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Information Brief

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The Prairie Island Nuclear Waste Storage Issue

Questions and Answers

This brief provides summary answers to questions often asked by members of the legislature and others related to potential legislative action on the proposal for dry cask storage of high-level radioactive waste at the Prairie Island power plant. The questions are organized by the topics listed under contents below.

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Building and Operating a Dry Cask Storage Facility at Prairie Island

The requirements for the NSP dry cask storage facility include a federal license, a state certificate of need, and state legislative approval.

The high-level radioactive waste from the two reactors at the Prairie Island nuclear power plant is stored in a pool filled with water located inside the plant. The pool was designed to cool the waste for a period of years, after which the waste would be taken off site for reprocessing or longer term storage or disposal.

The federal government has banned reprocessing and has not built either a temporary or permanent place to put high-level radioactive waste generated by nuclear power plants. There will be no place to take the waste that has been cooling in the pool at the time the pool is completely full.

Room for storage in the pool has been increased twice since the power plant began operation in 1973 by "reracking" the pool to allow more waste to fit. The pool is almost full. Without additional room to store waste, the power plant probably will be unable to continue operation beyond the end of 1995 at the latest.

ABBREVIATIONS

| | | |
|-----|---|------------------------------------|
| ALJ | = | Administrative Law Judge |
| CON | = | Certificate of Need |
| DOE | = | U.S. Department of Energy |
| DPS | = | MN Department of Public Service |
| EQB | = | MN Environmental Quality Board |
| NRC | = | U.S. Nuclear Regulatory Commission |
| NSP | = | Northern States Power |
| PUC | = | MN Public Utilities Commission |

Northern States Power (NSP), the owner and operator of the Prairie Island plant, proposed to build and operate an Independent Spent Fuel Storage Installation (ISFSI), commonly known as a **dry cask storage facility**. The facility has been built outside the power plant on power plant property. It is a concrete pad surrounded by an earthen berm and security fences. It can hold 48 large steel casks that will store the coolest waste from the pool for up to 40 years. Once the waste is moved from the pool to a cask and the cask is placed on the cement pad, the waste and cask will be monitored using a passive (computer) monitoring system.

In order to build and operate the dry cask storage facility, NSP must have:

- ▶ a **license** from the federal Nuclear Regulatory Commission (NRC) that governs health and safety aspects of the facility;
- ▶ a **certificate of need** (CON) from the Minnesota Public Utilities Commission (PUC) that governs the economics and need for the facility; and
- ▶ **approval** of the Minnesota Legislature.

The NRC granted the license. The PUC granted a limited Certificate of Need. The Minnesota Court of Appeals determined that the Minnesota Radioactive Waste Management Act requires legislative approval before the dry cask storage facility may be operated.

PRAIRIE ISLAND DRY CASK STORAGE CHRONOLOGY

- May 1989 - NSP applies for CON
- May 1991 - EQB determines no significant environmental effects
- April 1992 - ALJ finds legislative approval is necessary because storage may be permanent
- June 1992 - PUC grants limited Certificate of Need
- June 1993 - Minnesota Court of Appeals rules storage may be permanent and requires legislative approval
- Oct. 1993 - NRC grants storage facility license

Administrative and Legislative Action

1. What decisions have already been made on the dry cask storage facility?

Federal - NRC

The Nuclear Regulatory Commission (NRC) has licensed the facility for up to 48 casks to store waste generated by Prairie Island until about 2020, six years beyond the operating license for the facility.

State - PUC and ALJ

The Minnesota Public Utilities Commission (PUC) has granted a limited Certificate of Need (CON) for 17 casks to store waste generated through about 2001, by which time the PUC felt it likely there would be clearer indications on whether there will be a federal facility to take the waste for longer term storage.

