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President and Chief Executive Officer

February 5, 2024

VIA ELECTRONIC FILING

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

RE: Crescent Hydroelectric Project (P-4678) and
Vischer Ferry Hydroelectric Project (P-4679)
Response to Additional Information Request (AIR), Dated August 7, 2023

Dear Secretary Bose:

The Power Authority of the State of New York (NYPA) is in receipt of the Federal Energy Regulatory Commission's (Commission) August 7th, 2023, Additional Information Request (AIR) related to several alternatives for reducing the extent and severity of ice-jam-induced flooding on the Mohawk River upstream of the Vischer Ferry Project. These alternatives include the use of ice-breaking vessels, physical modifications of the Vischer Ferry dam (including the installation of pneumatic crest gates), and upstream channel re-configuration of the Mohawk River.

The August 7, 2023, AIR was in response to information provided by NYPA informing Commission staff of its preferred ice-jam mitigation alternative (P-1), which would include the installation and operation of 27-inch pneumatic crest gates at dams D and E and a combination of 27-inch and 48-inch pneumatic crest gates at dam F of the Vischer Ferry dam. In the March 16, 2023, letter, NYPA proposed to maintain the impoundment at a full pond elevation of 213.25 feet (Barge Canal Datum) on a year-round basis, not just during the navigation season (May through October) on the Mohawk River/Barge Canal, as occurs under current project operation and was proposed in the license application.

In the August 7, 2023, AIR, Commission staff requested information to assess the potential effects of the proposed changes on public safety and environmental resources. The Commission staff also requested, in Schedule A, information related to cultural resources for both the Vischer Ferry Project and the Crescent Project.

In addition, the Commission requested that if the requested information causes another part of the Final License Application to be inaccurate, that part must be revised and refiled. Performing a thorough review of all areas affected by the proposed modifications to the dam and its operations requires greater time to review and prepare the Application amendment than

originally anticipated. Therefore, NYPA is requesting a 60-day extension to submit amendments to the Final License Application.

On November 8, 2023, the Commission conducted a technical conference with NYPA to provide clarification on the requested information. A summary of the Technical Conference and NYPA's PowerPoint presentation are available on FERC's eLibrary. After the presentation, AIR Items 2 and 3 were discussed in detail, and the following clarifications were provided by FERC staff in a letter dated November 13, 2023.

AIR Item 2—Engineering Analysis (amends information requested in AIR Item 2)
Commission staff indicated to NYPA that, consistent with item 2 of the August 2023 AIR letter, an engineering analysis is needed that provides a comparison and evaluation of the expected differences in downstream discharge and water surface elevations between existing and proposed operating conditions. NYPA noted that, during flood flows, it expects the total discharge from the project—with the crest gates in place and operating—to be similar to existing discharge levels but indicated to staff that it would still complete the requested analyses. Commission staff asked NYPA if there were any limitations on running the turbine units during winter (e.g., in a manner that could lead to differences in upstream or downstream discharge levels relative to existing conditions). NYPA stated that due to the relative high capacity of the project's spillways compared to the turbine discharge, it does not expect any limitations on running the units during winter beyond the occasional unit trips, which are largely unavoidable. Lastly, Commission staff indicated to NYPA that if the requested engineering analysis indicates discharge levels are similar under existing and proposed conditions, it may not be necessary to evaluate flooding impacts on individual structures.

AIR Item 3—Stability Analysis (amends information requested in AIR Item 3)
NYPA indicated its plans to conduct the stability analysis requested by Item 3 of the August 2023 AIR letter. To address a separate Seventh FERC Part 12D Independent Consultant recommendation pertaining to the stability of the Vischer Ferry Dams, NYPA is submitting to the FERC NYRO the input parameters it intends to use to complete the requested stability analysis. NYPA further noted that, pending FERC's NYRO approval of the input parameters, additional time will be needed (beyond the February 7, 2024 deadline established in the August 2023 AIR letter) to complete the stability analysis. Staff noted that, if this occurs, NYPA may file, with the Commission, a request for an extension of time to file the stability analysis and a revised Supporting Design Report, which should include the stability calculations for the proposed changes.

On January 11, 2024, NYPA received a letter from the Commission confirming that the stability analysis requested by AIR Item 3 (of the proposed operating configuration of Vischer Ferry Dam, including the new crest gates) would use the same input (interface strength) parameters as a pending stability analysis (of the project's current operating configuration) that was previously requested as part of an ongoing, but separate (Part 12D) proceeding. Additional details are provided below in Schedule A responses. The Commission also confirmed that the results of the stability analysis (including a revised Supporting Design Report) shall be submitted within six months of Commission approval of the input parameters.

As requested, NYPA's responses to Items 1 thru 7 of the subject AIR are presented in Schedule A (below). Please contact me if there are any questions.

