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

March 20, 2025

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)
Revised Drilling Program Plan Approval

Dear Mr. Crotty:

On January 29, 2025 Xcel Energy filed a Revised Drilling Program Plan (DPP), January 2025, for a geotechnical subsurface investigation at the St. Anthony Falls Hydroelectric Project No. 2056. The DPP included a Quality Control and Inspection Plan (QCIP) for the drilling investigation work. The DPP was prepared by consultants from Barr Engineering Co. (Barr) in response to FERC's November 21, 2024 review comments on the July 29, 2024 DPP submittal. The purpose of the proposed drilling work is to abandonment of two existing screened standpipe piezometers and to install two replacement screened piezometers in the Hennepin Island Earth Dam.

The updated scope of work indicates that the two piezometers (PZ-1-18 & PZ-2-18) will be abandoned in situ by tremie grouting the inside of the PVC. The boring for the two new piezometers (PZ-1R-24 & PZ-2R-24) will be completed using sonic drilling method. The purpose of the proposed work is to provide a soil/fill conditions just downstream of the proposed seepage cutoff wall, replace existing piezometers that are along the proposed seepage cutoff wall, and provide long-term pore water pressure reading to confirm effectiveness of the seepage cutoff wall. We have reviewed the responses along with the revisions and find that they adequately address the review comments from our November 21, 2024 letter.

The resumes of Ms. Kristin Alstadt, P.E. assisted by Ms. Erica Hill, E.I.T, and Mr. Michael Hochscheidt, P.E. (alternate) proposed as field professionals supervising the drilling work indicate that they meet the minimum qualifications required in our drilling guidelines. Ms. Alstadt and Mr. Hochscheidt are acceptable to serve as field professionals

supervising the drilling work. Additionally, the resumes of Messrs. Daniel Pflipsen, Tyus Rinke, and Tanner Schmiesing proposed as Lead drillers indicate that they have embankment drilling experience in accordance with our drilling guidelines. Thus, Messrs. Pflipsen, Rinke, and Schmiesing are acceptable as lead drillers. If you need to replace any of the above, you must submit resumes of the proposed personnel for our review and concurrence before the new staff starts work at the project site.

The DPP meets the intent of our drilling guidelines, the QCIP is approved, and you are authorized to proceed with the proposed drilling program. The Dam Safety Surveillance and Monitoring Plan (DSSMP) must be updated by **April 1, 2026** with the boring logs and piezometer installation details.

Any changes to the plans and specifications should be coordinated between the Consulting Engineer, Xcel, and FERC. Any change in the operation of the project should be properly coordinated with FERC and understood by all of Xcel's operators.

An email to Mr. Paul Kokoszka should be completed each morning following a day's work. Any aberrant conditions encountered should be reported to our office as soon as practical after the situation is discovered, without interfering with any necessary emergency response.

Kevin Griebenow	kevin.griebenow@ferc.gov	312-596-4436
Marilyn Sabido	marilyn.sabido@ferc.gov	312-596-4456
Paul Kokoszka	paul.kokoszka@ferc.gov	312-596-4457

You may contact Mr. Paul Kokoszka at 312.596.4457 (Paul.Kokoszka@ferc.gov) or me at (312) 596-4430 or if you have questions.

Sincerely,

KEVIN GRIEBENOW

Digitally signed by KEVIN GRIEBENOW
Date: 2025.03.20 09:01:46 -05'00'

Kevin Griebenow, P.E.
Regional Engineer

cc: Mr. Dean Steines, PE. Chief Dam Safety Engineer at Xcel Energy
dean.s.steines@xcelenergy.com

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April 4, 2025

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)
Hennepin Island Earth Dam Cutoff Wall Design

Dear Mr. Crotty:

Xcel Energy's (Xcel) July 26, 2024 letter filed a Design Report for construction of a cutoff wall in the Hennepin Island Earth Dam (HIED) at the St. Anthony Falls Hydroelectric Project No. 2056. The Design Report, which included drawings, specifications, design calculations, and a Quality Control and Inspection Plan (QCIP), was prepared by your consultant Bethany Kelly, P.E. of Barr Engineering.

The submittal proposes the construction of a secant pile cutoff wall within the HIED. The intent of the design is to address an area of active seepage through the embankment that manifests on the downstream slope during elevated reservoir pool levels. The secant pile cutoff wall will provide a long-term seepage control in the structure by being extend through the variable embankment fill and weathered bedrock surface and embed into the low-permeability, competent limestone layer for the full length of the HIED. End seals will be constructed at both ends of the cutoff wall to integrate the secant pile wall with the HEID's existing structures to block wrap-around seepage and avoid damage to the existing structures.

