



In the Matter of the Application of
Northern States Power Company D/B/A
Xcel Energy for a Certificate of Need for
Additional Dry Cask Storage at Prairie
Island Nuclear Generating Plant in
Goodhue County

**FINDINGS OF FACT, CONCLUSIONS,
AND ORDER FINDING
FACILITY DESIGN IS PROTECTIVE
OF GROUNDWATER**

DOCKET NO. E002/CN-08-510

The above matter has come before the Commissioner of the Department of Commerce (Department) for a decision regarding the design of the independent spent fuel storage installation (ISFSI) at the Prairie Island nuclear generating plant (PINGP) in the city of Red Wing, Minnesota.

STATEMENT OF THE ISSUE

Does the design of the PINGP ISFSI provide a reasonable expectation that operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subdivision 1, clauses (1) to (3)?

Based on the proceedings described herein, the Commissioner of the Department of Commerce finds the following:

FINDINGS OF FACT

Background and Proposed Project

1. The PINGP is a 1,100 megawatt (MW), two-unit, electric generating plant in Red Wing, Minnesota. Unit 1 has been in operation since 1973; Unit 2 since 1974. Spent nuclear fuel from the plant is stored on-site in an ISFSI.
2. In 2008, to facilitate continued operation of the PINGP, Xcel Energy applied to the Minnesota Public Utilities Commission (Commission) for a certificate of need (CN) to expand storage within the Prairie Island ISFSI to accommodate a total of 2,560 spent fuel assemblies in 64 Transnuclear TN-40 type casks.
3. Department of Commerce, Energy Environmental Review and Analysis (EERA) staff prepared an environmental impact statement (EIS) that analyzed Xcel Energy's proposed ISFSI expansion (2009 Prairie Island EIS).¹ On December 18, 2009, the Commission issued a CN

¹ Final Environmental Impact Statement, Xcel Energy Prairie Island Nuclear Generating Plant, July 31, 2009, eDockets Numbers [20097-40233-02](#), [20097-40233-05](#), [20097-40233-08](#), [20097-40233-11](#), [20097-40233-14](#), [20097-40233-17](#), [20097-40234-02](#), [20097-40234-05](#), [20097-40234-08](#), [20097-40235-02](#) [hereinafter 2009 Prairie Island EIS].

authorizing Xcel Energy's proposed expansion of spent fuel storage in the Prairie Island ISFSI.²

4. On April 30, 2021, Xcel Energy requested that the Commission authorize a change in the spent fuel storage technology at Prairie Island.³ Xcel Energy requested that it be authorized to use any spent fuel storage technology approved by the Nuclear Regulatory Commission (NRC), rather than being limited solely to TN-40 type casks.
5. On May 14, 2021, the Commission issued a notice soliciting comments on Xcel Energy's proposed change in fuel storage technology and on the appropriate processes for considering Xcel Energy's request.⁴
6. After reviewing Xcel Energy's request, EERA staff concluded that the request represented substantial new information that significantly affects the potential environmental effects at the Prairie Island ISFSI such that the 2009 Prairie Island EIS must be supplemented.⁵ EERA staff recommended that the Commission take no action on Xcel Energy's request until EERA staff could supplement the 2009 Prairie Island EIS in accordance with Minnesota Statutes section 116D.04 and Minnesota Rule 4410.3000.⁶
7. On October 1, 2021, the Commission concurred with EERA staff's recommendation.⁷ The Commission determined that it would take no action on Xcel Energy's request until a supplement to the 2009 Prairie Island EIS could be prepared.⁸

Supplemental Environmental Impact Statement

8. On September 14, 2021, EERA staff issued notice by email and mail of public scoping meetings for a supplemental environmental impact statement (SEIS).⁹ Notice was also provided by newspaper publication and in the *EQB Monitor*.¹⁰

² Order Accepting Environmental Impact Statement, and Granting Certificates of Need and Site Permit with Conditions, December 18, 2009, eDockets Number [200912-45206-02](#).

³ Request for Change in Spent-Fuel Storage Technology, Prairie Island Fuel Storage, April 30, 2021, eDockets Number [20214-173680-01](#) [hereinafter Xcel Energy Request].