The administrative law judge (ALJ), whose role in a CON case is to find facts and make recommendations to the PUC, found:

Denying or not granting the (CON) is more favorable to society than the consequences of granting it until either one of two events occurs:

- ▶ the legislature authorizes construction of the ISFSI (dry cask storage facility); or,
- ▶ the commission (PUC) finds that there is a reasonable certainty that the spent fuel proposed to be stored in the dry casks will be removed from the state within a reasonable period of time.¹

The ALJ recommended granting the CON if either of the two events occurred. The ALJ found it unlikely that a federal facility will be available to take waste from the dry casks in the predictable future and that the facility is likely "permanent" in the sense that it has no foreseeable end. The PUC found that a federal facility will take the waste beginning in 2001 and that legislative approval is not needed for the facility under the state's Radioactive Waste Management Act because it is not a disposal by burial or a permanent storage facility.

State - Court of Appeals

The Minnesota Court of Appeals held that substantial evidence supported the PUC's action to grant the CON. However, the court also held that because the facility is more like than not like the type of facility that the legislature must approve under the Radioactive Waste Management Act, legislative approval is required before the facility may be operated.

2. What are the relevant Minnesota Statutes that govern approval of the dry cask storage facility?

The relevant portions of the Minnesota Radioactive Waste Management Act are:

116C.72 RADIOACTIVE WASTE MANAGEMENT FACILITY.

Notwithstanding any provision of sections 216C.05 to 216C.381 to the contrary, no person shall construct or operate a radioactive waste management facility within Minnesota unless expressly authorized by the Minnesota legislature.

116C.71 DEFINITIONS.

Subd. 7. RADIOACTIVE WASTE MANAGEMENT FACILITY. "Radioactive waste management facility" means a geographic site, including buildings, structures, and equipment in or upon which radioactive waste is retrievably or irretrievably disposed by burial in soil or permanently stored.

Subd. 2e. DISPOSE, DISPOSAL. "Dispose" or "disposal" means the permanent or temporary placement of high level radioactive waste at a site within the state other than a point of generation.

3. What happens if the legislature does not approve the dry cask storage facility?

Disapproval or no action by the legislature probably will result in shutting down the Prairie Island reactors by the end of 1995. This result may occur if NSP does not take any of a number of other actions to prolong the radioactive waste storage capacity at the power plant.

4. To what extent can the state regulate high-level radioactive waste generated by a nuclear power plant?

Health, Safety, and Environmental Regulation - Preempted

The state is preempted by the federal Atomic Energy Act from regulation of the radiological hazards and safety considerations of nuclear power plants.²

Courts have interpreted the federal law to prohibit any type of state regulation imposed for the purposes of protecting health, safety, or the environment from radiation hazards. In the first major case in this area Minnesota attempted to limit radioactive releases from the Monticello power plant and to require monitoring of the releases. The courts held that Minnesota was preempted from this type of regulation.³

Other cases have established that regulation based on unproven technology of a plant or any other issues related to safety considerations at a plant are preempted and may only be decided by the federal Nuclear Regulatory Commission.⁴

Economic and Nonradiological Regulation - Not Preempted

A state may regulate (or prohibit) nuclear power plants for:

- (1) economic reasons such as the unknowable cost of management of radioactive waste in the future;
- (2) lack of economic need for electricity to be generated by a proposed nuclear power plant; and
- (3) erosion and sedimentation control or public nuisance such as excessive steam generation making visibility difficult.⁵

Also, state tort law may apply to nuclear power plants for the purposes of compensating workers for excessive contamination or protecting workers from retaliatory firing for reporting safety violations.⁶

Effect of the Legislative Decision on Dry Cask Storage

A decision made by the state legislature regarding the high-level radioactive waste dry cask storage facility that is based on health, safety, or environmental considerations is subject to invalidation under current law.

An express rejection of the dry cask facility is the most likely to be invalidated unless it is clearly based on economic or energy need considerations. No action by the legislature, while it may have the same result as an express rejection, is probably not as subject to a federal preemption challenge unless it is clearly based on health, safety, or environmental considerations related to the radioactivity of the waste.

Approval of the facility is the least likely to face a challenge based on federal preemption because the federal government already has approved the facility.

If the legislature wishes to approve the project with additional requirements, it can probably do so. Extra conditions cannot be based on health, safety, or environmental concerns related to the radioactivity of the waste. Possible valid conditions include: requiring NSP to set aside extra money for decommissioning its nuclear plants or for the currently unrecovered waste management costs of the future; a prohibition on including in the rate base or allowing recovery in rates of costs incurred by closing the plant early (for equipment failure or storage reasons); or a requirement that NSP develop alternative energy sources and/or engage in more aggressive conservation programs.

