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 the Monticello Nuclear Generating Plant Independent Spent Fuel Storage Installation in Wright County

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

DOCKET NO. E002/CN-21-668

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 Monticello nuclear generating plant (MNGP) in Wright County, Minnesota.

STATEMENT OF THE ISSUE

Does the design of the MNGP 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 MNGP is a 571 megawatt electric generating plant in the city of Monticello, Wright County, Minnesota. The plant has been in operation since 1971. Spent nuclear fuel from the plant is stored on-site in a spent fuel pool and an ISFSI.

2. The Minnesota Public Utilities Commission (Commission) has authorized storage of spent nuclear fuel in the MNGP ISFSI sufficient to allow operation of the MNGP through 2030.[1]

3. In order to store additional spent fuel in the MNGP ISFSI, Xcel Energy must obtain a certificate of need (CN) from the Commission.[2] On September 1, 2021, Xcel Energy filed a CN application with the Commission requesting that the Commission approve additional

[1] Order Granting Certificate of Need for Interim Independent Spent Fuel Storage Installation, October 23, 2006, eDockets Number 3390312.
[2] Minnesota Statute 116C.83, Subd. 2.

storage of spent nuclear fuel in the MNGP ISFSI sufficient to extend the operating life of the MNGP by 10 years – from 2030 to 2040.[3]

4. Xcel Energy estimated that approximately 14 additional spent fuel canisters would be needed for operation of the MNGP through 2040.[4] Xcel Energy noted that these canisters would be placed on a new concrete support pad withing the existing MNGP ISFSI.[5]

5. Xcel Energy indicated that it would conduct a competitive bidding process to select the canister technology and vendor for the project.[6] Xcel Energy noted that the canister technology selected for the project would be licensed for storage and transport of spent nuclear fuel by the Nuclear Regulatory Commission (NRC).[7]

6. The Department is the responsible governmental unit for the environmental review of CN applications for spent nuclear fuel storage; the Department must prepare an EIS.[8] Consistent with this responsibility, on October 5, 2021, Department Energy Environmental Review and Analysis (EERA) staff notified the Commission that it would prepare an EIS for Xcel Energy's CN application.[9]

Environmental Impact Statement

7. On December 29, 2021, EERA staff issued notice by email and mail of public scoping meetings for an EIS.[10] Notice was also provided by press release, newspaper publication, and in the *EQB Monitor*.[11]

8. Based on the scoping comments received, the Department issued the scoping decision for the EIS on March 2, 2022.[12] Following issuance of the scoping decision, EERA staff provided notice of preparation of an EIS by press release and the *EQB Monitor*.[13]

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[3] Certificate of Need Application for Additional Dry Cask Storage at the Monticello Nuclear Generating Plant Independent Spent Fuel Storage Installation, Xcel Energy, September 1, 2021, eDockets Numbers 20219-177630-01 (through -10) [hereinafter CN Application].
[4] CN Application, Executive Summary and Chapter 8.
[5] Id.
[6] Id.
[7] Id.
[8] Id.
[9] EERA Comments on CN Application, October 5, 2021, eDockets Number 202110-178533-01.
[10] Notice of Environmental Impact Statement Scoping Meetings and Availability of Scoping Environmental Assessment Worksheet, December 29, 2021, eDockets Numbers 202112-181034-01, 202112-181051-01.
[11] Notice of Environmental Impact Statement Scoping Meetings and Availability of Scoping Environmental Worksheet – Press Release, January 12, 2022, eDockets Number 20221-181478-01; Publication in the *Monticello Times*, January 6, 2022, eDockets Number 20221-181516-01; Publication in the *EQB Monitor*, January 4, 2022, eDockets Number 20221-181477-01.
[12] EIS Scoping Decision, March 2, 2022, eDockets Number 20223-183375-01.
[13] Notice of Preparation of an Environmental Impact Statement – Press Release, April 8, 2022, eDockets Number 20224-184603-01; Publication in *EQB Monitor*, March 29, 2022, eDockets Number 20223-184196-01.

