The license incorporates some changes prompted by comments by PFS and the State of Utah on a draft of the license that was provided to PFS and made public Feb. 13.

(announced by the NRC on their website February 22, 2006 and last updated September 14, 2006 - http://www.nrc.gov/reading-rm/doc-collections/news/2006/06-028.html)

On September 7, 2006 the **Bureau of Indian Affairs** (BIA) rejected this plan. BIA cited a number of factors in its Record of Decision:

- Approval of the lease removes the Secretary's (Secretary of the Interior) ability to effectively police lessee's activities on trust land (the proposed PSF facility)

[4] *Annual Nuclear Waste Management Report*, Xcel Energy, MPUC Docket No. E002/CN-91-19, August 12, 2003.

- Years-long delays in construction of a permanent Spent Nuclear Fuel (SNF) facility (e.g. Yucca Mountain) provides no firm basis to determine when and under what circumstances SNF would be taken away from trust land
- Concerns about the adequacy of the environmental analysis
- Concerns about the relationship of leased lands to neighboring lands
- Availability of police protection
- The Secretary of Interior has no specialized resources to monitor the tenant's activities
- An order to vacate for noncompliance causes could be unworkable

The **Bureau of Land Management** (BLM) also rejected this plan by denying an application for right of way easements across BLM lands to transport SNF to the PFS site. Both of these approvals would need to be resolved in order for the PFS proposal to continue moving forward.
In a further development, legal representatives of PFS have recently (January 2007) filed briefs with the relevant court indicating their intent to file suit to challenge the BIA and BLM decisions. If PFS does pursue this legal remedy and prevails, the PFS proposal may remain viable.

V. The United States Nuclear Power Industry

A. Number of Facilities

There are 103 operating reactors in this country, the same as a year ago. There are still 104 plants licensed to operate. The Tennessee Valley Authority, however, continues to move ahead with a restart plan with the Nuclear Regulatory Commission, started in June 2002, for its Browns Ferry Unit #1. The North Alabama plant has been idle since 1985. Total rehabilitation projections are that it will cost $1.8 billion to recondition the reactor and restart by 2007.

2006 UPDATE

As of October 31, 2005, there are 104 commercial nuclear generating units that are fully licensed by the U.S. Nuclear Regulatory Commission (NRC) to operate in the United States. Of these 104 reactors, 69 are categorized a pressurized water reactors (PWRs) totaling 65,100 net megawatts (electric) and 35 units are boiling water reactors (BWR) totaling 32,300 net megawatts (electric). Although the United States has the most nuclear capacity of any nation, no new commercial reactor has come on line since May 1996. The current Administration has been supportive of nuclear expansion, emphasizing its importance in maintaining a diverse energy supply. As of October 31, 2005, however, no U.S. nuclear company has yet applied for a new construction permit.

(http://www.eia.doe.gov/cneaf/nuclear/page/nuc_reactors/reactsum.html)

B. Financial Outlook

On March 9, 2004, Moody's Investor Service issued a report concluding that existing nuclear power operators in the United States have a stable rating outlook as they continue to improve the operating performance of their plants and offer cost competitive electricity. Moody's also says the movement to concentrate plant ownership and operation among fewer companies is a positive for the industry, as is the wave of plant operating license extensions that are either being granted or applied for and the general increase in operating performance.

Moody's generally views the movement towards concentrated ownership as supportive to credit quality because it leads to companies with larger technical staffs and therefore greater expertise; second, it spreads shared knowledge across multiple plants; and third, ownership of multiple plants reduces the impact of a plant outage. Moody's stated that because Nuclear Energy Institute statistics show the average total running costs for nuclear power were about 2.2 cents per kWh in 2002, and performance continues to rise, existing nuclear power facilities that extend their NRC licenses should continue to compete well against almost any form of power with perhaps the exception of hydro, which has no fuel costs.

The report also concluded, however, that prospects for investment in new nuclear plants, even with substantial new federal subsidies, will be influenced primarily by the pace at which a permanent waste disposal facility is developed and completed.

