STATE OF MINNESOTA

ENVIRONMENTAL QUALITY BOARD

In the Matter of An Environmental Impact Statement for an Independent Spent Fuel Storage Installation at the Monticello Nuclear Generating Plant

ENVIRONMENTAL IMPACT STATEMENT SCOPING DECISION AND SCOPING ENVIRONMENTAL ASSESSMENT WORKSHEET

Docket No. 04-87-CON-Monticello
June 16, 2005

The above-entitled matter came before the Environmental Quality Board (EQB) for a decision on the scope of the environmental impact statement (EIS) to be prepared for a proposed independent spent-fuel storage installation (ISFSI) at the Monticello Nuclear Generating Plant. The Monticello Generating Plant will run out of storage capacity for spent nuclear fuel by 2010. Also, the United States Nuclear Regulatory Commission (NRC) operating license for the plant expires in September, 2010.

On January 18, 2005, Xcel Energy submitted its Certificate of Need Application ("CON Application") for the Monticello ISFSI to the Minnesota Public Utilities Commission (PUC). On March 16, 2005, Xcel Energy applied to the NRC for a twenty-year license renewal for the generating plant. Xcel Energy has asked the PUC for enough additional spent fuel storage capacity to allow the plant to operate for the entire twenty year license renewal period, until 2030.

Before the PUC can make its certificate of need decision for the ISFSI, the EQB must prepare an EIS. Minn. Stat. §116C.83, subd. 6(b). In addition, before deciding whether to grant the twenty-year license renewal, the NRC must prepare a supplemental federal EIS.

Having reviewed the record in this matter, the Environmental Quality Board makes the following scoping decision regarding the Monticello EIS.

I. SUMMARY

First, the EIS will address the environmental impacts of both the proposed ISFSI and continued operation of the Monticello Generating Plant until 2030. Second, although federal regulations (NRC) preempt state authority over radiological health and safety, the EIS will address radiological safety issues to help inform the public, help compare generation alternatives, and potentially inform the NRC regulatory process. The EIS,

however, will review and summarize existing information in this area but will not include detailed new analysis. Third, the EIS will assess the potential impacts of long-term on-site storage (up to 200 years) of the additional spent fuel generated at Monticello during the re-licensing period—in parallel with the cost analysis the PUC required in its *Order Finding Application Substantially Complete* dated April 7, 2005. Fourth, the EIS will assess potential groundwater, surface water and floodplain impacts.

Fifth, for most other topics, such as the project description and general environmental impacts, there is a large amount of existing information in the CON Application, supplements and other sources. In addition, the NRC will be completing a detailed supplemental EIS as part of its license renewal decision. Therefore, most relevant technical and environmental issues—other than an analysis of generation alternatives—are either (1) addressed in detail in the CON Application or in subsequent supplements, (2) preempted by federal regulations, (3) subject to detailed review in the federal EIS, or (4) a combination of the above. For these topics, the EIS will verify, summarize, supplement and incorporate by reference available information as outlined in the attached Scoping EAW. Finally, the EIS will include an new study that will define and analyze the feasibility and impacts of generation alternatives to continued operation of the Monticello Generating Plant until 2030.

II. Background

Since the early 1970s, the State of Minnesota has periodically been on the forefront of the complex interface between federal and state regulatory authority over nuclear energy. See, e.g., *Northern States Power Co. v. Minnesota*, 447 F.2d 1143 (8th Cir. 1971), aff'd mem., 405 U.S. 1035 (1972)(federal government has exclusive authority to regulate radioactive discharges from nuclear reactors); and *State of Minnesota, by the Minnesota Pollution Control Agency v. United States Nuclear Regulatory Commission*, 602 F.2d 412, (D.C. Cir. 1979)(MPCA asking NRC to formally determine whether it must assess impacts of long-term storage at reactor sites before allowing more storage capacity; leading to subsequent NRC "Waste Confidence Rule.")

This time, the EQB must decide the scope of the environmental information the PUC needs in order to make an informed decision on whether to issue a certificate of need for dry cask storage at the Xcel Energy Monticello Generation Plant.

1. **Federal Preemption.** Federal (NRC) regulations preempt state regulation of radiological, health and safety standards applicable to nuclear generating plants and spent nuclear fuel storage. The issue is not whether this is true, but whether this should affect the scope of a state EIS on nuclear spent fuel storage. Despite federal preemption, the EIS information could still be used to inform the public, help compare alternatives, and inform the NRC. However, as outlined below the analysis in this area is limited to a verification, review and summary of existing information from the CON Application and other sources. That is because the EIS will focus new studies on issues that are directly relevant to areas over which

the state has authority, such as the generation alternatives analysis. See e.g., Minn. Rule part 4410.2300, item H, and Guide to Minnesota Environmental Review Rules, 1998, at p.10. ("...RGU is to consider the cost of obtaining the information compared to its importance and relevance...")

2. **EIS Scoping Process.** The purpose of this EIS is primarily to provide environmental information to the PUC for its decision on whether to grant a certificate of need for on-site dry cask storage of spent nuclear fuel at Monticello. The first step in the EIS is the "scoping process." The purpose of scoping is, in part, to reduce the scope and bulk of the EIS and to identify only those potentially significant issues relevant to the proposed project. Minn. Rules, part 4410.2100. This scoping decision describes the major issues to be studied in the EIS, new studies to be completed, and the issues that will not be studied in the EIS. In addition, the scoping environmental assessment worksheet (EAW) incorporated in this scoping decision summarizes the proposed project and potential impacts, and also describes the level of detail to which each topic will be studied further in the EIS.

3. **Certificate of Need (CON) Application.** The CON Application describes the proposed project in detail and provides information and analysis required by PUC rules. For example, the CON Application describes the location of the generating plant, the location, design and operation of the proposed dual purpose ISFSI system, the expected quantities of spent-fuel to be stored, the alternatives to dry-cask storage considered, as well as the estimated cost and air pollution emissions of several base-load generation alternatives. The CON Application also contains an overview of the environmental, economic, employment impacts of the proposed ISFSI and predicted on-site and off-site radiation exposure in the surrounding area. Xcel Energy will also be providing supplemental information as required by the PUC.

4. **NRC License Renewal Application.** Xcel Energy applied on March 16, 2005 for a 20-year license renewal that would allow the Monticello Generating plant to continue to operate until 2030. The NRC license renewal process also includes a federal EIS (both generic and supplemental) and related public comment opportunities that will cover, among other issues, the expected radiation safety and health impacts of continued operation of the plant and ISFSI, as well as a separate analysis of the impacts of generation alternatives to the continued operation of the Monticello plant itself. The NRC EIS process also includes a scoping process, public meetings, and opportunity for public comment.

III. MATTERS TO BE ADDRESSED IN THE EIS

The Environmental Quality Board will address the following matters in the Environmental Impact Statement on the proposed construction of a dry cask storage facility at the Monticello Nuclear Generating Plant.

A. Project Description.

The EIS will verify, summarize, and supplement the description of the proposed Monticello ISFSI and generating plant provided in the CON Application, but will not repeat the information in its entirety. The EIS will assume the maximum spent fuel casks required for a worst-case analysis. That is, at decommissioning of the plant in 2030, an additional 35 storage vaults would be needed to allow full off-loading of the spent fuel, for a total of 65. The impacts of long-term storage of 65 filled canisters on site will be evaluated in the EIS, and compared to the 40 that would be needed if the generating plant shut down in 2010. Also, the EIS will summarize the operation of the Monticello Generating Plant through 2030 because its continued operation is dependant on the approval of the ISFSI. The EIS will also include a summary of the type and probability that high-level radioactive waste other than spent fuel that may have to be stored in the ISFSI over the term of storage.

