

FEDERAL ENERGY REGULATORY COMMISSION

Office of Energy Projects

**Division of Dam Safety and Inspections - Chicago Regional Office
230 South Dearborn Street, Suite 3130
Chicago, Illinois 60604
312.596.4430 Office**

In reply refer to: P-2056

December 13, 2024

Via Electronic Mail

Mr. Scott Crotty
Senior Operations Manager
Xcel Energy
Scott.a.Crotty@xcelenergy.com

Re: St. Anthony Falls Hydroelectric Project (FERC No. 2056)
- 2024 FERC Dam Safety Inspection – Post-Inspection Letter
- 2023 Dam Safety Surveillance Monitoring Report

Dear Mr. Crotty:

The Dam Safety Inspection (DSI) of the St. Anthony Falls Hydroelectric Project, FERC No. 2056, was conducted by Mr. Paul Kokoszka on August 6, 2024. The 2024 DSI was conducted concurrently with the Periodic Inspection for the 9th Part 12D Independent Consultant's Safety Inspection Report (CSIR). All project structures were inspected, and no deficiencies were observed that would require immediate remedial action.

Be advised that we may provide you with additional comments that develop as a result of our preparation of the dam safety inspection report. We appreciate the assistance provided during the inspection.

Additionally, the FERC received the 2023 Dam Safety Surveillance and Monitoring Report (DSSMR), which was filed with a March 29, 2024 letter. The DSSMR indicated that the dam is safe, that the existing instrumentation and dam safety surveillance monitoring program is appropriate for the identified critical Potential Failure Modes (PFMs), and that the inspections and instrumentation data collection have been completed in accordance with the Dam Safety Surveillance Monitoring Plan (DSSMP). The Chief Dam Safety Engineer concluded that the dam is safe for continued operation, noting the plans for installation of a seepage cutoff wall in the Hennepin Island Earth Dam to address the seepage observed in 2022 and 2023, as discussed below.

We reviewed the 2023 DSSMR and have the following comments:

1. The 2023 DSSMR indicated that clear seepage at the toe of the Hennepin Island Earth Dam (HIED) near the upstream end of abandoned Wasteway 1, which was first reported on May 12, 2022 and documented in the June 22, 2022 12.10 incident report as well as the 2022 DSSMR, was again observed in April 2023. This issue is attributed to the surcharging of the reservoir during high flow conditions, that triggers leakage through the upstream limestone masonry wall and then seeps through downstream embankment fill.

The 2023 DSSMR states that the filter sand and pea gravel, which was delivered to the site in 2022 and stored on site in the event the seepage led to internal erosion, was placed on the downstream slope and the toe as a precaution since higher water elevations were being forecasted. A design for the installation of a seepage cutoff wall in the HIED was filed with the July 26, 2024 letter and is currently under review. The plan to maintain and monitor the performance of filter material until the cutoff wall is installed and seepage is addressed, is acceptable.

2. The action levels for Piezometers PZ-1, PZ-2, PZ-3, and PZ-4 were reportedly exceeded in April and May of 2023. Additionally, it was reported that Piezometer PZ-5 reached historic maximum in May 2023. We agree that a strong correlation exists between the piezometer elevations and the upstream and downstream water surface elevations. The exceedances and historic reading coincide with the emergence of seepage on the downstream side and are expected to be resolved with the proposed cutoff wall installation, discussed in Item 1.
3. Overtopping Protection Plan (OPP) was activated in April 2023. Although river levels did not necessitate full implementation, several potential issues were identified during the activation. Therefore, options are being investigated to improve the effectiveness and implementation. The plan and schedule to provide an updated OPP by December 31, 2025, is acceptable.
4. Dive inspections were completed on October 11, 2023 and October 26-27, 2023. The inspection included overall structure condition assessment of the spillway, upstream portion of the intake canal, and the downstream powerhouse sections. The 2023 Underwater Dive Inspection (Dive) report prepared by J.F. Brennan Company, Inc. (Brennen), found that all primary structural elements of the structures were sound. However, divers noted separation of knuckles at some of the sheet pile cells downstream of the spillway, areas of leakage at the Horseshoe Dam, and various areas of spalling and undermining.

Although the inspection findings were given a low priority repair rating, the 2023 Dive report recommended repairing the split knuckles and holes present on Cells 2

and 3 of the North Sheet Pile Cells and area of undermining present on the upstream portion of the Intake Canal. Additionally, another dive inspection within the next 5-years was recommended, to monitor for changes in the areas of spalling and undercutting present on the upstream portion of the Intake Canal and downstream portion of the Powerhouse.

We concur with the conclusions and recommendations of 2023 Dive report. The plan to evaluate the findings of the inspection report as part of the 9th Part 12D CSIR is acceptable. A plan and schedule to address the 2023 Dive report's recommendations should be provided as part of the plan and schedule to address the IC's recommendations.

5. We acknowledge the completion of the 2023 concrete surface repairs at the joints on the downstream face of the main spillway and replacement of flashboards and pin on the horseshoe spillway to ensure deployment at the appropriate headwater elevations.

The 2023 DSSMR fulfills the annual requirement under Chapter 14 –Appendix K of the FERC's Engineering Guidelines. The next submittal of the DSSMR is due by **April 1, 2025**.

You may contact Mr. Paul Kokoszka at 312.596.4457 (paul.kokoszka@ferc.gov) or me at 312.596.4430, if you have any questions regarding this letter.

Sincerely,

**KEVIN
GRIEBENOW**

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Kevin Griebenow, P.E.
Regional Engineer