The Design Report addresses the site-specific concerns including overhead transmission lines and foundations, equipment access and working space constraints, variable embankment fills, shallow limestone bedrock with a weather surface, shallow groundwater that fluctuates with the surrounding river levels, higher-flow layers within the embankment fills, historic limestone masonry block wall, Abandoned Eastman Tunnel access shaft, the Government Cutoff Wall, and site's existing public park function and features.

We reviewed the information provided, including the evaluation of the potential construction risks and the potential failure modes, and concur with the proposed modification. We have several comments regarding the proposed project execution and the QCIP. Your response or plan and schedule to address the comments in the Enclosure, should be submitted by at least 35 days prior to anticipated start of construction. We will use a submittal date of June 1, 2025 for compliance tracking purposes. You may not proceed with the work plan until you receive authorization from this office.

You may contact Mr. Paul Kokoszka at 312.596.4457 (Paul.Kokoszka@ferc.gov) or me at (312) 596-4430 or if you have questions.

Sincerely,

KEVIN GRIEBENOW

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Date: 2025.04.04 15:56:16 -05'00'

Kevin Griebenow, P.E.
Regional Engineer

Enclosure – Review Comments on the July 2024 Design Report

Enclosure – FERC Review Comments on the July 2024 Design Report

1. The Design Report indicates that 0.5 to 5-foot offset (depending on the stations) will be required to limit the impact of the surcharge loads near the existing upstream historic limestone masonry wall. The Cutoff Wall Work Plan (Work Plan) should explain how maintaining this offset requirement will be ensured. Consider placing a physical barrier to delineate the restricted as well as installing and monitoring survey prisms at several locations along the upstream side, to monitor for potential adverse wall movement during the construction activities.

2. Section 31 56 00, Subsection 1.07 of the Specifications requires the contractor to provide several submittals including Contractor Qualifications, Cutoff Wall Work Plan (Work Plan) and Quality Control Plan (QC) Plan, Concrete Mix Design and Construction Schedule. These items must be provided for our review.

3. We concur with the specifications in Section 31 56 00, Subsection 3.03 concerning the test section requirements. Schedule for the construction of the test section should be coordinated with this office, so that we can be onsite to observe.

4. Section 31 56 00, Subsection 3.04 of the Specifications requires 24 hours as maximum duration of open uncased excavations. The specifications should be revised to indicate that leaving open uncased excavations overnight is not allowed.

5. We concur with the plan in the QCIP to have the five screen standpipe piezometers read daily during the construction. Additionally, we agree with the recommend enhanced monitoring following completion of the cutoff wall while the pressures stabilize, which calls for weekly readings until change in head between readings is less than 3 inches or two months after completion of construction, whichever occurs first.

6. The Work Plan and QC Plan should discuss how the proposed methods will not cause hydro-fracturing or erosion of the embankment or foundation soils or non-rock intervals.

7. A tremie-placed concrete shall be used to form the secant wall. If the actual concrete takes exceeds 150% of the theoretical grout volume of any stage, halt the placement operation and contact us to discuss possible corrective actions. The field professional supervising the drilling work should monitor concrete take after the placement of every batch to ensure loss control measures are timely implemented. It is not acceptable for field staff to identify concrete

takes in excess of 1.5 times the theoretical volume only after the borehole has been completely backfilled.

8. Technical specifications for tremie-placement of concrete should be updated to clarify that the tip of the casing should be maintained below the top of the concrete backfill level at all times.

9. The resume of Joe Hjerpe, P.E. proposed as field professional supervising the work indicates that he had experience with cutoff wall installation at dams. Mr. Hjerpe is acceptable to serve as field professionals supervising the drilling work. However, the resume of Ms. Erica Hill, proposed as field professional does not indicate that she has experience with cutoff wall installations. The resume for Ms. Hill should be updated to reflect relevant experience or alternate field professional should be proposed.

10. A Temporary Construction Emergency Action Plan (TCEAP) is required where construction workers or the public would be endangered from failure of the temporary construction work. The TCEAP should be submitted at least 60 days before starting construction for review and evaluation.

    The TCEAP should include the following:

    i. A notification list of emergency response authorities.
    ii. A plan drawing showing the proposed arrangement of the structure.
    iii. The location of safety devices and escape routes.
    iv. Action levels when the plan will be activated and when evacuation will occur.
    v. Powerline safety should be explicitly discussed.
    vi. A brief description of testing procedures for the plan.