Sincerely,



Robert A. Daly

Director, Licensing

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ATTACHMENTS:

Attachment A - NYPA response to AIR Item 2

Attachment B - NYPA response to AIR Item 5

Attachment C - NYPA response to AIR Item 7

SCHEDULE A - Responses to FERC August 7, 2023 AIR

The following is a response addressing each item from the FERC AIR letter of August 7, 2023:

FERC Item 1: *The current operation of the Vischer Ferry Project involves maintaining a normal pool elevation of 211 feet,4 except when 27-inch flashboards are installed during the navigation season (May through October), which raises the pool elevation to 213.25 feet. In conjunction with its proposed installation of pneumatic crest gates at the project, the New York Power Authority (NYPA) proposes to maintain the Vischer Ferry impoundment at an elevation of 213.25 feet on a year-round basis, not just during the navigation season. This proposed change in project operation would be expected to inundate additional wetland and riparian habitats around the impoundment for a longer duration (i.e., year-round) compared to current project operation (when the impoundment is only at an elevation of 213.25 feet during the navigation season). Therefore, please provide the acreage of all wetland and riparian habitat between the elevations of 211 feet and 213.25 feet that would be inundated for a longer period under the proposed operation of the project, as well as the National Wetland Inventory classifications of each wetland within this elevation range.*

NYPA Response: As part of the FERC Integrated Licensing Process (ILP) for the Vischer Ferry Project, the Power Authority conducted numerous resource studies, including an Aquatic Mesohabitat Study (Initial Study Report, Appendix E, February 2021), a component of which focused on existing wetland communities found at the Project which could be affected by Project operations.

The study mapped wetlands within the Vischer Ferry Project boundary. Wetlands were mapped initially using data layers from the National Wetlands Inventory (NWI) and the New York State Department of Environmental Conservation (NYSDEC). An initial desktop investigation found that vegetated wetlands within the Project boundary consist of palustrine forested (PFO), palustrine emergent (PEM), and palustrine scrub-shrub (PSS) within the riparian zone.

To address the FERC AIR question #1, the table below was developed using New York Canal Corporation bathymetric records and data from the Aquatic Mesohabitat Study. The table shows the cover type areas and acres between 211 feet and 213.25 feet that would be inundated year-round under the proposed installation of inflatable crest gates.

The aquatic bed wetlands and emergent wetlands are those most likely to be affected by changes in impoundment elevation. Woody wetlands likely occur on the very fringes of the impoundment at higher elevations and, therefore, are less sensitive to water level changes. Floating aquatic bed wetlands are confined to areas with open surface water.

Cover Type - Wetland Classification (NWI)	Area (acres)	
	Entire Impoundment (Lock E7 to Lock E8) (Aquatic Mesohabitat Study 213.25)	Between Contours of 211 feet BCD and 213.25 feet BCD
Emergent Wetland	20.6	0.3
- Palustrine Emergent Persistent (PEM 1)	18.0	0.3
- Palustrine Emergent Nonpersistent (PEM 2)	2.4	0.0
- Palustrine Emergent Phragmites (PEM 5)	0.2	0.0
Woody Wetlands	7.0	0.8
- Palustrine Forested Broad-Leaved Deciduous (PFO1)	6.0	0.8
- Palustrine Scrub-Shrub Broad-Leaved Deciduous (PSS1)	1.0	0.0
Aquatic Bed	261	46.1
- Floating	187	42.4
- Submerged	74	3.7
Total Coverage of all Wetlands	289	47.2
Total Area of Vischer Ferry Impoundment (measured in GIS)	1137	88.2

FERC Item 2: *It is unclear what NYPA's proposed changes to the operation of the Vischer Ferry Project and its features would have on upstream and downstream flooding of non-project properties and structures. The proposed modifications would entail replacing the existing 27-inch flashboards with 27-inch pneumatically actuated crest gates (crest gates) on dams D and E, and a combination of 27-inch and 48-inch crest gates on dam F. The installation of 48-inch crest gates would require that the crest of dam F be lowered by 21 inches. Furthermore, as discussed above in item 1, the proposed changes would result in higher impoundment elevations relative to existing conditions, as the impoundment would be maintained at an elevation of 213.25 feet on a year-round basis—not just during the navigation season (May through October). Therefore, please prepare an engineering analysis that includes:*

- a. *An analysis of historical storms/floods that occurred at the project, such as the Flood of Record. The analysis should include an estimate of the recurrence interval of each historical event and the resultant upstream and downstream impacts. If sufficient records do not exist (e.g., gage records, impoundment elevations, inflows, outflows), this analysis could be accomplished by preparing a hydrologic and/or hydraulic model (e.g. HEC-HMS, HEC-RAS) based on historic precipitation data and watershed. All elevations herein are referenced to the Barge Canal Datum, which is 1.67 feet lower than the North American Vertical Datum of 1988. Schedule A Project Nos. 4678-053 and 4679-050 A-2 characteristics to simulate the historic floods and estimate flooding impacts;*
- b. *A flood frequency analysis of flows at the project. At a minimum, the magnitude of the 2-year, 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events should be determined;*
- c. *A comparison of how potential flood impacts in areas upstream and downstream of the project would differ for each historical and flood frequency event. The comparison should quantify the number of flooded non-project properties and structures, the depth and velocity of water at these structures, and the total inundated area. This analysis will likely require using a hydraulic model, as suggested in item (a) above, to route flows for the various events. If any non-project properties and structures are flooded as a result of the proposed modifications, the affected features should be evaluated to determine whether they can withstand collapsing or being washed away. Resources such as the U.S. Bureau of Reclamation ACER Technical Memorandum No. 11, Reclamation Consequence Estimating Methodology (RCEM), and/or U.S. Army Corps of Engineers' LifeSim software may facilitate this evaluation;*
- d. *If applicable, a statement from the licensee's Chief Dam Safety Engineer that he/she has reviewed the information required by items (a), (b), and (c) and agrees that the change in project operations and features would have no significant impact on upstream and downstream flooding;*
- e. *If applicable, a discussion of any proposed modifications or remedial measures that would be necessary if it is determined that the change in operation would result in significant impacts on upstream or downstream flooding; and*
- f. *Within 6 months of the date of this letter, please file a study report that provides and summarizes the modeling results for this effort, including a copy of all input and output files used in the analyses.*