2006 UPDATE

While there is no newer comprehensive report from Moody's Investor Services available for review, a survey of items on the Internet, including recent newspaper articles and other items of the popular press, indicates that the current evaluation of the strength of the nuclear power industry by Moody's is at least as optimistic; they expect gains in the outlook of the nuclear power industry.

C. Incidents

In March 2002 plant workers at First Energy's Davis Besse power plant near Toledo, Ohio discovered a cavity in the head or top of the reactor vessel while repairing control rod tubes which pass through the head. Cracks in the tubes had allowed leakage of boric acid and subsequent corrosion to the reactor vessel head. The corrosion created an irregular cavity about 4 inches by 5 inches and approximately six inches deep. The cavity penetrated the carbon steel portion of the vessel head, leaving only the stainless steel lining. Following the Davis Besse discovery, the NRC initiated a series of measures directed to all the pressurized-water reactors of this type in the country and towards the Davis Besse plant in particular.

On March 9, 2004, after a two-year shutdown and extensive repairs at the Davis Besse plant, First Energy began the first of a series of steps to restart the plant's reactor. The startup activities began after First Energy received authorization to restart the plant from the Nuclear Regulatory Commission.

2006 UPDATE

The Monticello plant was closed after a January 10, 2007 accident occurred in which some welds failed on a multi-ton control box, causing it to fall about a foot onto to some pipes carrying radioactive steam. The release was minor in nature and did not constitute an environmental, general health, or employee exposure hazard at any time. The plant had been operating for a record 637 consecutive days without a shutdown. Four other plants - in New Jersey (Oyster Creek), New York (Nine Mile Point), Vermont (Yankee) and Massachusetts (Pilgrim) are of similar design. These plants have been alerted to the problem as a precaution. Xcel management indicates the outage is relatively short-term. Repairs were made to the control box assembly and the plant returned to generating full power on January 26, 2007.

See http://www.nmcco.com/newsroom/news_releases/2007/01/26-1.htm

The Nuclear Regulatory Commission has recently held local briefings for their periodic Performance Assessments of both Monticello and Prairie Island facilities. Each of these briefings has given the respective facilities a "green" rating (the best rating attainable under the color-coded system for inspection findings and performance indicators).

D. Security Issues

Security at the nation's civilian nuclear reactor and waste storage facilities continues to be a major issue for the long-term viability of the industry. On February 25, 2002, the NRC, in an order to reactor operators, formalized the enhanced security measures that had been previously directed as prudent interim measures in the aftermath of September 11, 2001. On January 7, 2003, the NRC issued a second order related to operating plant security measures. In April 2003, the NRC issued new orders that limit the hours that security personnel may work each week. NRC also increased the training requirements for security guards, including for weapons proficiency. Subsequently, the NRC modified certain fitness-for-duty requirements for security personnel in July, 2003 and again in October 2003. These NRC orders are available at: http://www.nrc.gov/reading-rm/doc-collections/enforcement/security/#1.

The State of Nevada continues to emphasize what it believes are important security risk issues related to the transportation of spent fuel in its comments on the DOE transport strategic plan and in its lawsuits regarding the selection and licensing of the Yucca Mountain facility itself.

2006 UPDATE

All ongoing programs and policies of the Nuclear Regulatory Commission (NRC) relative to security issues as discussed are found at http://www.nrc.gov/security.html

The NRC's domestic safeguards program is aimed at ensuring that special nuclear material within the United States is not stolen or otherwise diverted from civilian facilities for possible use in clandestine fissile explosives, and does not pose an unreasonable risk owing to radiological sabotage. The users of the special nuclear material apply safeguards to protect against sabotage, theft, and diversion, including

- Physical protection of facilities and/or special nuclear material at both fixed sites and during transportation, and
- Material control and accounting for special nuclear material.

In order to determine how much physical protection is enough, the NRC has a threat assessment program to maintain awareness of the capabilities of potential adversaries and threats to facilities, material, and activities.

IN MINNESOTA:

Governor Tim Pawlenty on July 14, 2006 ordered the Minnesota Department of Public Safety, Homeland Security and Emergency Management to provide personnel and equipment for the Prairie Island Nuclear Power Plant Drill and Exercise. Governor Pawlenty further ordered such personnel and equipment of the state's military forces to participate as necessary, in support of the other state departments and Goodhue County.