B. Environmental Impact Analysis.

1. **Non-Radiation Environmental Impacts.** The EIS will summarize the major potential environmental impacts associated with construction and operation of the ISFSI at the Monticello Plant and potential mitigation—for a minimum of a five mile radius from the plant. The EIS will also verify, review and summarize the non-radiation and other water and air emissions related to the ISFSI and continued operation of the Monticello Generating Plant itself so that these impacts can be compared to reasonable alternatives. (The NRC will also complete a detailed evaluation of environmental impacts, and mitigation options, of continued plant operations during its license renewal review.) See Minn. Rule 4410.3900, subp. 1. (state units shall cooperate with federal environmental review agency to reduce duplication). The level of detail to which various potential environmental impacts will be evaluated in the EIS is outlined in the attached Scoping EAW.

2. **Radiation and Safety.** As described in Section II.1, above, the EIS will include a summary and review of the characteristics of radiation and neutron emissions associated with the proposed ISFSI, including a summary of the information in the CON Application and the estimated ISFSI contribution to nearby radiation exposure levels. Regarding releases from the generating plant, the EIS will also summarize existing information regarding natural background radiation exposure in the Monticello area, the additional contribution from the generating plant, and the sources, magnitude, dispersion patterns and health risks associated with routine radionuclide releases from the plant. This section will also discuss the applicable federal NRC regulations regarding radiation and verify and summarize the health risk analysis in the CON Application. While the EIS will summarize existing information in this area, it will not include new studies evaluating federal standards or procedures, or other aspects of radiological health and safety of the ISFSI or plant operation.

3. **Groundwater Protection.** Minn. Stat. § 116C.83, subd. 6(b) requires the EIS to address whether the facility is designed "to provide a reasonable expectation that the operation of the facility will not result in groundwater contamination in excess of the water standards established in Minn. Stat. § 116C.76, subd. 1, clauses (1) to (3)." The EIS will address this issue. The EIS will summarize the federal regulations that apply to groundwater radiation releases, exposure or health risks associated with either the proposed ISFSI or the generating plant but will not evaluate additional mitigation measures in detail because the NRC has sole regulatory jurisdiction over these issues.

4. **Storage Technology, Accidents, Terrorism.** The EIS will summarize existing information on the potential for radiation and radionuclide releases from an ISFSI failure due to degradation, accidents and terrorism over a term of storage of up to 200 years, using existing studies, such as those already completed for other ISFSI's in other states. Likewise, regarding continued operation of the Monticello Generating Plant, the EIS will briefly summarize the risk of large-scale radionuclide releases from the plant for the licensing period (a topic to be addressed in the NRC EIS) in order to help compare the impacts of the proposed project to potential alternatives. (But see Section IV.3 below on what is not included on this topic.)

5. **Radiation and Radionuclide Monitoring**. Existing radiation and radionuclide monitoring, monitoring responsibility, and monitoring results for air, water, and groundwater will be summarized, and need for, responsibility for, and feasibility of additional monitoring will be evaluated.

6. **Term of Storage.** The EIS will assess the potential impacts on on-site storage at the Monticello Generating Plant for (1) 30 years beyond the NRC licensed life of operation, and (2) up to 200 years, assessed in 50 year increments. This time period is chosen because it is the same time period the PUC required Xcel Energy to develop a cost analysis for in its *Order Finding Application Substantially Complete* dated April 7, 2005.

   The 200-year storage scenario is necessary to address in the EIS because, while the ISFSI will not be evaluated for suitability as a permanent spent fuel repository, the spent fuel could remain on site for generations. No one knows exactly how long the spent fuel would be stored at Monticello. Even if a permanent repository at Yucca Mountain opens by 2012 or so, Yucca Mountain is currently designed to hold 70,000 metric tons of spent nuclear fuel. It is unlikely that the additional spent fuel generated after 2010 at Monticello would fall within this initial 70,000 tons. The EIS will summarize the basis and status of the 70,000 metric ton limit and summarize the physical capacity of Yucca Mountain, based on the U.S. Department of Energy EIS. The EIS will summarize existing federal regulations regarding ISFSI design and operation and summarize surrounding issues, but will

not include a separate study of design adequacy from a health and safety perspective for long-term storage because the NRC has sole jurisdiction over this and related issues.

7. **Cumulative Impacts Matrix.** The cumulative impacts of continued plant operation until 2030 and potential on-site storage of spent fuel at Monticello for up to 200 years will be assessed through a summary matrix of environmental impacts paired with critical factors such as geological and river changes, radiation and radionuclide release and safety monitoring assumptions, ownership responsibility, canister and vault degradation, for 50 year increments up to 200 years past 2010.

C. Alternatives to the Proposed Dry Cask Storage Facility.

As with radiation health and safety, the NRC has jurisdiction over the selection of dry cask storage technology. The EIS will summarize the review of alternatives to the proposed ISFSI as provided in the CON Application, but will not repeat the information in detail, nor will the EIS evaluate other alternatives than those already provided in the CON Application. The following alternatives to the proposed ISFSI technology will be reviewed and summarized in the EIS:

1. Extend pool storage, including the potential to re-rack such that pool storage would be available until 2014;
2. Cask technology alternatives reviewed in the CON Application;
3. Size alternatives. The EIS will include a histogram of spent fuel production and storage requirements for the Monticello Facility;
4. Site alternatives.

Yucca Mountain. The EIS will summarize the federal government's role and responsibilities for spent nuclear fuel storage and disposal and the schedule and status of the federal government's effort to establish a repository at Yucca Mountain.

Private Fuel Storage. The EIS will summarize the current status and schedule of the private fuel storage proposal for an interim storage facility in Utah.

D. Alternatives to Continued Operation of the Monticello Nuclear Plant. New Study and Data Analysis

The EIS will include a study and analysis of new data regarding the feasibility and environmental impacts of reasonable alternatives to continued operation of the Monticello Generating Plant. For this analysis, the EIS will incorporate by reference the economic analysis by the Minnesota Department of Commerce and other parties to the Certificate of Need proceeding at the PUC. The EIS will evaluate the land use and environmental characteristics of the generic alternative generating technologies. The EIS will estimate the land necessary for a plant approximately 600 MW in size for each alternative. The EIS will estimate fuel consumption and air and water emissions associated with each type of plant and solid waste volumes and environmental characteristics associated with each plant type. In addition, the CON Application alternatives analysis is based largely on a proprietary computer model called "Strategist" developed by New Energy Associates, Inc. The Strategist model will be evaluated for possible use for the state EIS, and if used, all algorithms will be reviewed and input assumptions will be evaluated and described in detail. Alternatively, if Strategist model details and assumptions are not adequate, a different method of evaluating alternatives will be used.

The following 600 megawatt capacity alternatives will be addressed:

1. **A base load pulverized coal** power plant.

2. **A coal fueled integrated gasification** combined cycle power plant.

3. **A natural gas fueled** combined cycle plant.