5. If a state has a temporary storage facility, can it exclude waste from other states?

Both the NRC license and the state Certificate of Need only allow waste from Prairie Island to be placed in the proposed dry cask storage facility.

The state probably cannot prohibit storage of high-level radioactive waste from other states or other nuclear power plants at the dry cask facility at Prairie Island. Given the pervasive federal preemption of concerns related to high-level radioactive waste, it is unlikely that a state would be allowed to prohibit entry into the state of waste generated elsewhere as long as the NRC has approved the facility and the transport of the waste.

The Dry Cask Proposal and Alternatives

6. What are the physical dimensions and nature of the casks and the storage site at Prairie Island?

Each storage cask is 16 feet, 10 inches tall, and 8 feet, 6 inches wide. When fully loaded, each cask will weigh approximately 122 tons. The capacity of each cask is 40 spent fuel assemblies; each assembly is 179 uranium dioxide rods. The casks will have steel walls 9-1/2 inches thick. The casks are built to withstand ambient air temperatures between -40 and 120 degrees Fahrenheit.

The casks will sit on two cement pads designed to hold 48 casks, surrounded by two security fences and an earthen berm which is taller than the tops of the casks. This separate facility to hold the casks is built and is located outside the power plant on power plant property.

7. How long can the casks store the waste?

The casks have a minimum design life of 25 years and a life expectancy of 40 years. If the waste leaves the Prairie Island site for storage or other management elsewhere, the waste in the storage casks must be removed from the casks and placed in transport casks.

8. Are there other dry cask storage facilities in the United States?

There are six other dry cask storage facilities operating in the United States. There are no other facilities using casks designed and built by Transnuclear, the builder of the Prairie Island casks. Each dry cask system must be licensed by the NRC before a vendor can sell the system for use by a nuclear power plant.

9. Could the storage capacity inside the power plant be expanded to hold more waste without building a separate facility?

There are three possible alternative modifications to the pool that could increase storage capacity. Two-tiered racks could be installed. The spent fuel rods could be consolidated. The pool could be reracked for the third time. The first two would increase storage capacity by 35 percent each. They are both risky and costly. The third, reracking, appears the most feasible, although it also is risky and costly.

Reracking would require a license from the NRC, which would take about 12 to 18 months. It would take about 6 to 12 months to actually rerack. The plant would be shut down during the time for reracking.

Once the pool is reracked, it would hold about 20 percent more waste, enough to allow the plant to operate for about four more years. The same amount of waste would fill seven dry casks.

If NSP started the license process in March 1994 and received a license by September 1995, and if everything went smoothly, the plant could be operational again by September 1996, with enough waste storage capacity to last until sometime in 2000.

Reracking is estimated to cost between three and five-and-a-half million dollars more than the dry cask storage facility.

10. Are there ways to prolong the operation of Prairie Island without additional waste storage capacity?

Waste Reduction

The administrative record reveals a couple of ways to reduce the amount of waste generated. One method discussed is to use "high burnup fuel" in the Prairie Island reactors, which results in less waste. The other is to reduce the amount of energy produced by the Prairie Island reactors, either by operating the reactors at less than full capacity or by operating only one reactor.

Conservation and Energy Replacement

The energy that is not generated by operating at less than full capacity or by operating only one reactor would have to be replaced or not consumed. The ALJ found that the demand for a significant portion of the energy produced by Prairie Island could be reduced by energy conservation measures. The ALJ also found that a combination of phasing out operation of Prairie Island over the next few years, an aggressive conservation program by NSP, and building new combination windpower and natural gas generating facilities could replace the energy generated by Prairie Island without significant cost increases. The PUC found the "stretch-out" alternative articulated by the ALJ to be too expensive and too uncertain.