E. National Re-licensing Activities

On March 11, 2004, Nuclear Management Company, LLC submitted an application to the NRC to renew the operating licenses for the nearby Point Beach, Wisconsin nuclear power plant for an additional 20 years. NMC operates the two-reactor station, located 100 miles north of Milwaukee, for We Energies. With the Point Beach application, 42 of the nation's 104 reactors have applied for license extensions. Of these, 23 have already been approved and 19 are under review by the NRC. The NRC has also received notice of intent to file extension applications for 25 additional reactors, which are to be filed on or before mid-2005. Details on the NRC re-licensing applications, schedules, Environmental Impact Statements and Safety Evaluation Reports can be found at: http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html

2006 UPDATE

Forty-seven (47) reactors have gone through relicensing, with Monticello being the most recent. Point Beach, Wis. was relicensed in December of 2005. Eight additional reactor license renewals are under review. Twenty-six more letters of intent to file for renewal are recorded. Three are expected to submit requests for renewals in 2007 with the rest extending from 2008 to 2015.

A complete background explanation of the license renewal process and the status of all renewals is available at http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/license-renewal-bg.html

F. New Reactor Technologies

The long-term viability of the nuclear industry largely depends not only on solving the nuclear-waste disposal issue, but also on the development of cost-effective new technologies. There are many sources of information about technologies that are under

various stages of development, including the Argonne National Laboratory's web site, at: http://www.ne.anl.gov/activ/progr.html

VI. Minnesota Nuclear Facilities

A. Prairie Island

In 2003 Xcel Energy requested and the Minnesota Legislature authorized[5] enough additional dry casks at the 1,050 megawatt Prairie Island plant to allow it to continue to operate until at least 2013 and 2014, when the NRC operating licenses of the two units expire. This means Xcel is likely to add a minimum of about 12 more dry casks to the 17 full casks already on site. In return, the 2003 legislation requires Xcel, among other tiems, to provide $16 million annually to the statutorily required renewable development account[6] and $2.5 million annually to the Mdewakanton Dakota Tribal Council for acquiring new tribal trust land for "housing and other residential purposes."

Background

Prairie Island Unit 1 began commercial operation in December 1973; Unit 2 began in December 1974. Prairie Island was originally designed to handle up to 198 fuel assemblies in the spent fuel pool. The initial idea was that the federal government would establish reprocessing facilities so spent nuclear fuel could be shipped from the nuclear power plants to the reprocessing facility to make room for more storage in the pools. However, with the absence of reprocessing facilities in the country, the pool at Prairie Island quickly began to fill up. On several occasions, the state authorized Xcel (previously NSP) to expand the pool capacity, and today NSP has been authorized to store up to 1386 fuel assemblies in the pool. Xcel estimates that a potential third re-racking would create storage space in the pool for a total of 1920 storage spaces.

In 1994, the Minnesota Legislature authorized Xcel to store spent nuclear fuel in "dry-casks" installed at a storage site constructed next to the Prairie Island power plant. Although Xcel initially requested authorization for up to 48 casks, the Legislature authorized Xcel to install only 17 casks at the site. In July 2002, Xcel Energy installed the last of the 17 casks, and today there are 680 fuel assemblies stored in the casks at Prairie Island. Xcel could operate the plant until 2007 with the combination of the existing pool storage and currently authorized dry cask storage. However, with this deadline looming, in 2003 Xcel requested enough additional storage capacity to allow it to continue to operate both Prairie Island units until at least 2013 and 2014, when existing NRC licenses expire.

[5] *See* Minnesota Session Laws 2003, 1st Special Session, Chapter 11, Section 2, Subd. 1.
[6] *See* Minn. Stat. 116C.779.

Future Additions To On-Site Storage Capacity

Xcel may in the future request additional dry-cask storage capacity at Prairie Island if two events occur: (1) neither Yucca Mountain nor an interim spent-fuel storage facility becomes available by 2010 or even 2015, and (2) Xcel applies for, and is granted, an NRC license extension allowing it to operate Prairie Island beyond 2014. For this reason the 2003 Minnesota legislature also addressed the issue of who has jurisdiction to approve further additions to dry-cask storage capacity in Minnesota. Specifically, the 2003 legislation grants the Public Utilities Commission authority to allow any further storage capacity increases, but the Legislature retains oversight and can vote to reverse a PUC decision. The Environmental Quality Board is responsible for preparing an Environmental Impact Statement prior to a PUC decision. Importantly, this PUC approval provision also applies to any future increases in dry-cask storage capacity at Xcel's Monticello nuclear plant.