9. On October 4, 2022, EERA staff issued the draft EIS for the project.[14]

10. On October 4, 2022, EERA staff issued notice by email and mail of the availability of the draft EIS and of public meetings.[15] Notice was also provided by press release, newspaper publication, and in the *EQB Monitor.*[16]

11. On January 20, 2023, EERA staff issued the final EIS.[17] All comments on the draft EIS and responses to these comments are included in the final EIS.[18]

12. EERA staff issued notice of the final EIS and a comment period on the adequacy of the final EIS via email, press release, and notice in the *EQB Monitor*.[19]

Spent Fuel Handling and MNGP ISFSI

13. Spent nuclear fuel from the MNGP is initially stored in a spent fuel pool at the MNGP.[20] Subsequently, the spent fuel is loaded into steel spent fuel canisters.[21] The canisters are then moved using specialized handling equipment to the MNGP ISFSI and placed into horizontal concrete vaults.[22]

14. The MNGP ISFSI currently uses the NUHOMS-61BT canister storage system.[23] In this system, 61 spent fuel assemblies are loaded into each canister.[24] The canisters are then stored horizontally in concrete vaults in the MNGP ISFSI.[25] There are currently 30 canisters in concrete storage vaults in the MNGP ISFSI.[26]

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[14] Draft Environmental Impact Statement, Monticello Nuclear Plant Additional Spent Fuel Storage, October 4, 2022, eDockets Number 202210-189519-01.
[15] Notice of Availability of Draft Environmental Impact Statement and Public Information Meetings, eDockets Numbers 202210-189527-01, 202210-189613-02.
[16] Notice of Availability of Draft Environmental Impact Statement and Public Information Meetings – Press Release, October 5, 2022, eDockets Number 202210-189613-03; Publication in the *Monticello Times*, October 6, 2022, eDockets Number 202210-189755-01; Publication in the *EQB Monitor*, October 4, 2022, eDockets Number 202210-189613-01.
[17] Final Environmental Impact Statement, Monticello Nuclear Plant Additional Spent Fuel Storage, January 10, 2023, eDockets Number 20231-192014-01 [hereinafter Final EIS].
[18] Id.
[19] Notice of Availability of Final Environmental Impact Statement – via Email, January 10, 2023, eDockets Number 20231-192248-02; Press Release, January 12, 2023, eDockets Number 20231-192248-03; Publication in the *EQB Monitor*, January 10, 2023, eDockets Number 20231-192248-01.
[20] Final EIS, Chapter 3.
[21] Final EIS, Chapter 3 and Appendix C.
[22] Id.
[23] Final EIS, Chapter 3.
[24] Id.
[25] Id.
[26] Id.

15. Xcel Energy indicated that it will select an NRC-certified canister system for the storage of the additional spent nuclear fuel resulting from operation of the MNGP through 2040.[27] Xcel Energy estimated that approximately 14 additional spent fuel canisters would be needed for operation of the MNGP through 2040.[28]

16. All canisters certified by the NRC for the storage of spent nuclear fuel must meet the same NRC design criteria for confining the fuel and for providing radiation shielding.[29]

17. Spent fuel canisters are stainless steel vessels, approximately one-half to one inch thick.[30] Canisters are welded shut; two lids are welded into place for a redundant seal.[31]

18. To accommodate the additional 14 spent fuel canisters estimated by Xcel Energy, a second concrete storage pad would be constructed within the existing MNGP ISFSI.[32] The new pad would be 30 inches thick and would abut the existing storage pad in the ISFSI.[33]

19. Canisters transported to the MNGP ISFSI would be placed in concrete vaults on the ISFSI's new concrete storage pad.[34]

20. There are no radioactive effluents from spent nuclear fuel storage canisters.[35] There are no radioactive effluents from the MNGP ISFSI.[36] Potential radiation doses associated with the MNGP ISFSI are due solely to skyshine radiation – gamma and neutron radiation that travels upward from canisters in their concrete vaults and is reflected off the atmosphere back to the ground.[37]

21. Minnesota Statute 116C.83, Subd. 6(b), requires that, prior to finding the final EIS adequate, the Commissioner of the Department of Commerce must find that Xcel Energy has demonstrated that the MNGP 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).

[27] Id.
[28] Id.
[29] Id.
[30] Id.
[31] Id.
[32] Id.
[33] Id.
[34] Id.
[35] Final EIS, Chapter 5 and Appendix B.
[36] Id.
[37] Id.

22. Minnesota Statute 116C.76, Subd. 1, requires that the MNGP 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 MNGP 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 final EIS supports 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).

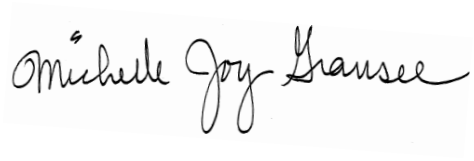
Based on the findings of fact and conclusions contained herein and the entire record of this proceeding, the Department of Commerce hereby makes the following:

ORDER

The Commissioner of the Department of Commerce hereby determines that Xcel Energy has demonstrated that the design of the MNGP 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 6th day of February, 2023

STATE OF MINNESOTA
DEPARTMENT OF COMMERCE



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Michelle Gransee, Deputy Commissioner