NYPA Response: - Based on the discussion during the November 8th, 2023, Technical Conference for the Vischer Ferry Hydro Project (Technical Conference), the Power Authority addresses Items 2a, 2b, 2c and 2f in **Attachment A** (letter from Gomez & Sullivan with cover memo from NYPA's Chief Dam Safety Engineer) with a figure that compares the existing and proposed spillway discharge rating curves. A copy of all input and output files used in the analysis for the Gomez and Sullivan memo has been included with this filing. As discussed during the Technical Conference, the detailed assessment of impacts outlined in Item 2c is not required since the rating curves are shown to not be significantly different.

In response to AIR Item 2d, NYPA's Chief Dam Safety Engineer has reviewed the information provided in Items 2a, 2b and 2c and agrees with the information in Attachment A that confirms that the proposed change in operations and features will have no significant impact on upstream and downstream flooding. As a result of "no significant impact", no response is necessary for AIR Item 2e.

FERC Item 3: *It is unclear how the proposed changes in the features and operation of the Vischer Ferry Project would affect the stability of the project. The installation of 48-inch crest gates would require cutting the existing crest of dam F and removing concrete. Therefore, within 6 months of the date of this letter, please file a stability analysis in accordance with Chapter 3 and Chapter 10 of the Commission's Engineering Guidelines Schedule A Project Nos. 4678-053 and 4679-050 A-3 for normal, normal plus ice, design flood loading, and post-seismic conditions.⁵ Lastly, a revised Supporting Design Report should be filed that includes the stability calculations for the proposed changes.*

NYPA Response: As was discussed during the Technical Conference meeting, and pursuant to FERC's letter of January 11, 2024, NYPA filed an interface strength parameter memo in the FERC e-library – see Accession No. 202401122-5037 for details. As previously indicated, NYPA plans to submit a stability analysis of the Vischer Ferry Dam within 6-months of FERC's approval of the interface strength parameters memo. This submittal will also address Recommendation 27 from the 7th Independent Consultant's Safety Inspections Report and the plan and schedule that was submitted to FERC by NYPA cover letter dated August 18, 2023.

FERC Item 4: *NYPA's proposed installation of new (pneumatically operated) crest gates at the Vischer Ferry Project could affect environmental resources in the vicinity of the project (e.g., due to altered water levels when the gates are being installed). However, it is unclear as to how or to what extent and duration the Vischer Ferry impoundment would need to be lowered to complete the proposed gate replacements, which, as described in item 3 above, would require the removal of the upper portion of dam F. Therefore, to facilitate staff's analysis of the potential effects of the proposed gate replacements on environmental resources, including any wetland, riparian, and adjacent upland habitat that may be affected during the gate replacements, please explain how (e.g., via drawdowns or cofferdams) and to what extent (e.g., depth) and duration all work areas would be isolated (from the impoundment) during the proposed gate replacements.*

NYPA Response: The current plan is to construct the project during the normal navigation season (when flashboards are installed) using a portable, temporary coffer dam or bulkhead system mounted along the upstream face of the dams resulting in no impact to the normal water levels. Concrete removal and crest gate installation will progress incrementally from the regulating structure to Lock E7, commissioning each crest gate section as installed. No more than 22% of the spillway will be obstructed with the temporary bulkhead at any time which will allow the passing of a 10-year storm without pond levels exceeding elevation 217.0 (BCD).

Kleinschmidt Associates (Engineer of Record) will provide a performance specification for temporary cofferdams to be designed and fabricated by the construction contractor, subject to FERC's approval.

FERC Item 5: *Section 2.1 of the “Effect of Vischer Ferry Dam Modification Alternatives on Ice Jam Flooding” report filed on July 10, 2023, describes the determination of ice cover thickness using the freezing degree-day method that was calibrated with the 2022 field data (air temperature, precipitation, etc.). The thickness of ice fragments in the icebreaking channel was calculated to be 0.08 meter (3 inches) with periodic ice breaking in the channel during the winter. Was the thickness of ice fragments (i.e., 0.08 meter) calculated for 2022 and then used for the 2018 ice-jam modeling scenarios or was it predicted for the 2018 ice-jam event (i.e., using 2018 air temperature data) using the calibrated freezing degree-day method and then used for the 2018 ice-jam modeling scenarios? Please explain.*

NYPA Response: Clarkson University staff, authors of the original report, provided a response to this item in a letter dated September 5, 2023. See **Attachment B**.