4. **Wind and natural gas plant combination**. Wind turbines alone cannot replace a baseload resource like Monticello and are not an alternative but are often considered in combination with natural gas fueled plants. The EIS will describe wind turbine technology generically, and define and evaluate different wind configurations coupled with dispatchable baseload natural gas technologies.

5. **System wide distributed , renewable generation.** The EIS will define and study one or more renewable energy based "distributed generation" alternatives. The alternatives must be capable of replacing the Monticello Generating Plant with a combination of conservation, load management, wind, biomass, or other renewable energy source, for 2010 through 2030. The alternatives must be functionally capable of replacing about 600 megawatts of baseload capacity.

Definition Process: In its *Order Finding Application Substantially Complete*, dated April 7, 2005, the PUC required Xcel Energy to define at least one version of this alternative as part of the required supplement to the CON Application. Additional alternatives will be defined and evaluated in the EIS with the help of a

selected group of distributed generation experts who will be asked to participate in a collaborative process to review and define the potential alternatives. The following four default alternatives will be used as a starting point for the expert review:

- The alternative(s) developed by Xcel Energy;
- Approximately 50 MW of demand-side management, 50 MW of wind (accredited capacity), 50 MW of run of the river hydropower, with the balance of the alternative to be biomass- fueled;
- Approximately 50 MW of demand-side management, 100 MW of wind (accredited capacity), 100 MW of run of the river hydropower, with the balance of the alternative to be biomass-fueled; and
- The possibility that no alternative of this type is economically feasible enough to justify further evaluation.

The final decision regarding which alternatives to include within the EIS and their specific definition will be made by EQB Staff with input from interested parties. The criteria to be used by EQB Staff in making the decision are those to be used by the Public Utilities Commission in making the ultimate decision regarding Xcel's Petition (Minnesota Rules 7855.0120).

Information required by Minnesota Rules chapter 7855 for any DG alternative will be supplied within the EIS if the information is not already included within Xcel's Petition or Xcel's June 15, 2005 Supplement.

5. No-build alternative. The consequences of shutting down the Monticello Generation plant with no replacement generation will be briefly described, including the description of the ISFSI capacity likely required for decommissioning whether or not the plant continues to operate past 2010.

E. ***Economic Feasibility of Alternatives***.

The analysis of the economic feasibility will cover the same alternatives for which environmental impacts are evaluated, but will incorporate by reference the analysis of the Department of Commerce in the CON proceeding.

F. Permits.

All required permits for the ISFSI and plant license renewal, in addition to the CON, such as a NPDES stormwater permit, will be listed in the EIS. Federal NRC permits and environmental review timelines and status will be summarized, including a list of issues to be addressed in the federal EIS.

IV. MATTERS NOT WITHIN THE SCOPE OF THE EIS

The following issues will not be addressed in the Environmental Impact Statement.

1. **Prairie Island Plant**. The EIS will not evaluate the consequences of a shut down of the Prairie Island Generation Plant, nor will it evaluate alternatives to continued operation of the Prairie Island Generating Plant.

2. **Monticello Plant Radiation and Safety.** The EIS will summarize the environmental impacts of radiation and radionuclide releases due to continued operation of the Monticello Generating Plant, including ongoing and planned monitoring efforts, as described in the Scoping EAW. The NRC will also complete a detailed evaluation of environmental impacts, and mitigation options, of continued plant operations during its license renewal review. See Minn. Rule 4410.3900, subp. 1. Likewise, the EIS will summarize but will not independently evaluate in detail potential mitigation methods regarding radiation and safety issues of continued operation of the plant because the NRC has sole regulatory jurisdiction over those issues.

3. **Storage Technology, Accidents, Terrorism.** The EIS will summarize existing information on the potential for and factors that could lead to radiation and radionuclide releases from an ISFSI failure due to degradation, accidents and terrorism over a term of storage of up to 200 years, using existing studies, such as those already completed for other ISFSI's in other states. (See Section III.B.4, above). But the EIS will not complete new evaluations of dry cask storage options or security because the NRC has sole jurisdiction over whether and how spent fuel is stored on site at nuclear power plants, including ISFSI design and safety from threats such as accident and terrorism. The EIS will review and summarize, but not independently study or evaluate in detail, long-term safety of the ISFSI, ISFSI management, or the adequacy of security at the generating plant or the proposed ISFSI. For example, the EIS will not include a quantitative assessment of the probability of ISFSI structural failure over the 50 to 200 year term of storage period to be studied in the EIS.

4. **Nuclear Fuel Cycle.** The EIS will not address the impacts of the nuclear fuel cycle because that issue will be addressed in the federal generic and supplemental EIS to be completed during the federal re-licensing review.

5. **Off-Site Alternatives.** The EIS will not evaluate ISFSI sites outside the Monticello Generating Plant boundaries because other temporary or interim sites in Minnesota would require additional spent fuel handling and transport and would have no apparent environmental or financial benefit.

6. **Transportation of Spent Fuel from Monticello.** The EIS will summarize but not evaluate the impacts the most likely timing and route scenarios for transport of spent fuel from Monticello to a permanent repository at Yuccca Mountain, Nevada, or elsewhere.

7. **Nuclear Regulatory Commission Standards.** The EIS will summarize standards and rules promulgated by the NRC and their underlying regulatory assumptions, the EIS will not separately study or otherwise address the adequacy of any federal standards that are applicable to the ISFSI or the generating plant. Although the federal government has exclusive jurisdiction over ISFSI design and operation, the EIS will summarize but not evaluate in detail potential mitigation measures to reduce radiation exposure, accident risks or security requirements. Likewise, the EIS will not address the storage of spent nuclear fuel at the Monticello Generation Plant as a permanent repository.

V. SCHEDULE

The EQB intends to complete a Draft EIS by September, 2005.

The EQB or successor agency will publish notice of the availability of the Draft EIS and of the holding of a public meeting in late November, 2005 in the City of Monticello. The draft EIS will be distributed in accordance with Minn. Rules part 4410.2600..

The RGU will respond to all timely substantive comments within 30 days after close of the comment period.

The Final EIS will be submitted to the Public Utilities Commission by approximately December, 2005 depending on the length of the PUC hearing process..

Approved and adopted this 16th day of June, 2005.

STATE OF MINNESOTA
ENVIRONMENTAL QUALITY
BOARD

Robert A. Schroeder,
Chair

Revised 2/99

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form is available at www.mnplan.state.mn.us. *EAW Guidelines* will be available in Spring 1999 at the web site. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. If a complete answer does not fit in the space allotted, attach additional sheets as necessary. The complete question as well as the answer must be included if the EAW is prepared electronically.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation in the EIS.

1. **Project title** Monticello Independent Spent Nuclear Fuel Storage Facility

	2. **Proposer**	3. **RGU**
	Xcel Energy	Minnesota Environmental
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4. **Reason for EAW preparation** (check one)
☑ EIS scoping

If EAW or EIS is mandatory give EQB rule category subpart number and subpart name

An Environmental Impact Statement is required pursuant to Minnesota Statutes § 116C.83, subdivision 6(b).