2006 UPDATE

The operating licenses for Prairie Island 1 and Prairie Island 2 reactors are up for renewal in 2013 and 2014 respectively. Xcel Energy is already on record as intending to file license renewals with the NRC. Any further expansion of onsite dry cask storage at **Prairie Island** would also go through a Certificate of Need process and associated Environmental Impact Statement.

In current actions, the Final Environmental Impact Statement (EIS) for spent fuel storage at **Monticello** was also found adequate by the Department of Commerce. The Commissioner of the Minnesota Department of Commerce (DOC) determined on July 26, 2006, that the Final EIS on the Monticello Independence Spent Fuel Storage Installation was adequate.

FINAL EIS ADEQUACY DECISION

The Department of Commerce prepared an Environmental Impact Statement for Xcel Energy's project to store spent nuclear fuel in independent "dry cask" containers at the Monticello Generating Plant in Monticello, Wright County, Minnesota.

The Environmental Quality Board prepared a Scoping Environmental Assessment Worksheet and a draft Scoping Decision to identify the issues and alternatives that would be addressed in the EIS. A notice of the availability of the scoping documents was published in the EQB *Monitor* on March 14, 2005. The EQB held a public scoping meeting in Monticello, Minnesota, on April 4, 2005, and issued a final Scoping Decision in June 2005.

Authority to prepare the EIS was transferred from the EQB to Minnesota Department of Commerce (DOC) on July 1, 2005, and the EIS preparation notice was published in the EQB *Monitor* on August 1, 2005. The DOC prepared a Draft EIS addressing all issues and alternatives raised in scoping and identifying reasonable mitigation measures for identified adverse effects.

The Draft EIS notice of availability was published in the EQB *Monitor* on December 5, 2005. Public information meetings were held on February 2, 2006, in Monticello and on February 16, 2006, in St. Paul and comments on the Draft EIS were accepted through March 3, 2006.

The DOC prepared a Final EIS, which included responses to all comments received during the Draft EIS review period. The Final EIS notice of availability was published in the EQB *Monitor* on March 27, 2006. The DOC accepted comments on the adequacy of the Final EIS through April 10, 2006. The DOC received two comments during the Final EIS review period.

On July 26, 2006, pursuant to the criteria prescribed in Minnesota Rules part 4410.2800, subpart 4, the Commissioner of the Minnesota Department of Commerce determined the EIS is adequate. The DOC prepared a record of its decision and distributed notice of the decision to all parties receiving copies of the Final EIS. The finding of adequacy concludes environmental review for the proposed project.

All EIS documents, including the adequacy decision, are available on the web at: http://energyfacilities.puc.state.mn.us/Docket.html?Id=9901

The contact person at the DOC is: Deborah Pile, Energy Facility Permitting, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198; (651) 297-2375.

At the conclusion of the Monticello EIS process, the EIS was included in the Certificate of Need process for the Monticello storage facility. The PUC then approved that Certificate of Need.

Any proposed capacity upgrades for either location would also go through the appropriate Certificate of Need process, environmental review and, ultimately, Site Permitting.

B. Monticello

Xcel's operating license for Monticello expires in 2010. Xcel estimates that, using temporary spent-fuel racks, it can operate Monticello through its licensed life in 2010. Because the application process for a license extension could take five years or more, Xcel must decide by early 2005 whether to pursue re-licensing. Operation of the Monticello plant past 2010 would also require construction of an independent spent fuel storage facility outside the plant—such as at Prairie Island. This means that the PUC would have to grant a Certificate of Need for the necessary dry-cask storage capacity before such an on-site storage facility could be built. In preparation for a possible NRC application, Xcel submitted its "Advance Notice of Intent to Apply for Renewal of Operating License" to NRC in September, 2003. It anticipates making a filing with the PUC for dry cask storage capacity at Monticello in early 2005 if in fact it decides to pursue a NRC license extension.