⁴ Notice of Comment Period, May 14, 2021, eDockets Number [20215-174178-01](#).

⁵ Minnesota Rule 4410.3000.

⁶ EERA Comments and Recommendations, May 27, 2021, eDockets Number [20215-174578-01](#).

⁷ Commission Order, October 1, 2021, eDockets Number [202110-178440-01](#).

⁸ Id.

⁹ Notice of Scoping Meetings for Supplemental Environmental Impact Statement, September 14, 2021, eDockets Number, [20219-177940-01](#).

¹⁰ Notice of Scoping Meetings for Supplemental Environmental Impact Statement in *Red Wing Republican Eagle*, eDockets Number [202110-178494-01](#); Notice of Scoping Meetings for Supplemental Environmental Impact Statement in *EQB Monitor*, eDockets Number [202110-178493-01](#).

9. Based on the scoping comments received, the Department issued the scoping decision for the SEIS on December 7, 2021.¹¹ Following issuance of the scoping decision, EERA staff issued notice of preparation of an SEIS.¹²
10. On February 1, 2022, EERA staff issued the draft SEIS.¹³
11. On February 1, 2022, EERA staff issued notice by email and mail of the availability of the draft SEIS and of public meetings.¹⁴ Notice was also provided by newspaper publication, press release, and in the *EQB Monitor*.¹⁵
12. On April 26, 2022, EERA staff issued the final SEIS.¹⁶ All comments on the draft SEIS and responses to these comments are included in the final SEIS.¹⁷
13. EERA staff issued notice of the final SEIS and a comment period on the adequacy of the final SEIS via email, press release, and notice in the *EQB Monitor*.¹⁸

Spent Fuel Handling and PINGP ISFSI

14. Spent nuclear fuel from the PINGP is initially stored in a spent fuel pool at the PINGP.¹⁹ Subsequently, the spent fuel is loaded into a TN-40 type cask or, if Xcel Energy's request is granted by the Commission, a different type of spent fuel storage technology.²⁰

¹¹ SEIS Scoping Decision, December 7, 2021, eDockets Number [202112-180490-01](#).

¹² Notice of Preparation of a Supplemental Environmental Impact Statement, eDockets Numbers [202112-180495-01](#), [202112-180498-01](#).

¹³ Draft Supplemental Environmental Impact Statement, February 1, 2022, eDockets Numbers [20222-182285-01](#).

¹⁴ Notice of Availability of Draft Supplemental Environmental Impact Statement and Public Meetings, eDockets Number [20222-182290-01](#), [20222-182690-02](#).

¹⁵ Notice of Availability of Draft Supplemental Environmental Impact Statement and Public Meetings in *Red Wing Republican Eagle*, via Press Release, and in the *EQB Monitor*, eDockets Numbers [20222-182692-01](#), [20222-182691-01](#), [20222-182690-01](#).

¹⁶ Final Supplemental Environmental Impact Statement, April 26, 2022, eDockets Numbers [20224-185119-01](#) (through -10), [20224-185120-01](#), [20224-185120-02](#), [20224-185120-03](#) [hereinafter Final SEIS].

¹⁷ Id.

¹⁸ Notice of Availability of Final Supplemental Environmental Impact Statement via Email, Press Release, and in the *EQB Monitor*, eDockets Numbers [20225-185988-01](#), [20224-185187-01](#), [20224-185187-02](#).

¹⁹ 2009 Prairie Island EIS, Chapter 2, Section 3.2; Final SEIS, Chapter 3.3.

²⁰ Id.