5. **Project location** County Wright City/Township Monticello

NE¼ SE¼ Section 32 Township 122N Range 25W

Attach each of the following to the EAW:

- County map showing the general location of the project; (See Attachments A)
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); (See Attachment B-1 and B-2)
- Site plan showing all significant project and natural features. (See Attachment C-1 and C-2)

6. **Description**

a. Provide a project summary of 50 words or less to be published in the *EQB Monitor.*

Xcel Energy proposes to expand the storage of spent nuclear fuel at the Monticello Nuclear Generating Plant by establishing for an uncertain period of time an Independent Spent Fuel Storage Installation (ISFSI) approximately 200 feet by 460 feet in size to store up to 65 dry storage canisters in concrete vaults—including those needed for decommissioning at the end of the license renewal period. (Only 30 canisters are needed until decommissioning.) The ISFSI is required to allow the Monticello Nuclear Generating Plant to continue operating past 2010.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

The detailed description of the proposed project is in Chapter 3 of the Application. Chapter 3 is available online here: http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch3ProjectDesc.pdf

Treatment In EIS

The EIS will verify, summarize and review the project description but will not repeat the information in the CON Application. (E.g. See Project Description below.) No additional analysis is planned for the EIS regarding the description of general project location, the description of the spent fuel quantities or characteristics, or the description of the proposed storage containment system or operation.

Plant Description

The Monticello Nuclear Generating Plant is capable of generating approximately 600 megawatts of electrical power. The Plant is owned by Xcel Energy and operated by Nuclear Management Company, LLC ("NMC") under contract with Xcel Energy. NMC, a nuclear power plant operating company, is owned by Xcel Energy, Alliant Energy, CMS Energy, Wisconsin Public Service and We Energies. In addition to the Monticello plant, NMC operates the Prairie Island, Point Beach,

Kewaunee, Palisades and Duane Arnold plants in Minnesota, Wisconsin, Michigan and Iowa respectively.

The Plant is located within the city limits of Monticello, Minnesota, in Wright County, on the Mississippi River, in Section 32, T–122N, R–25W, at 45° 20' N latitude and 93° 50' W longitude, approximately 50 miles northwest of Minneapolis/ St. Paul (Figure 3-1 and 3-2). The plant is located on approximately 2150 acres of land owned by Xcel Energy. Part of this property is on the eastern bank of the Mississippi River in Sherburne County and part is on the western bank in Wright County. Access to the plant is restricted by a perimeter fence and other barriers.

The Monticello generating plant was first licensed in 1970 by the United States Nuclear Regulatory Commission (NRC) for a period of 40 years. This license will expire in September, 2010. Xcel Energy applied to the NRC on March 16, 2005 for a 20 year license renewal that would allow the plant to continue to operate until 2030.

Spent Fuel Pool

Xcel Energy stores spent nuclear fuel in a pool within the Monticello Plant. The spent fuel pool provides storage for spent fuel assemblies. The pool is located on the refueling floor in the reactor building. It is filled with racks that hold the spent fuel assemblies and other irradiated reactor components. This storage pool will run out of space in 2010. In order to continue to operate the Monticello Plant beyond 2010, Xcel Energy must find additional storage for the spent nuclear fuel. Xcel Energy has proposed to construct an independent dry cask storage facility onsite at which the spent nuclear fuel would be stored in canisters inside concrete vaults.

Spent Fuel Inventory and Production Estimate

The NRC operating license allows for storage of up to 2237 spent fuel assemblies in the current spent fuel storage rack configuration. Eight of the licensed storage spaces are not available because during manufacture they did not meet quality control specifications. This left 2229 storage spaces available for use in the pool at the Plant. Twenty of those spaces hold used reactor control rod blades. Thus, there are 2209 spaces available for spent nuclear fuel storage.

As of December 15, 2004, 1478 spent fuel assemblies were in the pool. The spent fuel pool has sufficient storage capacity to facilitate full core offload until 2007. In the mid 1980's, 1058 spent fuel assemblies were shipped to a General Electric storage pool in Morris, Ill.

Xcel Energy estimates that 1520 spent fuel assemblies would be discharged from Monticello's reactor during operation between 2010 and 2030.

The Independent Spent Fuel Storage Installation

Xcel Energy proposes to provide additional spent fuel storage at the Plant by establishing what in the parlance of the Nuclear Regulatory Commission is called an Independent Spent Fuel Storage Installation or ISFSI.

The storage facility as envisioned by Xcel Energy consists of a lighted area, approximately 460 feet long and 200 feet wide, roughly 3-1/2 acres in size, located adjacent to the reactor and turbine building. The tallest structures are the light poles that are approximately 40 feet tall. Two fences surround the facility with a monitored, clear zone between. Within the storage area, spent fuel canisters are stored in modular concrete vaults, placed on a reinforced concrete support pad, 18 to 24 inches thick. Concrete approach pads surround the support pad to accommodate vault placement and spent fuel canister transfer traffic. A small concrete building will be located within the ISFSI to house electrical equipment. The site and storage vaults are monitored with cameras, other security devices, and temperature sensors. An access road connects the ISFSI to the rest of plant.

The proposed design capacity of the ISFSI is thirty storage units. Thirty storage containers is equivalent to a design capacity of 144 cubic meters. The storage facility is laid out so that it can accommodate another thirty-five vaults on a second support pad without having to change the security perimeter. The extra space could be used for casks to decommission the Plant. An artists rendering of the ISFSI is shown in Figure 3-12.

The proposed ISFSI is intended for temporary storage. Xcel Energy anticipates that the spent fuel will be transported to a federal repository like Yucca Mountain when such a facility is available, although the date for such a facility is uncertain.

The Canisters

Xcel Energy proposes to use a dry storage canister system, called the NUHOMS 61BT, for the storage and transport of spent fuel at the Monticello Plant. Each canister is licensed to store and transport sixty-one (61) spent fuel assemblies. Each canister weighs approximately 45,400 pounds empty and 88,400 pounds loaded with spent fuel.

The NUHOMS 61BT Dry Fuel Storage System is designed, licensed, and manufactured by Transnuclear Inc. The NUHOMS 61BT system is licensed in accordance with federal regulations – 10 C.F.R. Part 72 for storage and 10 C.F.R. Part 71 for transportation.

A Transfer Cask is used to lift and handle the canister during spent fuel loading, closure, and transfer operations. The Transfer Cask is a NUHOMS OS197 cask. The transfer cask is made primarily of stainless steel. The exterior shell has a highly polished surface to facilitate decontamination. The transfer cask is constructed from two concentric cylindrical steel shells with a bolted top cover plate and a welded bottom end assembly. The space between these two shells is filled with cast

lead to provide gamma shielding. The transfer cask also includes an outer stainless steel jacket, which is filled with water for neutron shielding. The top and bottom end assemblies incorporate a solid neutron shield material.

Operation

Spent fuel assemblies must be stored in the spent fuel pool inside the Plant for at least five years before they can be loaded into dry cask storage canisters.

When it is time to load spent fuel assemblies, the NUHOMS 61BT canister is placed inside the NUHOMS OS197 Transfer Cask. The canister and cask are placed in the spent fuel pool and the fuel assemblies are loaded into the canister. The shielded lid to the canister is installed underwater, the canister is dried, and then welded and bolted shut. The canister and cask are then placed on a transport trailer and taken to the ISFSI, where the canister is inserted into the storage module. This system of loading the canister into vaults does not require lifting of the canister during transfer. The transfer trailer can be backed up to the storage module and the canister transferred to or from the storage modules.

The first storage campaign would begin in April 2008 and take approximately four months to complete. Additional spent fuel canisters would periodically be placed in more concrete storage modules at the ISFSI throughout the remaining operating life of the plant.