High-Level Radioactive Waste Generation and Management

11. What is high-level radioactive waste?

Spent fuel, a form of high-level waste, consists of used reactor fuel rods that are no longer capable of facilitating a nuclear chain reaction. Nonetheless, the rods are extremely hot in both the thermal and radioactive senses of the word. As a result, they require heavy shielding, remote handling while in storage, and significant cooling periods.

Another form of high-level waste is the residue that remains when spent fuel is reprocessed to retrieve plutonium and uranium. This form of waste is highly radioactive, generates significant heat and requires heavy shielding. Reprocessing of nuclear power plant radioactive waste is illegal in the United States for national security reasons.

12. How much high-level radioactive waste exists in Minnesota?

High-level radioactive waste in the state comes from NSP's nuclear reactors at Prairie Island and Monticello. Currently, at Prairie Island, there are 1,281 fuel assemblies in its storage pool. Monticello has 710 fuel assemblies in its storage pool. Each assembly consists of 179 spent fuel rods. Much of the waste generated at Monticello has been transported to a storage facility in Illinois. Monticello is nearing the end of its operating license (1998). Prairie Island is about halfway through its operating license (2013 and 2014 for the two reactors). NSP began, but has placed on hold, the process for relicensing Monticello.

The 17 casks authorized by the PUC would hold 680 fuel assemblies. The 48 casks authorized under the NRC license would hold 1,920 fuel assemblies.

13. Where does high-level radioactive waste go now?

Because there is no permanent repository or monitored retrievable storage site in the country (see #14 and #15), nuclear power plants continue to store spent fuel rods in wet storage pools that were designed primarily for cooling. When a nuclear reactor is periodically refueled, spent fuel rods are removed from the reactor core and placed in racks in the wet pool. The water cools down the high temperature of the rods and acts as a barrier to the transmission of radiation. At Prairie Island, NSP has expanded the pool capacity twice by packing the fuel rod assemblies closer together.

Originally, waste was to be cooled for a period of years and then removed for reprocessing (see #11) or transporting to a federal storage site.

14. When will the federal permanent repository for high-level radioactive waste be ready?

Although Congress, in the Nuclear Waste Policy Act of 1982⁷ has mandated a 1998 operating date for the Yucca Mountain facility, the United States Department of Energy (DOE) has a targeted operating date of 2010. DOE has yet to determine if the Yucca Mountain site is technically acceptable as a permanent repository. A recent report by the General Accounting Office places that date between 2015 and 2023 if significantly more money is allocated to study and prepare the site. The GAO also expressed concern that DOE is compressing many of the scientific studies with the possible result of an increased potential for legal challenges to the facility.

The ALJ stated in the findings on the application for the Certificate of Need:

The record reflects serious doubt as to when, if ever, a Yucca Mountain repository will be operational. ...Even if Yucca Mountain is found to have the proper characteristics, and does become operational, there may be a need for a second permanent repository because of the legal limit on the amount of fuel that the Yucca Mountain repository is allowed to hold. ... The Yucca Mountain storage facility would reach maximum capacity under current storage schedules before all of Prairie Island's waste is taken.

The Minnesota Department of Public Service (DPS) outlined three possible scenarios for a federal permanent repository to be operational: an "Adjusted Department of Energy Schedule," which is the likely schedule if Yucca Mountain is found to be acceptable; an "Alternative Site Schedule," which is the likely schedule if Yucca Mountain is found to be unacceptable, but an acceptable alternative site is found; and an "Indefinite Schedule," which is the likely schedule if neither of the first schedules occur.

| | |
|--|---------------|
| Adjusted Department of Energy Schedule | 2015 - 2055 |
| Alternate Site Schedule | 2029 - 2084 |
| Indefinite Schedule | 2074 or later |

The ALJ stated, "It is also possible that the federal government will abandon efforts to develop a permanent repository and pursue other methods for handling nuclear waste. The Nuclear Regulatory Commission has indicated its belief that nuclear generating plants could store spent fuel on-site for at least 100 years without significant environmental impact."

15. When will a monitored retrievable storage (MRS) facility for high-level radioactive waste be ready?

As part of the Nuclear Waste Policy Act, DOE was to study the need for a monitored retrievable storage facility to hold high-level waste until the first permanent repository was built. Under current law no MRS can be operated until construction of a permanent repository is begun.⁸ However, the ALJ found that Congress would likely remove this linkage requirement if a "volunteer" site for the MRS could be found.