Background

The Monticello 600-megawatt facility began commercial operation on June 30, 1971. Between 1984 and 1987, a total of 1,058 spent fuel assemblies were shipped from Monticello to a General Electric storage facility in Morris, Illinois. Because NSP was able to ship these spent fuel assemblies to Illinois, there is more storage capacity available at Monticello. As of July 31, 2002, there were 1342 spent fuel assemblies stored in the pool at Monticello.

NRC Advance Notice Filed

Nuclear Management Company, LLC (NMC) maintains and operates the Monticello and Prairie Island plants for Xcel Energy. In September, 2003 NMW submitted an "Advance Notice of Intent to Apply for Renewal of Operating License" for Monticello. This notice included the following statement:

> This notification is submitted at the direction of the utility asset owner. The asset owner has not made a final decision related to license renewal; however, previous studies have indicated that license renewal is in the best interest of its ratepayers. Further study is being conducted and the asset owners decision whether to actually make the renewal filing will be made upon completion of this work. Based on the timing of the work effort, in the event of a final corporate decision by the asset owner to file, it is our current intention to submit the License Renewal Application for the MNGP in the first quarter of 2005. The MNGP Operating License expires at midnight, September 8, 2010. We will keep the NRC informed of any changes to this schedule to assist in resource planning.[7]

2006 UPDATE

A supplement to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (Regarding Monticello Nuclear Generating Plant) was issued in September 2006 as one of the last steps toward license renewal. (http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/supplement26/sr1437s26.pdf

On November 8, 2006, the Nuclear Regulatory Commission granted Xcel Energy permission to operate its Monticello nuclear power plant for 20 years past its original license expiration in 2010, to Sept. 8, 2030.
The Monticello plant, 30 miles northwest of Minneapolis, produces about 10 percent of the power used by Xcel customers in the Upper Midwest.

This new item below is added to the "Minnesota" section of this report.

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C. Agreement State Program

On March 4, 2005, Minnesota applied for status as one of 34 states to sign an agreement with the NRC under the Agreement State Program. Below is a description of the Agreement State Program from the NRC web site.

NRC provides assistance to states expressing interest in establishing programs to assume NRC regulatory authority under the Atomic Energy Act of 1954, as amended. Section 274 of the Act provides a statutory basis under which NRC relinquishes to the states portions of its regulatory authority to license and regulate byproduct materials (radioisotopes); source materials (uranium and thorium); and certain quantities of special nuclear materials. The mechanism for the transfer of NRC's authority to a State is an agreement signed by the Governor of the State and the Chairman of the Commission, in accordance with section 274b of the Act.

NRC assistance to states entering into Agreements includes review of requests from States for 274b Agreements, or amendments to existing agreements, meetings with states to discuss and resolve NRC review comments, and recommendations for Commission approval of proposed 274b agreements. Additionally, NRC conducts training courses and workshops; evaluates technical licensing and inspection issues from Agreement States; evaluates state rule changes; participates in activities conducted by the Conference of Radiation Control Program Directors, Inc.; and provides early and substantive involvement of the states in NRC rulemaking and other regulatory efforts. The NRC also coordinates with Agreement States the reporting of event information and responses to allegations reported to NRC involving Agreement States.

On March 26, 1962, the Commonwealth of Kentucky became the first Agreement State. In December 1964, the U.S. Atomic Energy Commission hosted the first annual joint meeting with a group of these States. Today, 33 States have entered into Agreements with NRC, and others are being evaluated.

(http://www.nrc.gov/about-nrc/state-tribal/agreement-states.html)

VII. Additional Upcoming Activities

A. Department of Energy Report

The NWPA (Sec 161) requires the DOE to report to the President and to Congress on the need for a second repository. That report is required no sooner than January 1, 2007, and no later than January 1, 2010.

B. Federal Legislation

The still-pending federal "Energy Policy Act of 2003" (S. 14) includes important nuclear-energy related provisions, including the reauthorization of the Price Anderson Act and various incentives for new nuclear power plants and reactor technology research.