FERC Item 6: *Page 162 of Exhibit E of the license application for the Crescent Project lists project-related facilities that are contributing historic resources to the New York State Barge Canal Historic District and National Historic Landmark, managed by the New York State Canal Corporation under a draft historic properties management plan (HPMP). Page 173 of Exhibit E states that continued operation and maintenance of the projects will be performed in accordance with the provisions of the HPMP. However, the A-4 citation to the draft HPMP does not include a link to a draft HPMP and staff has been unable to locate a draft HPMP online. So that staff has adequate information to conduct its environmental analysis, please file the draft HPMP, or the final HPMP if available, with the Commission. If the HPMP provides information about the location, character, or ownership of a historic property that may cause a significant invasion of privacy, risk harm to the historic property, or impede the use of a traditional religious site by practitioners, please file the document as privileged, as required by 36 CFR § 800.11 and 18 CFR § 388.112.*

NYPA Response: The Draft New York State Barge Canal Historic Properties Management Plan will be filed separately as privileged due to the sensitive information included in the plan.

FERC Item 7: *Page 173 of Exhibit E states the continued operation of the Crescent Project and Vischer Ferry Project will not result in adverse effects to cultural resources. Appendix A of Exhibit E contains two letters from the New York State Historic Preservation Office (New York SHPO) approving the proposed area of potential effects for each project; however, there is no correspondence indicating the New York SHPO concurs with NYPA's assessment that there is no effect to historic properties from continued operation of the projects. Therefore, please consult with the New York SHPO regarding whether it concurs with NYPA's finding of no effect and file a record of that consultation with the Commission.*

NYPA Response: On November 17, 2023, NYPA received a "No Adverse Effect" letter from the New York State Historic Preservation Office. See **Attachment C** for Crescent & Vischer Ferry responses.

ATTACHMENT A

FERC August 7, 2023

Additional Information Request (AIR)

Response to AIR Item #2



Memorandum

Date: January 22, 2024

Prepared by: 
 Director Dam Safety
 Alexander Brey, P.E.

Subject: Follow-up to FERC August 7, 2023 Letter – Additional Information Request - Item 2

By letter dated August 7, 2023, FERC issued to the New York Power Authority (NYPA) an Additional Information Request (AIR) related to several alternatives for reducing the extent and severity of ice-jam induced flooding on the Mohawk River upstream of the Vischer Ferry Project. The following is NYPA's response to Item 2 from the Commission's August 7, 2023 AIR:

AIR Item 2: *"It is unclear what NYPA's proposed changes to the operation of the Vischer Ferry Project and its features would have on upstream and downstream flooding of non-project properties and structures. The proposed modifications would entail replacing the existing 27-inch flashboards with 27-inch pneumatically actuated crest gates (crest gates) on dams D and E, and a combination of 27-inch and 48-inch crest gates on dam F. The installation of 48-inch crest gates would require that the crest of dam F be lowered by 21 inches. Furthermore, as discussed above in item 1, the proposed changes would result in higher impoundment elevations relative to existing conditions, as the impoundment would be maintained at an elevation of 213.25 feet on a year-round basis—not just during the navigation season (May through October). Therefore, please prepare an engineering analysis that includes:*

- a. An analysis of historical storms/floods that occurred at the project, such as the Flood of Record. The analysis should include an estimate of the recurrence interval of each historical event and the resultant upstream and downstream impacts. If sufficient records do not exist (e.g., gage records, impoundment elevations, inflows, outflows), this analysis could be accomplished by preparing a hydrologic and/or hydraulic model (e.g. HEC-HMS, HEC-RAS) based on historic precipitation data and watershed. All elevations herein are referenced to the Barge Canal Datum, which is 1.67 feet lower than the North American Vertical Datum of 1988. Schedule A Project Nos. 4678-053 and 4679-050 A-2 characteristics to simulate the historic floods and estimate flooding impacts;*
- b. A flood frequency analysis of flows at the project. At a minimum, the magnitude of the 2-year, 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events should be determined;*
- c. A comparison of how potential flood impacts in areas upstream and downstream of the project would differ for each historical and flood frequency event. The comparison should quantify the number of flooded non-project properties and structures, the depth and velocity of water at these structures, and the total inundated area. This analysis will likely require using a hydraulic model, as suggested in item (a) above, to route flows for the various events. If any non-project properties and structures are flooded as a result of the proposed modifications, the affected features should be evaluated to determine whether they can withstand collapsing or*

being washed away. Resources such as the U.S. Bureau of Reclamation ACER Technical Memorandum No. 11, Reclamation Consequence Estimating Methodology (RCEM), and/or U.S. Army Corps of Engineers' LifeSim software may facilitate this evaluation;

d. If applicable, a statement from the licensee's Chief Dam Safety Engineer that he/she has reviewed the information required by items (a), (b), and (c) and agrees that the change in project operations and features would have no significant impact on upstream and downstream flooding;

e. If applicable, a discussion of any proposed modifications or remedial measures that would be necessary if it is determined that the change in operation would result in significant impacts on upstream or downstream flooding; and

f. Within 6 months of the date of this letter, please file a study report that provides and summarizes the modeling results for this effort, including a copy of all input and output files used in the analyses.”