DPS outlined three possible scenarios for the operation of an MRS: an "Adjusted Department of Energy schedule," which is likely if Yucca Mountain is found to be acceptable; a "Repository-linked Schedule," which is likely if Yucca Mountain is not acceptable and Congress does not remove the linkage requirement; and an "Indefinite Schedule," which would occur if Congress removes the linkage requirement. DPS did not attempt to estimate a possible date for an MRS if Congress removed the linkage.

| | |
|--|---------------|
| Adjusted Department of Energy Schedule | 1998 - 2012 |
| Repository-Linked Schedule | 2007 - 2036 |
| Indefinite Schedule | No date given |

16. What is the storage proposal by the Mescalero Apache Tribe?

The Mescalero Apaches, who are located in south central New Mexico, propose to build a monitored retrievable storage facility on their reservation to store high-level radioactive waste generated by NSP and other utilities. At this point, the tribe has a memorandum of understanding with NSP, but no legal contract and no monetary exchange. NSP estimates that the NRC licensing process for the facility, if approved, and site construction may take six years. NSP would be liable for the waste until it reaches the proposed facility. The Mescalero Tribe has yet to hold a referendum on the proposed facility.

Energy and Production Replacement and Reliability

17. How much electric energy does Prairie Island generate?

The Prairie Island power plant comprises about 12 percent (1060 megawatts) of NSP's nominal generating capacity. In 1990, the Prairie Island reactors generated about 20 percent of NSP's system needs (7600 gigawatts). Because the energy produced by the reactors is the least expensive for NSP to generate and because the plant provides a stable and reliable source of electricity, NSP looks to Prairie Island first for electricity needs.

18. If Prairie Island shuts down due to lack of waste storage space, can the energy be replaced?

If Prairie Island is shut down in 1995, it appears that there is probably enough extra electric energy available that NSP could purchase to replace it. Purchased electric energy, from the cheapest source, will probably cost more than electricity generated by Prairie Island. Early shut-down will also likely result in aggressive efforts to construct new electric energy generation facilities. Energy from these sources will, at least in the short term, cost more than the electric energy from Prairie Island due to capital costs of construction.

The administrative record shows that at least some portion of the energy lost to the system need not be replaced but could be saved through energy conservation efforts.

To the extent that shut-down is not immediate, using a stretch-out scenario, the combination of conservation, purchased power, and new generation sources appear to be more workable and less costly.

19. What are the options for replacing the energy generated at Prairie Island?

Conservation

The ALJ found that NSP could achieve conservation of 5400 gigawatt hours annually by 2010. In 1990, Prairie Island produced 7600 gigawatt hours of energy. Conservation cannot negate the need for all of the power produced at Prairie Island and clearly cannot do so in the short term.

Purchased Power

The Mid-Continent Area Power Pool, from which Minnesota takes most of its power, shows a decline of availability of power over the next decade. Purchased power is more available short term, but is unlikely on its own to be able to replace all of the power from Prairie Island on a long term basis.

New Generation Sources

The ALJ analyzed in depth the potential for wind energy and the use of biomass to generate energy to replace the power from Prairie Island. It is unlikely that either technology can be made operational in the short term, but there appears to be significant potential at least for windpower in the fairly near future. The ALJ found it possible to have 200 to 250 megawatts of wind power on-line in five years (about 18-23% of Prairie Island's capacity of 1060 megawatts). Further the ALJ found that combining windpower and natural gas generation could provide a significant amount of power. Biomass did not appear reliable in the short term.

The ALJ found that none of the above alternatives could, by itself replace the power from Prairie Island, but that in combination they could do so both in the short term and the long term if a stretch-out scenario is followed for shutting down the plant. The PUC agreed that the energy from the plant could be replaced but that the stretch-out scenario is imprudent and impractical and that the dry cask storage proposal costs less and maintains a reliable source of energy.

20. Will Prairie Island continue to be as reliable and efficient a source for electric energy as it has been for 20 years?