15. There are two primary types of spent fuel storage technology approved by the NRC for use in the United States – casks and canisters.²¹ All casks and canisters approved by the NRC must meet NRC design criteria for confining the fuel and for providing radiation shielding.²² Casks are metal vessels that provide both containment and shielding.²³ Canisters use a metal vessel to contain the spent fuel and a concrete overpack for shielding.²⁴
16. After loading into a cask or canister, spent nuclear fuel would be moved to the PINGP ISFSI using specialized handling equipment.²⁵
17. The PINGP ISFSI is a reinforced concrete slab, approximately three feet thick and roughly 5.5 acres in size.²⁶ The ISFSI is located 300 yards west of the PINGP; it is surrounded by a 17 foot high earthen berm.²⁷
18. Casks or canisters transported to the PINGP ISFSI would be placed on the ISFSI's concrete pad and connected to monitoring equipment.²⁸
19. All casks and canisters approved by the NRC must meet the same NRC design criteria.²⁹ TN-40 type casks have bolted lids with two O-ring seals that are pressurized and monitored.³⁰ Canisters have lids that are welded into place; two lids are used for a redundant seal.³¹
20. Xcel Energy has established an NRC-approved monitoring and maintenance program to ensure the proper operation of the TN-40 type casks in PINGP ISFSI.³² If Xcel Energy's request is granted by the Commission, and a different spent fuel storage technology is used in the PINGP ISFSI, Xcel Energy would need to amend its monitoring and maintenance program to ensure the proper operation of all spent fuel storage technologies used in the PINGP ISFSI.³³

²¹ Final SEIS, Chapter 3.2.

²² Id.

²³ Id.

²⁴ Id.

²⁵ Final SEIS, Chapter 3.3 and Appendix C.

²⁶ 2009 Prairie Island EIS, Chapter 2, Section 3.1; Final SEIS, Chapter 3.1.

²⁷ Id.

²⁸ Final SEIS, Chapter 3.

²⁹ Final SEIS, Chapter 3.2.

³⁰ Id.

³¹ Id.

³² 2009 Prairie Island EIS, Chapter 2, Section 3.2.

³³ Final EIS, Chapter 2.2.

21. There are no radioactive effluents from spent nuclear fuel storage casks or canisters.³⁴
There are no radioactive effluents from the PINGP ISFSI.³⁵ Radiation doses to the general public are due solely to skyshine radiation – gamma and neutron radiation that travels upward from casks (or canisters) and is reflected off the atmosphere back to the ground.³⁶
22. Minnesota Statute 116C.83, Subd. 6(b), requires that, prior to finding the final SEIS adequate, the Commissioner of the Department of Commerce must find that Xcel Energy has demonstrated that the PINGP ISFSI is designed to provide a reasonable expectation that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).
23. Minnesota Statute 116C.76, Subd. 1, requires that the PINGP ISFSI be designed to provide a reasonable expectation that the undisturbed performance of the ISFSI will not cause groundwater radionuclide concentrations, averaged over any year, to exceed:
 - (1) five picocuries per liter of radium-226 and radium-228;
 - (2) 15 picocuries per liter of alpha-emitting radionuclides including radium-226 and radium-228, but excluding radon; or
 - (3) the combined concentrations of radionuclides that emit either beta or gamma radiation that would produce an annual dose equivalent to the total body of any internal organ greater than four millirems per year if an individual consumed two liters per day of drinking water from the groundwater.

CONCLUSIONS

1. Any of the foregoing findings that more properly should be designated as conclusions are hereby adopted as such.
2. The Commissioner of the Department of Commerce must determine that Xcel Energy has demonstrated that the PINGP ISFSI is designed to provide a reasonable expectation that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).
3. The 2009 Prairie Island EIS and the final SEIS support the conclusion that Xcel Energy has demonstrated that the design of the ISFSI is such that it can be reasonably expected that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).

³⁴ 2009 Prairie Island EIS, Chapter 2, Section 5; Final EIS, Chapter 5 and Appendix B.

³⁵ *Id.*

³⁶ 2009 Prairie Island EIS, Chapter 2, Section 5; Final EIS, Chapter 5.

Based on the findings of fact and conclusions contained herein and the entire record of this proceeding, the Department of Commerce hereby makes the following:

ORDER

The Commissioner of the Department of Commerce hereby determines that Xcel Energy has demonstrated that the design of the PINGP ISFSI is such that it can be reasonably expected that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).

Signed this 26 day of May, 2022

STATE OF MINNESOTA
DEPARTMENT OF COMMERCE



Grace Arnold, Commissioner