NYPA Response: FERC AIR Items 2a through 2c have been addressed in the attached January 19, 2024 memo – *Additional Information Request – Item 2* prepared by Gomez and Sullivan Engineers. The report concludes that any proposed changes to operations as a result of the planned installation of crest gates, there will be no substantive impacts on upstream and downstream flooding of non-project properties. The memo also indicates that additional studies are not required, and any project modifications are unnecessary.

As the NYPA Chief Dam Safety Engineer, I have reviewed the information presented in the attached Gomez and Sullivan Engineers memo and I concur with the findings in that the changes in project operations and features would have no significant negative impacts on upstream and downstream flooding.

DATE: January 19, 2024

SUBJECT: Additional Information Request - Item 2

Prepared By: Kevin Miller, P.E.



Checked By: Norman Folmar, Ph. D., P.E.



Vischer Ferry Hydroelectric Project (Project), FERC Project No. 4679-NY, is currently owned and operated by the New York Power Authority (NYPA). In its May 25, 2022 license application for the Project to the Federal Energy Regulatory Commission (FERC), the NYPA indicated that it was exploring alternatives to reduce ice-jam induced flooding upstream of the Project. A letter to FERC dated March 16, 2023, indicated the NYPA's preferred alternative, which included maintaining a higher pond elevation than current operations during the non-navigation season. As such, the FERC issued a Request for Additional Information (AIR) on August 7, 2023, outlining information it needed to assess the potential effects of these proposed changes on public safety and environmental resources. The FERC held a technical conference on November 8, 2023 during which the NYPA and its consultant team, along with other participants in attendance, discussed the engineering analysis of project-related flooding impacts (AIR - Item 2) and the stability analysis and revised Supporting Design Report (AIR - Item 3). During this technical conference, the FERC indicated that if the engineering analysis for AIR - Item 2 indicates discharge levels are similar under existing and proposed conditions, it may not be necessary to evaluate flooding impacts on individual structures. The purpose of this memo is to address Item 2 in FERC's AIR. The input and output files used to support the analyses discussed in the memo have been provided separately.

1. Hydrologic Analysis

A statistical analysis of historical peak streamflow data using the Expected Moment Algorithm (EMA) methodology, consistent with the Guidelines for Determining Flood Flow Frequency: Bulletin 17C (United States Geological Survey, 2018), was completed using the U.S. Army Corps of Engineers' (USACE) software HEC-SSP v2.3. The analysis used USGS streamflow data from a gage at Cohoes, NY (No. 01357500), which has a drainage area of 3,450 square miles (mi²) compared to 3,371 mi² at the project. The Cohoes gage includes measured annual peak flow data from 1919 to the present, and six years of estimated peak flow data (1863, 1913, and 1915 – 1918). Based on consultation with the USGS, the 1863 peak flow was excluded from the analysis as this historic peak was prior to regulation within the basin and is not considered to be representative of future flood risk at the site. Censored data was used to provide information relative to the data from 1914, with a high value based on the 1964 flow of 143,000 cubic feet per second (cfs) as the USGS record indicates this was the highest flow since at least 1913. Finally, the analysis was completed using only the station skew, as the use of a regional skew to produce a weighted skew is not appropriate for regulated basins. A drainage area ratio of approximately 0.98 (i.e., 3,371 mi² / 3,450 mi²) was applied to the flood frequency analysis results at Cohoes, NY to better represent the flow estimates at the Project. The prorated flows at the Project are provided in Table 1 and shown on Figure 1. This figure also lists information about the five largest reported flows at the Cohoes, NY gage.

Table 1: Project Flood Frequency Analysis Results

Annual Chance Exceedance (%)	Recurrence Interval (Years)	Project Flow (cfs)
0.2%	500	157,900
1%	100	131,000
2%	50	119,300
4%	25	107,400
10%	10	91,200
20%	5	78,100
50%	2	57,700