It is unclear whether Prairie Island will continue to operate as efficiently and reliably as in the past, regardless of the waste storage issue. The experience with reactors similar to the Prairie Island reactors that are located elsewhere is not as good as that of Prairie Island. There are indications that as the reactors age, their reliability and efficiency will diminish.

In addition, on July 14, 1993, Northern States Power initiated suit against Westinghouse Electric Corp. seeking compensation for design flaws in the Prairie Island steam generators, punitive damages, treble damages, costs of litigation, and reasonable attorney fees.

Westinghouse supplied the steam generators for Prairie Island. NSP alleges that the generators "contain a number of serious defects in design, material, and workmanship, fail to conform to the promises and representations made by Westinghouse ... and are not 'suitable for their intended purpose' or 'suitable for operation as part of the NSSS (Nuclear Steam Supply Systems)'... for the 40-year design life of the plant."

NSP also alleges that the defects in the generators "cannot be eliminated, negated or corrected," have caused unplanned plant outages and extended the duration of planned plant outages, and will continue to reduce the operational ability of the generators and impose additional costs on NSP.

How much the reliability or efficiency of Prairie Island may diminish due to aging or to design flaws is also uncertain at this time.

Costs

21. What are the costs if Prairie Island has to shut down early?

Since most of the cost figures in the administrative record were proprietary, it is difficult to know. NSP estimates that a Prairie Island shut-down would increase NSP's future revenue requirements by \$1.8 billion, mostly as a result of having to purchase replacement energy, as well as to construct replacement facilities. The resultant increase in rates is likely to be between three-and-a-half and eight percent in aggregate. Recent annual rate increases have been in the neighborhood of about six percent.

The ALJ found that conservation probably would not be much more costly than producing power at Prairie Island and that the portion of power that can be replaced using a combination of windpower and natural gas could be replaced at a cost comparable ratio of 1:1. This appears in conflict with the NSP estimates.

Other potential local costs include the loss of jobs and tax revenue. There are 500 full-time employees at Prairie Island with a \$28 million annual payroll. NSP pays property taxes

(1994) of \$4.9 million to Goodhue County, \$6.2 million to the city of Red Wing, and \$11.5 million to the local school district.

The earlier and more complete the shut-down, the greater the immediate costs and potential loss of revenue would be. With stretch-out alternatives, the costs are lower and more gradually imposed and the loss of revenue also would happen more gradually.

22. What is the cost to produce power from Prairie Island?

NSP estimates its internal cost for energy produced at Prairie Island to be about 1.5 cents per kilowatt hour. Including other estimated external (decommissioning, waste management, etc.) costs increases this cost to about 5.7 cents per kilowatt hour.

23. How much has NSP set aside for decommissioning of Prairie Island?

NSP has set aside \$103 million for the decommissioning of Prairie Island's reactors. Currently, NSP reserves approximately \$22 million annually in order to be able to pay for the full cost of decommissioning after 2014. The manager of capital asset accounting at NSP testified in the hearing record that he believed the annual decommissioning costs would increase by approximately \$15 million if Prairie Island is closed in 1998, and by approximately \$35 million if Prairie Island is closed in 1994.

Health, Safety, and Environmental Aspects

24. Is the environmental impact statement process complete?

The final environmental impact statement prepared by the Minnesota Environmental Quality Board found that the proposed storage facility would have no significant environmental impacts. The proposal analyzed by the EIS was for 48 casks to last until 2020. Arguably, it applies as well to the 17 casks authorized by the Public Utilities Commission to last until 2001. However, the Court of Appeals stated that perhaps a supplemental environmental impact statement may be appropriate in conjunction with legislative approval.

25. What is the issue regarding the Department of Health's cancer risk standard for ionizing radiation?

This standard, which was the focus of much of the debate in the record, is set at one cancer risk in 100,000 persons. NSP argued that:

- ▶ the standard is not enforceable because it was never adopted as a rule;

- ▶ the standard was based on bad science; and
- ▶ the standard was not actually violated.