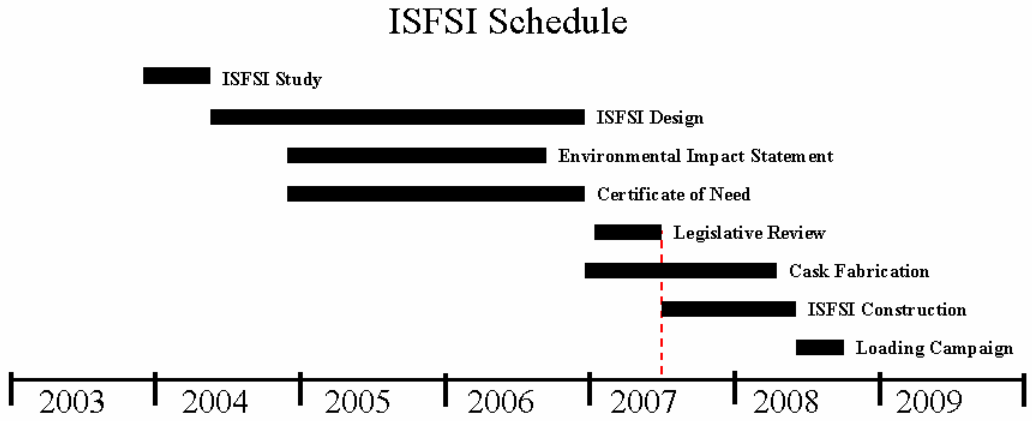
Cost of the ISFSI

The estimated installed cost of the ISFSI in 2004 dollars is $55 million. The estimate includes the following component costs:

Regulatory Processes	$ 2.0 M	
Engineering and Design		$12.0 M
Plant Upgrades		$ 4.0 M
ISFSI construction		$ 3.5 M
30 canisters and storage modules		$26.0 M
Canister Loading Campaigns	$ 7.5 M	
Total		**$55.0 M**

Construction Schedule

The overall ISFSI design is being done by Sargent & Lundy, 55 East Monroe Street, Chicago, Illinois 60603. The construction contractor will be selected in late 2006 or early 2007. ISFSI construction is anticipated to commence in July 2007 and be completed by June 2008. To support this schedule, storage canister system orders would need to be made and fabrication would need to begin in 2006. A preliminary project schedule is shown below.



c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The project is a private project. The need for the project is to provide storage capacity for spent nuclear fuel so the Monticello Plant can continue to operate for another twenty years.

Treatment in EIS

The ISFSI is needed to keep the Monticello Generating Plant operating past 2010, so the impacts of continued plant operation and alternatives will be evaluated in the EIS. The generating plant impacts and alternatives will be subject to a subsequent federal EIS, however, so this state EIS will summarize impacts only to the extent necessary to compare continued operation to reasonable potential alternatives. Neither impacts nor mitigation regarding radiation exposure or safety will be studied in detail.

d. Are future stages of this development including development on any outlots planned or likely to happen? _X_Yes No

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

The storage facility has been laid out to accommodate 35 additional storage modules within the security perimeter to facilitate plant decommissioning at the end of its renewed license.

e. Is this project a subsequent stage of an earlier project? __Yes ☑No

If yes, briefly describe the past development, timeline and any past environmental review.

7. **Project magnitude data**

Total project acreage: Approximately 3.4 acres (2.1 acres facility + 1.3 acres perimeter roadway)

Indicate areas of specific uses (in square feet):

Office	0	Manufacturing	0
Retail	0	Access Roads	58,000
Warehouse	0	Institutional	0
Facility developed area	92,000 (See below)	Agricultural	0
Other commercial (specify)		0	

Building height (vaults) 10 ft. If over 2 stories, compare to heights of nearby buildings

Industrial Building Areas

Storage Vaults	6,000 sq ft (30 units @ 40 ft x 150 ft) =
Concrete Pads	40,000 sq ft
Electrical Building	400 sq ft
Gravel	20,400 sq ft
Asphalt Security Zone	25,200 sq ft
Facility Total	92,000 sq ft (200 ft x 460 ft)
Perimeter Roadway	58,000 sq ft

8. **Permits and approvals required.** List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure.

Unit of government	**Type of application**	**Status**
Minnesota Public Utilities Commission	Certificate of Need	Filed January 18, 2005
MPCA	NPDES Stormwater Permit	

9. **Land use. Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.**

The detailed description of land use in the project area is provided in Section 6.1 of the Xcel Energy CON Application. Online, Chapter 6 is available through this link: http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch6EnvInfo.pdf

Treatment in EIS

The EIS will verify, summarize and review the existing and proposed land use for the project area, but will not repeat the information in the Application. No additional analysis is planned for the EIS regarding the descriptions of land use in the project area.

Summary

The proposed site is located entirely within the property of the existing Monticello Generating Plant property and is currently unused. The eastern portion of the site appears to have been used during construction activities for staging and lay-down. A review of aerial photos taken of the site, soon after the completion of the power plant, shows cleared areas in this vicinity. Evidence of construction activities, such as concrete pads and old equipment, was found on the site. This area is now partially re-vegetated with quaking aspen (Populus tremulodies), and grasses dominate the ground cover. Additional common species in this area include big tooth aspen (P. grandidentata), black cherry (Prunus serotina), gray birch (Betula populifolia), poison ivy (Rhus radicans), Virginia creeper (Parthenocissus quinquefolia), and wild grape (Vitis sp.). Approximately 80 percent of the site is covered with this second growth vegetation. The western and southern portion of the site borders on mature forest with numerous large pin oaks (Quercus palustris) still remaining along the edge of the site.

10. Cover types. Estimate the acreage of the site with each of the following cover types before and after development:

Before	**After**	**Before**	**After**
Types 1-8 wetlands		Lawn/landscaping	
0 acres	0 acres	0 acres	0 acres
Wooded/forest		Impervious surfaces	
2.47 acre	0 acres	<0.1 acres	1.82 acres
Brush/Grassland		Other (describe)	frost-free gravel
1.06 acre	0 acres	0 acres	1.71 acres
Cropland	0 acres	0 acres	
TOTAL		3.53 acres	3.53 acres

If **Before** and **After** totals are not equal, explain why:

11. **Fish, wildlife and ecologically sensitive resources**

a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

A description of wildlife and sensitive natural resources in the project area is provided in Chapter 6 of the the Xcel Energy CON Application, including 6.1.8 (Sensitive Environmental Resources). Chapter 6 is available through this link: http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch6EnvInfo.pdf

Treatment in EIS

This issue is not likely to be significant regarding the ISFSI. The impacts of thermal discharge due to the plant will be evaluated in the federal EIS and limits are under the NRC jurisdiction. Fish populations and potential impacts are not described in the Application, but no significant impacts due to the ISFSI is expected. The EIS will not repeat the information in the CON Application. No additional analysis is planned for the EIS regarding wildlife or sensitive species.

Summary

Fish: The Monticello Nuclear Generating Facility is located adjacent to the Mississippi River. The river exhibits a warm water fishery, including several species of sport fish like northern pike and walleye. The Mississippi River and the fishery are not expected to be impacted by the ISFSI.

Wildlife: About two and half acres of wooded land will be cleared. Some birds and animals will lose this amount of habitat. No significant impacts on wildlife are expected from the ISFSI. A Peregrine Falcon nesting area is in a nestingbox. A Dry Oak Savanna is found just west of the storage facility site.