2. Hydraulic Analysis

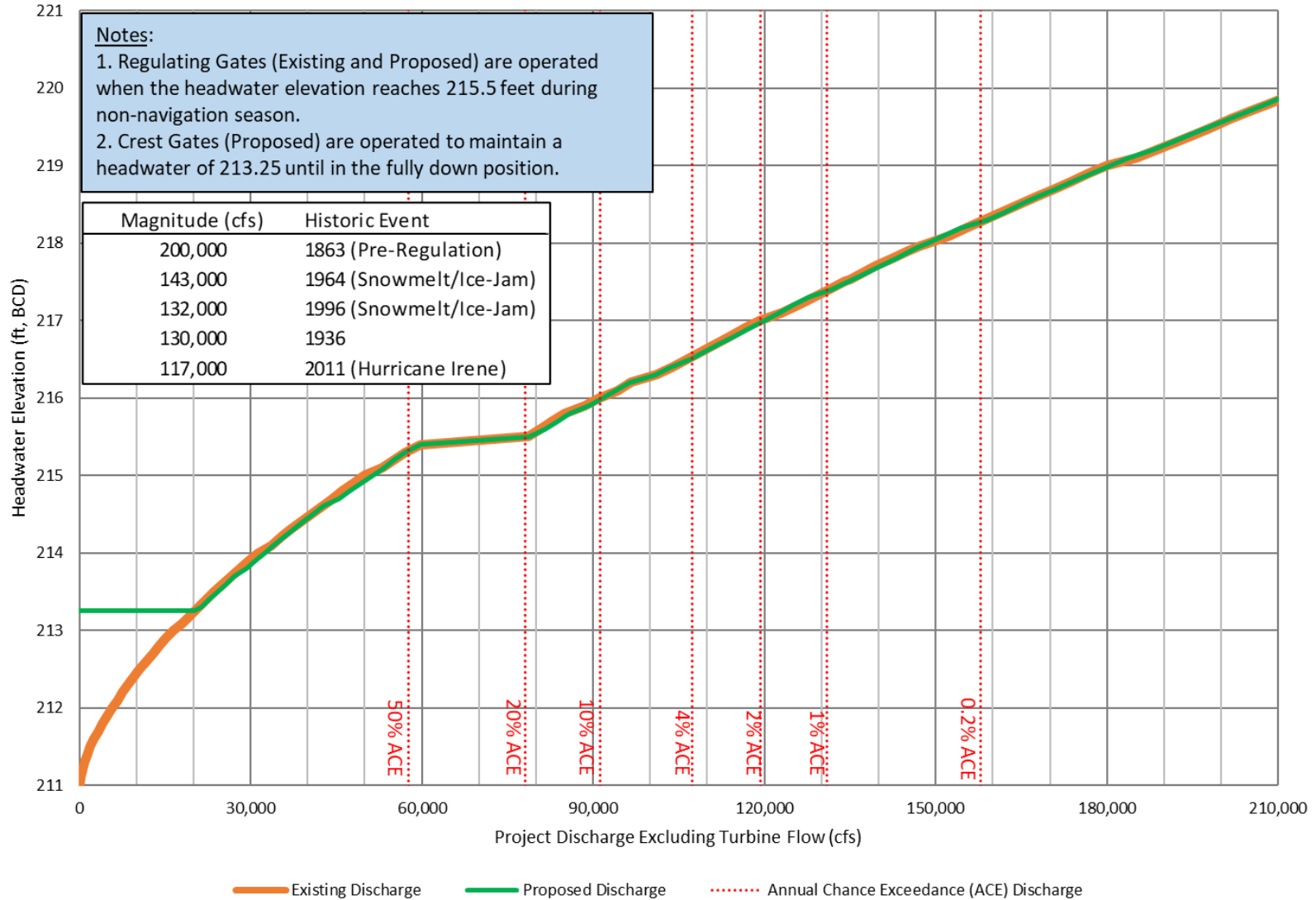
Stage-discharge computations were obtained for Dams D, E, and F under both existing and proposed conditions (Kleinschmidt Associates, 2023). For the proposed conditions, the rating curve considers the reduction in spillway length due to the introduction of piers between crest gate sections. Discharge over each dam was computed using the weir equation. The weir discharge coefficient for Dams D and F was based on guidance in “The Design of Small Dams” (United States Bureau of Reclamation, 1987) regarding ogee shaped spillways. The weir discharge coefficient for Dam E was based on guidance in “Handbook of Hydraulics” (Brater and King, 1976) regarding broad crested weirs. The head on each weir considered both potential and velocity head. Submergence effects were considered but did not apply to the range of flows computed in this study. The design proceeded such that the proposed spillway capacity with the crest gates in the lowered position closely matches the existing spillway capacity when the flashboards are removed. Stage-discharge computation for other Project structures (e.g., Regulating Gates, Embankment, Lock Wall, Sluice Gates) were obtained from the study used to develop the stage-discharge curves presented in the Project’s Supporting Technical Information Document (STID). The stage-discharge rating curves for these structures were added to the stage-discharge curves for Dams D, E, and F to develop existing and proposed Project stage-discharge rating curves. The proposed Project stage-discharge rating curve was modified to indicate operation of the crest gates to maintain a headwater elevation of approximately 213.25 feet, Barge Canal Datum (BCD). A comparison of the existing and proposed Project discharge rating curves is provided in Figure 1.

3. Conclusions

The proposed changes in operation of the Project will produce higher normal impoundment elevations during the non-navigation season relative to existing conditions under flows less than approximately 20,000 cfs. This is due to the plan to operate the proposed crest gates in the “up” position to maintain the navigation season normal pool year-round, whereas currently flashboards that maintain navigation season normal pool are removed during the non-navigation season. However, due to the design of the crest modifications and proposed operating procedures of the crest gates, there is little change to the discharge capacity of the Project under any substantial flood scenario. As such, higher impoundment elevations during the non-navigation season are limited to times when the total river flow is less than half the magnitude of the 50% Annual Chance Exceedance (ACE) event (i.e., 2-year recurrence interval). In conclusion, the proposed changes in operation of the Project will have no substantive impact on upstream and downstream flooding of non-project properties and structures, a more detailed analysis of flood impacts on individual structures is not required, and no modifications or remedial measures are necessary to mitigate upstream or downstream flooding impacts.