Price Anderson Act

Originally enacted as part of the Atomic Energy Act of 1957, the Price Anderson Act limits plant owner liability from accidents for new nuclear facilities. Without this type of liability protection, it is unlikely that new facilities would be constructed. Both Houses of Congress passed versions of the reauthorization in 2002, but the matter failed to advance in a conference committee.

Nuclear Energy Incentives

The current draft of the proposed federal Energy Policy Act also includes a number of subsidies and incentives for the nuclear industry including the following provisions:

- Title IV, Subtitle B: New Nuclear Plants. Sections 421-425: Authorizes the Department of Energy to provide loans up to 50% of costs to build new reactors.
- Title IV, Subtitle C: Advanced Reactor Hydrogen Co-Generation Project. Sections 431-435: Using nuclear power to produce hydrogen. Allocation: $1.1 billion over 5 years, including $635 million for industry research.
- Title IX, Subtitle D: The Advanced Fuel Cycle Initiative. Section 943: Advanced Fuel Cycle Initiative, including funds for reexamination of reprocessing spent commercial nuclear fuel. Allocation: $865 million over five years.

As of March 2004, these and many other provisions of the Energy Policy Act of 2003 remain topics of intense debate, and the ultimate fate of the proposed federal energy bill and its many provisions remains uncertain.

2006 UPDATE

Senate bill S.2589, entitled the “Nuclear Fuel Management and Disposal Act” was introduced in the 109th Congress and came before the Committee on Energy and Natural Resources in the U.S. Senate. Support for this action was made in a statement by Edward Sproat III, Director of the Office of Civilian Nuclear Waste Management before the committee in August 2006. Text of his remarks is at:
http://www.ocrwm.doe.gov/info_library/program_docs/testimonies/testimony_2_aug.pdf
At the time, this bill was a cornerstone of the effort to advance the cause of funding and creating a national nuclear repository and disposal system. The bill was heard in the Energy and Natural Resources Committee, but did not reach the floor of Senate before the session ended. It is a reasonable expectation that similar legislation will be proposed again during the new session of Congress.

Appendix A

Nuclear Waste Management Chronology

1954 – 2002

See the 2002 and 2003 Annual Reports for a list of events for these years. Available at http://www.eqb.state.mn.us/pdf/2003/nuclearwastereport2003.pdf.

2003

In January 2003, the State of Nevada sued the federal government in the U.S. Court of Appeals for the D.C. Circuit, challenging the constitutionality of the 2002 site suitability designation. The D.C. Circuit subsequently consolidated this case with five previous Nevada lawsuits. On January 14, 2004, the DC Circuit heard more than three hours of oral argument in the consolidated cases. A decision is expected in mid-2004.

On January 7, 2003, the NRC issued a second order related to operating plant security measures. In April 2003, the NRC issued new orders regarding the hours security personnel may work each week. Subsequently, the NRC modified certain fitness-for-duty requirements for security personnel in July, 2003 and again in October 2003.

On March 10, 2003 the NRC's Atomic Safety Licensing Board, (ASLB) ruled that it would not recommend a construction license for the proposed Private Fuel Storage facility in Utah due to the risk of fighter jets from the nearby Air Force training facility crashing into the site. The ASLB, therefore, required review of whether the consequences of a hypothetical aircraft crash at the proposed interim facility would exceed federal safety limits. PFS is appealing the ruling at the same time it is providing information to the ASLB on the issue of the consequences of the impact of such a crash. Separately, in several 2003 rulings, the ASLB found that (1) the PFS facility is designed to withstand earthquakes, (2) that PFS has the financial ability to build and operate the facility in accordance with regulations, and (3) the PFS proposed rail line route was the best alternative available.

In May, 2003 the Minnesota legislature authorized enough additional dry casks at the 1,050 megawatt Prairie Island plant to allow it to operate until at least 2013 and 2014, when its current NRC license expires. The 2003 legislation also gave the Minnesota Public Utilities Commission jurisdiction over future on-site capacity increases.

In July 2003, the DOE announced that final decisions on its Strategic Transportation Plan were on hold for two or three more years. So, DOE will not be issuing its

transportation plan on national transportation routes or methods until 2006 at the earliest.