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources such as native prairie habitat, colonial waterbird nesting colonies or regionally rare plant communities on or near the site? ☑Yes __No

If yes, describe the resource and how it would be affected by the project. Indicate if a site survey of the resources has been conducted and describe the results. If the DNR Natural Heritage and Nongame Research program has been contacted give the correspondence reference number: Describe measures to minimize or avoid adverse impacts.

The Minnesota Natural Heritage and Non-game Research Program identified two rare plant or animal species or other significant natural features within

approximately a mile of the storage facility site: dry oak savannah and the peregrine falcon.

A description of the rare plant or animal species in the project area is provided in Chapter 6 of the Xcel Energy CON Application, in Section 6.1.4.1. Chapter 6 is available through this link:
http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch6EnvInfo.pdf

Treatment in EIS

The EIS will review and confirm the information in the CON Application. However, no additional analysis is planned for the EIS regarding rare or endangered wildlife or plant species within one-mile of the project site.

Summary

Dry Oak Savanna

The project area appears to be located partially within an area identified by the Minnesota County Biological Survey as a "Site of High Biodiversity Significance." The closest classified area to the site is an area of High significance, located just west of the storage facility site. The Minnesota Natural Heritage Program has classified this wooded habitat as a Sand-Gravel Subtype of the Dry Oak Savanna. In its Biological Report # 20, Minnesota's Native Vegetation – A Key to Natural Communities Version 1.5, 1993, the Minnesota Department of Natural Resources describes this forest type is dry to dry-mesic community. It is most common in the deciduous forest-woodland zone, but also occurs sporadically throughout the prairie zone. The principal trees are bur oaks and northern pin oaks, but black oaks (Q. velutina) are also common in the southeast. The stature and spacing of trees is somewhat variable, reflecting differences in soils, topography, and climate, factors that strongly affect local droughtiness and fire frequency. Small, gnarly, open-grown trees are most common, although in moister spots, or in heavier soils, larger trees are sometimes more common. Tree spacing ranges from sparsely and evenly distributed to strongly clumped in moderately dense patches. Shrub cover is variable as well. The species composition of the shrub layer depends somewhat upon soil characteristics. Oak grubs and chokecherries are common on all soil types. On sandier soils, prairie willows (Salix humilis), New Jersey tea (Ceanothus americans), American hazelnuts (Corylus americana), sand cherries (Prunus pumila), and juneberries (Amelanchier spp.) are usually present. Wolfberries (Symphoricarpos occidentals) are commoner on heavier soils.

Dry Oak Savanna occurs on the same kinds of landforms as Dry Prairie, except for bedrock bluffs. Correspondingly, substrates range from excessively-drained to

well-drained, sand to loam soils. The presence of savanna rather than prairie indicates a lower fire frequency or intensity (or both) than in prairie. Dry Oak Savanna requires less frequent fire than Mesic Savanna for maintenance. However, in the complete absence of fire, woodland will eventually replace Dry Oak Savanna, which is what appears to have happened at the Monticello plant site. Grazing and browsing animals may also have had a role in the maintenance of Dry Oak Savanna.

Xcel Energy chose an area that was previously disturbed. See item 9 above. Clearing of mature oaks and other native under story will equal about 65 percent of the site, of which dry oak savanna type will equal about 20 percent or 0.71 acres.

Peregrine Falcon

The second occurrence found by the Natural Heritage and Nongame Research Program is a Peregrine Falcon (*Falco peregrinus)* nesting area, identified at the Monticello plant. Peregrine Falcons were recently removed from the U.S. Endangered Species List; however, they are still a state-listed threatened species in Minnesota and are further protected by the Migratory Bird Treaty Act. Historically, Peregrine Falcons nested on cliff ledges or in shallow caves in cliffs. However, this species has the ability to adapt to a wide range of environments, demonstrated by the diversity of habitats it now occupies throughout the world. Urban environments are becoming an important habitat for Peregrine Falcons, where buildings and bridges provide nesting structures and birds such as pigeons provide a food base. These urban Peregrine Falcons have contributed to the recovery of the species as a whole. In 1995, a nesting box was established on the stack at the Monticello Plant and peregrines introduced. Peregrines have successfully fledged at Monticello for years.

The Peregrine Falcons presently reside on the stack located south of the power plant facility. The proposed storage facility will be constructed well to the north of the nesting site. There does not appear to be any reason the proposed ISFSI would have any impacts on the nesting falcons.

12. Physical impacts on water resources. Will the project involve the physical or hydrologic alteration — dredging, filling, stream diversion, outfall structure, diking, and impoundment — of any surface waters such as a lake, pond, wetland, stream or drainage ditch? __Yes ☑No

If yes, identify water resource affected and give the DNR Protected Waters Inventory number(s) if the water resources affected are on the PWI: Describe alternatives considered and proposed mitigation measures to minimize impacts.

This topic will not be addressed.

13. **Water use. Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? __Yes ☑No**

    If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

    Proposed Treatment of Topic in EIS:

Water use and appropriation for the plant will be summarized, but the issue will also be addressed in subsequent federal EIS for plant re-licensing.

14. **Water-related land use management district. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? ☑ Yes No**
    If yes, identify the district and discuss project compatibility with district land use restrictions.

    The Mississippi River from St. Cloud to Anoka was added to Minnesota's Wild & Scenic Rivers Program in 1976. The portion of the Mississippi that passes by the Monticello power plant is within the portion of the Riverway designated "recreational."

    Recreational rivers are those rivers that may have undergone some impoundment or diversion in the past and that may have adjacent lands which are considerably developed, but that are still capable of being managed to further the purposes and intent of the designation. This means that bordering lands may have already been developed for a full range of agricultural or other land uses, and may also be readily accessible by pre-existing roads or railroads. Xcel Energy owns the largest undeveloped tract of land along this segment of the river which includes the buffer zones of the Monticello and Sherco power plants.

    The project is also located within the designated "Mississippi River Scenic Byway Corridor."

    The CON Application describes nearby parks, scenic river status and related issues in Section 6.1 of Chapter 6, available online here: http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch6EnvInfo.pdf

The project is located entirely within the Monticello power plant property and is not located in the flood plain. According to the CON Application, the proposed project will not be visible from either the Mississippi River or adjacent roadways, nor will the project impact any recreational opportunities that exist along this reach of the Mississippi River.

Proposed Treatment of Topic in EIS:

The EIS will include and overview of area's Wild and Scenic River status, as well as the Mississippi River Scenic Byway Corridor, and will summarize and verify the information in the CON Application regarding the project's potential conflicts with these designations.

15. **Water surface use.** Will the project change the number or type of watercraft on any water body? __Yes ☑No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

Proposed Treatment of Topic in EIS:

The EIS will not include a discussion of water surface use.

16. **Erosion and sedimentation.** Give the acreage to be graded or excavated and the cubic yards of soil to be moved:

Approximately 3.5 acres will be cleared. Approximately 4000 cubic yards of soil materials will be moved or excavated and replaced with structural fill for the concrete storage and approach pads at the site. The proposed site is relatively level.

Describe any steep slopes or highly erodable soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.

There are no steep slopes or highly erodable soils associated with the storage facility site. Hay bails, silt fencing or other erosion controls will be located around the site as necessary to mitigate erosion potential. These measures will be developed as part of the construction specifications later in the project.