Figure 1: Project Discharge Rating Curve during Non-Navigation Season

Non-Navigation Season Stage-Discharge Comparison



ATTACHMENT B

FERC August 7, 2023

Additional Information Request (AIR)

Response to AIR Item #5



Clarkson

CIVIL AND ENVIRONMENTAL
ENGINEERING DEPARTMENT
8 Clarkson Avenue
Potsdam, New York 13699
315-268-6517/6529

September 5, 2023

Brian Platt
Resilience Director (RTC)
New York Power Authority
149 Northern Concourse, Suite #400
Syracuse, New York 13212

RE: Vischer Ferry Dam Modification Project
Response to FERC's August AIR Letter

Dear Brian,

On August 7, 2023, the Federal Energy Regulatory Commission (the Commission) issued Item 5 of Schedule A attached to the Additional Information Request (AIR) to NYPA requesting a clarification of the ice thickness calculation in Section 2.1 of the "Effect of Vischer Ferry Dam Modification Alternatives on Ice Jam Flooding" report originally issued in December 2022, updated on June 30, 2023, and filed with the Commission on July 10, 2023 (hereafter referred to as the Report).

See the text below for an excerpt from the referenced letter:

Item 5: Section 2.1 of the "Effect of Vischer Ferry Dam Modification Alternatives on Ice Jam Flooding" report filed on July 10, 2023, describes the determination of ice cover thickness using the freezing degree-day method that was calibrated with the 2022 field data (air temperature, precipitation, etc.). The thickness of ice fragments in the ice breaking channel was calculated to be 0.08 meter (3 inches) with periodic ice breaking in the channel during the winter. Was the thickness of ice fragments (i.e., 0.08 meter) calculated for 2022 and then used for the 2018 ice-jam modeling scenarios or was it predicted for the 2018 ice-jam event (i.e., using 2018 air temperature data) using the calibrated freezing degree-day method and then used for the 2018 ice-jam modeling scenarios? Please explain.

The following is in response to the Commission's question:

As stated in Section 2.1 of the Report, the freezing-degree-day (FDD) method was calibrated with the field data obtained in 2022, as shown in Figure 1 below (Fig. 7 of the Report). This calibrated model was then used to calculate the ice fragment thickness in the ice-breaking channel, as shown in Fig. 2 below. Based on the calculated ice thickness using this model, Figure 2 below shows that for any two days of the 2018 winter season, the theoretical ice thickness would be

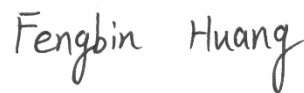
3-inches (0.08 m), or less. This two-day moving ice-thickness calculation is based on the assumption that the ice-breaking operation would be made as needed, for example, once every other day, during cold periods when ice was forming in the ice-breaking channel. If the weather is colder and the calculated ice thickness based on the weather forecast is thicker than 0.08 m, the ice breaker operation may be conducted more frequently. It should be noted that the ice thickness outside the ice-breaking channel, as shown in Figure 3 (below) in the ice-jam modeling scenarios, is based on the cumulated freezing degree-day from the freeze-up to breakup.

Please contact us if you have any further questions.

Sincerely,



Hung Tao Shen
Distinguished Research Professor
in Hydraulic Engineering



Fengbin Huang
Research Assistant Professor

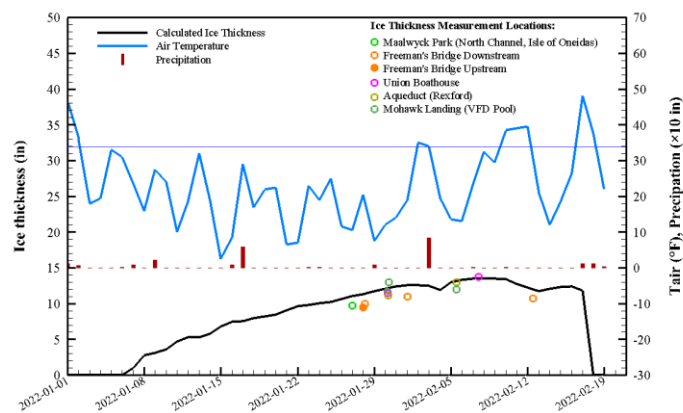


Figure 1. Calibrated ice thickness variation of 2021-22 winter by freezing degree-day method. (Figure 7 of the Report).