In August 2003, the General Accounting Office (GAO), an investigative arm of Congress, issued a study that concluded that the likelihood of widespread harm to human health and the environment from nuclear waste transport is extremely unlikely.

In September, 2003 Xcel submitted an "Advance Notice of Intent to Apply for Renewal of Operating License" to NRC for its Monticello nuclear plant. Xcel anticipates making a certificate-of-need filing with the PUC for dry-cask storage capacity at Monticello in early 2005 if it decides to pursue a NRC license extension at that plant.

In November 2003 the DOE released: a *Guide to Stakeholder Interaction*s. This document describes how the DOE will involve the public as it develops its Transportation Strategic Plan for shipping nuclear waste from sites around the country to Yucca Mountain.

In November, 2003 to expedite a final decision on the license for the Private Fuel Storage facility, the NRC (1) directed the ASLB to attempt to complete hearings and issue decisions by the end of 2003 (although the ASLB has not met this deadline), and (2) allowed intermediate rulings by the ASLB to be immediately reviewed by the NRC.

In Nov. 24, 2003 letter to the Office of Management and Budget (OMB), the National Association of Regulatory Utility Commissioners (NARUC) urged President Bush to reform the funding mechanism for the federal Nuclear Waste Fund. By February, 2004 DOE Secretary Abraham proposed similar legislation, and at least on major Nuclear Waste Fund reform bill had been introduced in Congress.

In December, 2003 the DOE announced its preferred rail corridor within Nevada. This rail corridor—known as the Caliente corridor—would connect an Nevada existing railroad track to Yucca Mountain if the DOE selects rail as its preferred method.

In January, 2004, the U.S. Court of Appeals for the D.C. Circuit heard arguments in a State of Utah lawsuit challenging whether the NRC even has the authority to license a private "away-from-reactor" nuclear spent fuel storage facility.

In February 2004, the Administration requested a 50% increase in DOE's Yucca Mountain Fiscal Year 2005, budget compared to FY 2004, for a total of $880 million.

On March 9, 2004, after a two year shut-down and extensive repairs at the Davis Besse plant, First Energy began the first of a series of steps to restart the plant's reactor. The startup activities began after First Energy received authorization to restart the plant from the Nuclear Regulatory Commission (NRC).

Appendix B

Principal Resources

NG Department of Commerce, "Background on Nuclear Power in Minnesota." http://www.state.mn.us/mn/externalDocs/Nuclear_Power_121702090354_NuclearBackground.pdf

DOE, Office of Civilian Radioactive Waste Management: http://www.ocrwm.doe.gov

Energy Information Administration: U.S. Nuclear Reactors http://www.eia.doe.gov/cneaf/nuclear/page/nuc_reactors/reactsum.html

Energy Information Administration: Monthly U.S. Nuclear Generation by Reactor by State, 2001 http://www.eia.doe.gov/cneaf/nuclear/page/nuc_generation/usreact.html

Energy Information Administration: Monthly Energy Review, January 2003 http://www.eia.doe.gov/emeu/mer/pdf/pages/sec8_3.pdf

Eureka County, NV, Nuclear Waste Page: http://yuccamountain.org/new.htm

House Research Department, "Nuclear Energy and Xcel Energy's 2002 Resource Plan", January 2003, http://www.house.mn/hrd/pubs/nucxcel.pdf

Michigan PSC staff report: Nuclear Waste Fund Payments by State: http://www.cis.state.mi.us/mpsc/lic-enf/nuclear/

State of Nevada Yucca Mountain Litigation Information:
NG http://ag.state.nv.us/agpress/2003/03_0109b.pdf
NGhttp://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_waste/hi-level/yucca/articles.cfm?ID=10882