Proposed Treatment of Topic in EIS:

The EIS will describe the measures to be employed to minimize erosion during construction of the facility.

17. **Water quality: surface water runoff**

Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

Since the site will not add any wastes to storm water, it is expected that the quality of the runoff will be similar to the existing runoff quality. The site will add a little more than an acre of impervious surfaces which will not absorb runoff. Therefore, the quantity of runoff will slightly increase. This runoff will be directed toward natural flow routes around the facility. Energy absorbing controls such as riprap and sediment controls will be used to minimize erosion into these natural flow routes

The Pollution Control Agency (MPCA) requires a NPDES permit for any discharges into streams and rivers and a permit for storm water discharges that occur during construction or operation activities. The permit application must outline an erosion and sediment control plan to be used to ensure that construction activities do not pollute nearby waterways.

Treatment in EIS

Chapter 6 of the CON Application included little information on actual pollutant concentrations expected in storm water runoff. The EIS will quantify the amount and type of such pollutants. So this topic will be addressed regarding the potential for additional runoff from the ISFSI site into the Mississippi River, for both conventional water pollutants of concern and radionuclides. (However, discharges of radionuclides are under exclusive regulatory authority of federal NRC).

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

During construction it is estimated that most storm water will drain into the soil since there will be little impervious surfaces and the sandy soils of the site are highly permeable. Construction measures will ensure that there are no point discharges from the site into any drainage ditches that could pass sediment runoff into natural flow routes that discharge into the Mississippi River

The storage facility will be designed with a slight slope to direct runoff to the sides of the facility. Ditches along the perimeter road will collect runoff and disperse the water to existing natural flow routes. Flow dispersion methods such as riprap will be used to absorb runoff energy before entering natural flow routes. Sediment controls such as geo-textiles and in-situ vegetation will be used to minimize erosion.

Proposed Treatment of Topic in EIS:

The EIS will describe Xcel Energy's erosion and sediment control program.

18. **Water quality: wastewaters**

Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

There will be no change in such wastewater produced or discharged at the Monticello Generating Plant Site. The ISFSI site will contain no restroom facilities or any other wastewater generating processes.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

Not applicable

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

Not applicable

d. If the project requires disposal of liquid animal manure, describe disposal technique and location and discuss capacity to handle the volume and composition of manure. Identify any improvements necessary. Describe any required setbacks for land disposal systems.

Not applicable

Proposed Treatment of Topic in EIS:

The EIS will not address any sources of sanitary or industrial wastewater discharges.

19. **Geologic hazards and soil conditions**

a. Approximate depth (in feet)

to ground water:	maximum 38.8 ft	minimum 29.6 ft	average 35 ft
to bedrock:	maximum 116 ft	minimum 97 ft	average 105 ft

Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

The CON Application includes more details on soils and groundwater depth and leak and spill prevention measures in Chapter 6, available on line here: http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch6EnvInfo.pdf

Xcel Energy has drilled a total of 12 borings at the site. The borings provided no indication of any irregular soil conditions. No sinkholes, shallow limestone formations or karst have been identified on the proposed site.

Also, in accordance with Minn. Stat. § 116C.83, subd. 5 and 6(b), the EIS will address whether the proposed ISFSI is designed to provide a reasonable expectation that the operation of the facility will not result in groundwater contamination in excess of the standards established in section 116C.76, subd. (1), clauses (1) to (3). The EIS will not, however, evaluate potential safety or mitigation measures to ensure this result because the NRC is asserting jurisdiction over storage design, operation and related radiological health and safety issues.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil granularity and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

The soils at the proposed site are primarily Hubbards, which are sandy mixed, frigid Entic Hapludolls. These soils are excessively permeable and have limited available water capacity. They readily transmit rainwater or any surface water to groundwater and are susceptible to wind erosion. The storage system proposed for use includes canisters that are sealed by welding and thus do not release any contaminates. There are no other sources of contamination at the facility that could contaminate the soil.

Proposed Treatment of Topic in EIS:

The EIS will address the matter of soil conditions in relation to compliance with water quality standards described in item 13.

20. **Solid wastes, hazardous wastes, storage tanks**
a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and

routine hazardous waste reduction assessments.

The storage facility will house spent nuclear fuel in stainless steel canisters, sealed by welding and stored in concrete vaults. The storage system is completely passive. No wastes are generated. See the project description provided in response to Question 1, above.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

The CON Application provides details on radioactive wastes, radiation doses expected, and related safeguards in Sections 6.2 and 6.3 of Chapter 6, available here:
http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch6EnvInfo.pdf.
The CON Application also includes a Radiation Primer (Appendix A:
http://www.xcelenergy.com/docs/corpcomm/MontCoN011805AppARadPrimer.pdf)

The CON Application also includes an initial risk assessment due to the ISFSI, available here:
(http://www.xcelenergy.com/docs/corpcomm/MontCoN011805AppB-EISRiskAssess.pdf)

In summary, spent nuclear fuel continues to emit radiation after it is removed from the reactor. The United States Nuclear Regulatory Commission has established standards limiting the exposure to radiation to employees and the public. The storage system proposed limits exposure to radiation to levels well below federal limits and several orders of magnitude below background radiation levels experienced by the general public. The system of canisters and vaults proposed at the storage facility are designed to shield employees and the public from harmful levels of radiation and have been licensed by the NRC.

Proposed Treatment of Topic in EIS:

The EIS will review and verify the dose, exposure and risk analysis in the CON Application, and compare the amount of radiation expected to be emitted from the proposed facility with applicable federal standards. The EIS will describe the measures implemented to reduce the amount of radiation emitted. However, the federal NRC regulations preempt state jurisdiction over the radiological health and safety for both the generating plant and ISFSI. Therefore, additional mitigation to lower radiation exposure levels will not be evaluated in the EIS but will be evaluated in the federal EIS. See Section II and III of Scoping Decision.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

There are no storage tanks of any kind associated with the proposed facility.

Proposed Treatment of Topic in EIS:

There will be no discussion in the EIS on storage tanks.

21. **Traffic.** Parking spaces added 0. Existing spaces (if project involves expansion) . Estimated total average daily traffic generated .

Construction of the storage facility will include clearing and removal of topsoil, grading, excavation and structural fill of the storage pad, pouring the concrete storage pad, duct bank, and miscellaneous foundations, erecting the electrical building and fences, placing gravel, and implementing various associated activities. The vehicles employed include bull dozers, scrapers, front end loaders, graders, dump trucks, cement trucks, delivery trucks, and various small support vehicles. During the six month construction period, a total of 22 construction workers are estimated with a peak at any one time of 12 workers and an average of eight workers. Additional traffic will be generated from truck deliveries and commuting workers. It is estimated that construction activities and deliveries will add an average of seven trips each day and commuting will add up to 16 trips (two per round trip) each day.

No full time staff is required at the storage facility during operation beyond existing plant personnel.

Estimated maximum peak hour traffic generated (if known) and time of occurrence . Provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. If the project is within the Twin Cities metropolitan area, discuss its impact on the regional transportation system.

With a peak construction force of twelve workers, the peak hour traffic generated during the morning and evening commuting hours would be twelve vehicles. During peak construction activity (between the morning and evening commuting hours) it is estimated that the peak hour traffic generated due to deliveries is 3 trucks.

The addition of twelve vehicles on local roadways during construction activities will not create any traffic impacts. No traffic improvements are proposed or deemed necessary.