However, NSP agreed to make some changes in the location of the facility and in the earthen berm surrounding the dry cask storage facility, which the Department of Health accepted. Parties opposing the facility maintained that even given these changes, NSP had not satisfied its burden of proving that the standard would not be violated by the project. The administrative law judge found that the standard was unenforceable in any event.

26. How significant is the fact that dry cask storage site is located on the Mississippi River floodplain?

The cement pad on which the casks will rest is above the 1000 year flood level. The waste will be doubly sealed inside each cask and monitored for leakage. DPS submitted that the floodplain location is not significant. Opponents of the proposal point out that the floodplain location is significant in the event of a catastrophic flood.

27. What concerns have been presented by the local Indian reservation community?

The Prairie Island Mdewakanton Sioux community consists of 200 people on 534 acres of reservation adjacent to NSP's nuclear plant. The community has expressed several concerns regarding the dry cask storage proposal, including:

- ▶ the potential risk of increased radiation exposure from above-ground storage;
- ▶ the danger of locating highly radioactive material next to the Mississippi River using new technology;
- ▶ the need for epidemiological studies to assess radiation exposure levels in the population before dry cask storage is approved;
- ▶ the potential economic impact to the community of affecting businesses, including Treasure Island Casino, a river marina and a recreational vehicle park, that employ close to 1,500 people.

Sources

Application for Certificate of Need for Prairie Island Spent Fuel Storage Facility, NSP before the MN Public Utilities Commission, April, 1991, Vol. 1, Application; Vol. 2, Environmental Impact Statement.

In the Matter of an Application for a Certificate of Need for Construction of an Independent Spent Fuel Storage Installation, Findings of Fact, Conclusions and Recommendation, Minnesota Office of Administrative Hearings, April 10, 1992.

In the Matter of an Application for a Certificate of Need for Construction of an Independent Spent Fuel Storage Installation, Order Granting Limited Certificate of Need, Public Utilities Commission, August 10, 1982.

In the Matter of an Application for a Certificate of Need for Construction of an Independent Spent Fuel Storage Installation, 501 N.W.2d 638 (Minn. App. 1993).

Amicus Curiae Brief of Certain Individual Members of the Minnesota House of Representatives and the Minnesota Senate, February, 1993.

"Nuclear Waste, Yucca Mountain Project Behind Schedule and Facing Major Scientific Uncertainties," U.S. General Accounting Office, May 21, 1993.

Northern States Power v. Westinghouse Electric Corporation, Complaint; U.S. District Court Third Division, Civil Action No. 93, July 14, 1993.

Witness statements and materials presented to the Senate Committee on Jobs, Energy and Community Development, 1993-94.

Mike Bull, research assistant, provided extensive research assistance for this report.

This publication can be made available in alternative formats upon request. Please call Karin Johnson, (612) 296-5038 (voice); (612) 296-9896 or 1-800-657-3550 (TDD).

Endnotes

1. In the Matter of an Application for a Certificate of Need for Construction of an Independent Spent Fuel Storage Installation, Findings of Fact, Conclusions and Recommendation, Minnesota Office of Administrative Hearings, April 10, 1992, page 41.
2. The express preemption in the Atomic Energy Act is stated in the negative.

Nothing in this section shall be construed to affect the authority of any State or local agency to regulate activities for purposes other than protection against radiation hazards. 42 U.S.C. § 2021 (k).

3. 447 F.2d 1143 (8th Cir. 1971), *affd*, 405 U.S. 1035 (1972).
4. Marshall v. Consumer Power Co., 237 N.W.2d 266 (Mich. Ct. App. 1975); County of Suffolk v. Long Island Lighting Co., 728 F.2d 52 (2d Cir. 1984).
5. Kerr McGee Chemical Corp. v. City of West Chicago, 914 F.2d 820 (7th Cir. 1990); Marshall v. Consumers Power Co., 237 N.W. 2d 266 (Mich. Ct. App. 1975).
6. Silkwood V. Kerr-McGee Corp., 464 U. S. 238 (1984); English v. General Electric Corp., 110 S.Ct. 2270 (1990).
7. 42 U.S.C. §§ 10101-10226.
8. 42 U.S.C. § 10243(d)(4).

NSP's nuclear reactor facility at Prairie Island