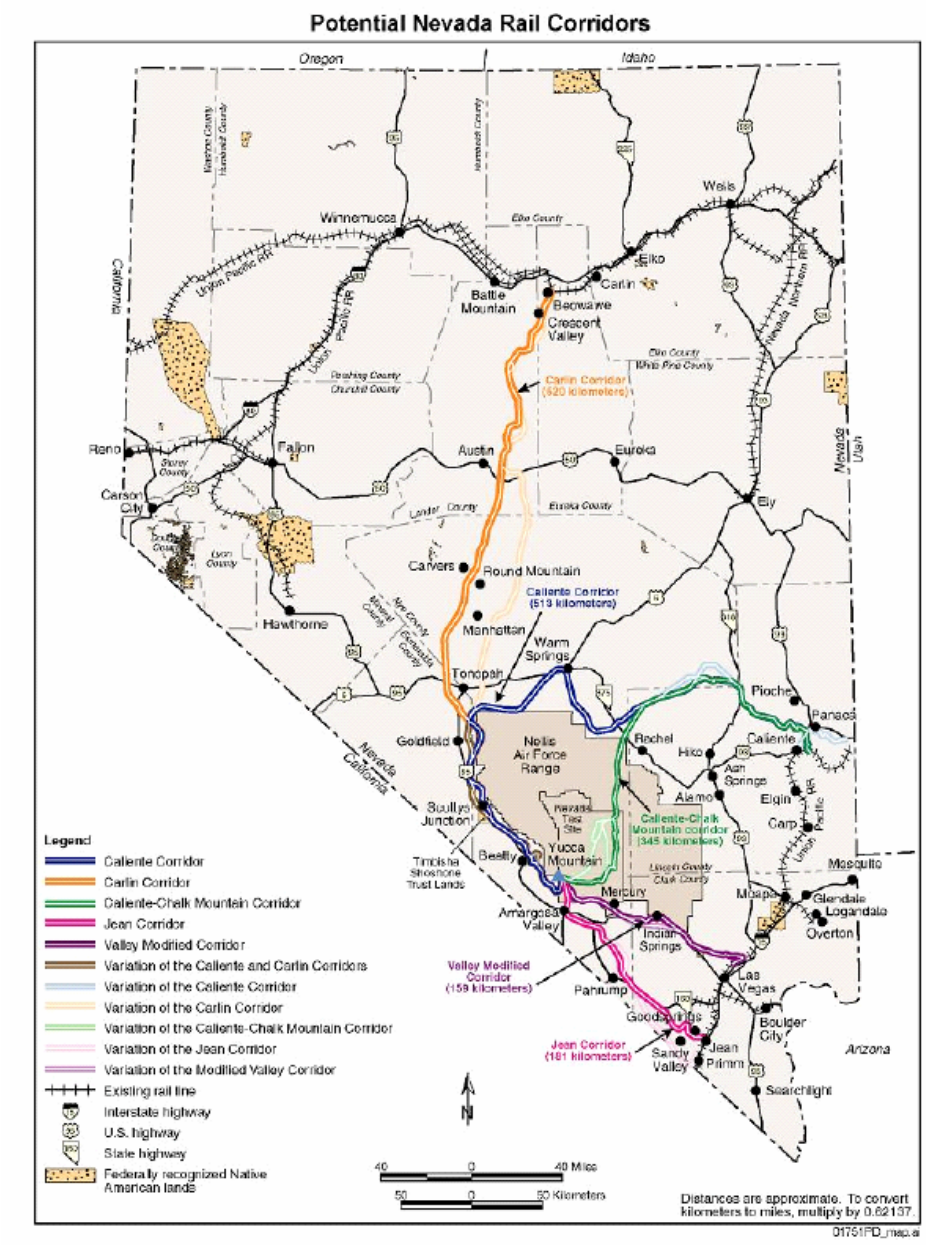
Nuclear Energy Institute: www.nei.org

Nuclear Energy Institute, List of Plant sales;
http://www.nei.org/documents/U.S._Nuclear_Plant_Sales.pdf
Office of Civilian Radioactive Waste Management, Annual Reports
http://www.ocrwm.doe.gov/info_library/program_docs/annualreports/index.shtml

Office of Civilian Radioactive Waste Management, Spent Nuclear Fuel Transportation
http://www.ocrwm.doe.gov/transport/pdf/snf_trans.pdf
State of Nevada, Nuclear Waste Project Office:
http://www.state.nv.us/nucwaste/index.htm
Next Generation of Nuclear Generation Technologies

http://www.energy.gov/engine/doe/files/import/overviewGIF.pdf

Xcel Energy 2002 Integrated Resource Plan, PUC filing, December 2, 2002.



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