Proposed Treatment of Topic in EIS:

The EIS will identify the major roads and highways that will be used by construction traffic.

22. **Vehicle-related air emissions. Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts. Note: If the project involves 500 or more parking spaces, consult *EAW Guidelines* about whether a detailed air quality analysis is needed.**

The minimal number of addition vehicles on local roadways during construction activities for such a short duration will add only a negligible amount of air emissions to the environment. No traffic improvements or mitigation measures are warranted.

Proposed Treatment of Topic in EIS:

The EIS will not include a discussion of vehicle-related emissions.

23. **Stationary source air emissions. Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.**

The ISFSI will not generate any emissions of criteria pollutants, hazardous air pollutants, or greenhouse gases and this topic will not be discussed in the EIS. The ISFSI will store spent nuclear fuel that does emit radioactive emissions.

Chapter 5 of the CON Application includes a summary of the alternatives that Xcel

Energy considered before applying for the certificate of need for the proposed ISFSI. These alternatives include alternatives to dry cask storage (Chapter 4 http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch4StorageAlt.pdf)

Conservation and generation alternatives to continuing to operate Monticello are include in CON Application in Chapter 5. http://www.xcelenergy.com/docs/corpcomm/MontCoN011805Ch5GenAltNoAction.pdf)

Proposed Treatment of Topic in EIS:

The CON Application contains little detail on the generation alternatives or the assumptions used to evaluate the alternatives considered, including the assumptions and workings of the proprietary "Strategist" model. Therefore, the EIS will develop, evaluate, and compare the expected emissions of the Monticello Generating Plant and ISFSI with those of reasonable alternatives as listed in the Scoping Decision.

24. **Odors, noise and dust.** Will the project generate odors, noise or dust during **construction or during operation? ☑Yes __No**

If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

Construction of the project will generate noise and dust. Chapter 6 of the CON Application includes an extensive summary of the expected construction impacts.

For example, earth moving equipment such as bull dozers, scrapers, and graders will clear and level the area. Concrete trucks will deliver concrete to the site and pumping trucks will place it. Similar industrial vehicles will be used for erecting the electrical building and fences.

Ambient sound level data was collected in the vicinity of the Monticello plant. The daytime L_{90}s varied from 44 to 59 dBA and the nighttime L_{90}s varied from 38 to 52 dBA depending on traffic density and proximity to I 94.

The predicted sound levels from the site during construction are expected to be much lower than the ambient sound levels.

During the operation of the storage facility, the spent fuel will be moved from the plant to the storage facility with either a front-end loader or truck. To be conservative, both vehicles were assumed to be used concurrently. The sound levels in the residential areas near the ISFSI were estimated to be 6-17 dBA below the ambient sound levels at nearest residences. Therefore, there is no sound

impact due to the operation of the storage facility.

Proposed Treatment of Topic in EIS:

The EIS will not include a discussion of odor or dust-related impacts after ISFSI construction. The EIS will identify the nearest receptors and the estimated expected noise levels during construction.

25. **Nearby resources.** Are any of the following resources on or in proximity to the site?
Archaeological, historical or architectural resources? __Yes ☑No

The closest historical site is located approximately three miles from the facility site and no impacts are anticipated.

Prime or unique farmlands or land within an agricultural preserve?
__Yes ☑No

The facility site is not located on designated Prime of Unique farmland.

Designated parks, recreation areas or trails? __Yes ☑No

The closest park/recreation area to the project is the Montissippi County Park located approximately 1 mile to the southeast. The proposed project will not impact this area.

Scenic views and vistas? __Yes ☑No

The storage facility will not affect aesthetics in the vicinity. The facility will not be seen from the Mississippi River since it is located several feet higher on the south bank of the river close to the plant generating and reactor building.

Other unique resources? ☑Yes __No

If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

To the west of the site is an area of Biological Sensitivity identified by the Minnesota Natural Heritage Department. This area is identified as a Bur Oak (Q. macrocarpa) – Pin Oak Woodland and has been classified as a Sand-Gravel Subtype of a Dry Oak Savanna . Impacts to this resource are not expected.

Proposed Treatment of Topic in EIS:

The EIS will describe the nearest resources under each of the above categories.

26. **Visual impacts**. Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? __Yes ☑No
If yes, explain.

The facility site is obscured by wooded areas within the plant property and will not be visible during construction or operation. During operation facility lighting will illuminate the facility site for security reasons. However, the light fixtures are only 40 ft high, which is less than many of the trees surrounding the site.

Proposed Treatment of Topic in EIS:

The EIS will include a visualization of the proposed ISFSI and include a brief discussion of visual impacts for nearby residents

27. **Compatibility with plans and land use regulations.** Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency? Yes ☑No.

If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

This project is located entirely within the property boundary of the existing Monticello power plant site. Therefore no impacts or changes to land use will occur other than the use of a currently unoccupied part of the plant site. The State of Minnesota Department of Health is, however, in the process of coordinating a non-regulatory Source Water Protection Plan with the City of St. Cloud, Minneapolis, and St. Paul.

Proposed Treatment of Topic in EIS:

The EIS will not include a discussion of compatibility with local land use plans and regulations except as described in Item 14 above regarding scenic river designation and a brief description of the status of the Department of Health Source Water Protection Plan.

28. **Impact on infrastructure and public services. Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project? __Yes ☑No. If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)**

The storage facility will obtain electrical power from nearby electrical service lines serving other plant facilities.

29. **Cumulative impacts. Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts *(or discuss each cumulative impact under appropriate item(s) elsewhere on this form).***

The storage facility will be constructed to house 30 storage vaults, but the secured area will be sized to support up to 65 storage vaults. (At decommissioning of the plant in 2030, an additional 35 storage vaults would be needed to allow full off-loading of the spent fuel, for a total of 65). The impacts of long-term storage of 65 filled canisters on site will be evaluated in the EIS, and compared to the 40 that would be needed if the generating plant shut down in 2010.

Also, as described in Section 6, above the ISFSI is needed to keep the Monticello Generating Plant operating past 2010, so continued operation of the plant is a "connected action" to the ISFSI.

Treatment in EIS

The EIS will not evaluate potential future expansion of the ISFSI beyond 65 canisters, the maximum needed for decommissioning and continued operation to 2030. Regarding continued operation of the Monticello Generating Plant, impacts will be summarized to the extent necessary to compare its continued operation to reasonable potential alternatives. However, the generating plant will be subject to a subsequent federal EIS, so while the impacts of the radiological or other emissions of the generating plant, safety, security or related issues will be summarized based on existing information, they will not be studied in detail. The EIS will evaluate the feasibility and impacts of reasonable alternatives to continued plant operation, as described in the Scoping Decision.

Cumulative Impacts Matrix. Finally, the cumulative impacts of continued plant operation until 2030 and potential on-site storage of spent fuel at Monticello for up to 200 years will be assessed through a summary matrix of impacts paired with critical factors such as geological and river changes, radiological release and safety monitoring assumptions, ownership responsibility, canister and vault degradation, for 50 year increments up to 200 years past 2010.

30. Other potential environmental impacts. If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

No other environmental impacts not addressed in items 1 through 28 anticipated.

31. **Summary of issues.** *Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.* List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

RGU CERTIFICATION. The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.
I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9b and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Date

Title

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at Minnesota Planning. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-296-8253, or www.mnplan.state.mn.us