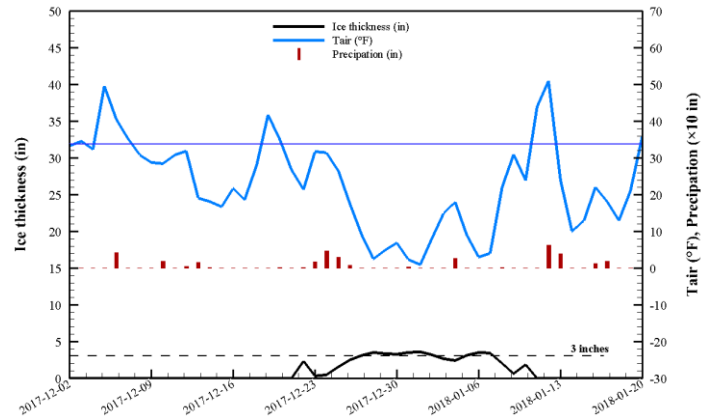


Figure 2. Calculated 2-day moving ice thickness for icebreaker operation in 2017-18 winter.

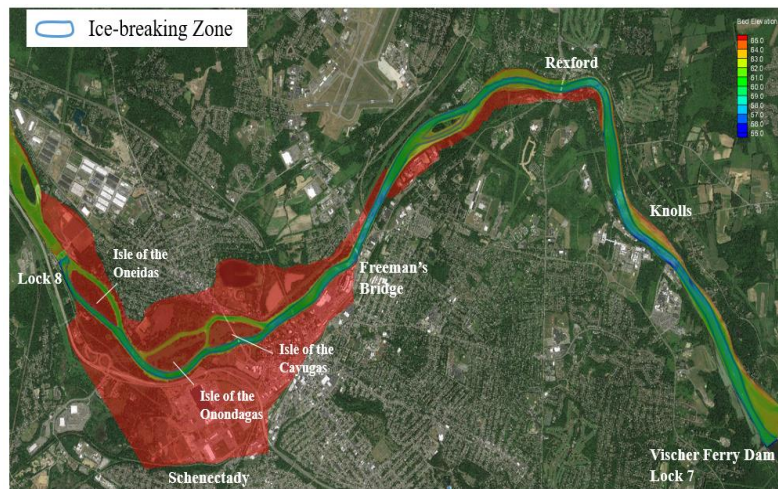


Figure 3. Ice-breaking path between Lock 7 and Lock 8. The red zone outside the river channel represents the floodplain area. (Figure 6 of the Report)

ATTACHMENT C

FERC August 7, 2023

Additional Information Request (AIR)

Response to AIR Item #7



**New York State
Parks, Recreation and
Historic Preservation**

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

November 17, 2023

Robert Panepinto
New York Power Authority
123 Main Street-5E
White Plains, NY 10601

Re: FERC
Vischer Ferry Hydroelectric Project Relicensing (FERC Project No. 4679)
Town of Clifton Park, Saratoga County, NY
19PR03314

Dear Robert Panepinto:

Thank you for continuing to consult with the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources.

We have reviewed the Final Application documentation for the proposed relicensing of the Vischer Ferry Hydroelectric Project. As noted, The Vischer Ferry Hydroelectric Plant is listed in the NY State and National Registers of Historic places as a contributing resource to the New York State Barge Canal Historic District, which is a National Historic Landmark.

According to the license application (Section 4.10.3 page 173):

"The Power Authority is proposing no changes to the Projects or the operation of the Projects that would affect identified cultural resources. The Power Authority is not proposing the construction of any new facilities at the Projects or ground disturbing activities that would have the potential to impact cultural resources. No PME measures related to cultural resources were proposed by the relicensing participants. The Power Authority will consult with the SHPO and NYSCC, as appropriate, in the event that future Project maintenance is required that could potentially have an adverse effect on cultural resources."

Based on this review, it is the opinion of the SHPO that the proposed project will have No Adverse Effect to historic resources.

If you have any questions, you can call or e-mail me at the contact information below.

Sincerely,

Weston Davey
Historic Site Restoration Coordinator
518-268-2164 | Weston.Davey@parks.ny.gov



**New York State
Parks, Recreation and
Historic Preservation**

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

November 17, 2023

Robert Panepinto
New York Power Authority
123 Main Street-5E
White Plains, NY 10601

Re: FERC
Crescent Hydroelectric Project Relicensing (FERC Project No. 4678)
19PR03259

Dear Robert Panepinto:

Thank you for continuing to consult with the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources.

We have reviewed the Final Application documentation for the proposed relicensing of the Crescent Hydroelectric Project. As noted, The Crescent Hydroelectric Plant is listed in the NY State and National Registers of Historic places as a contributing resource to the New York State Barge Canal Historic District, which is a National Historic Landmark.

According to the license application (Section 4.10.3 page 173):

"The Power Authority is proposing no changes to the Projects or the operation of the Projects that would affect identified cultural resources. The Power Authority is not proposing the construction of any new facilities at the Projects or ground disturbing activities that would have the potential to impact cultural resources. No PME measures related to cultural resources were proposed by the relicensing participants. The Power Authority will consult with the SHPO and NYSCC, as appropriate, in the event that future Project maintenance is required that could potentially have an adverse effect on cultural resources."

Based on this review, it is the opinion of the SHPO that the proposed project will have No Adverse Effect to historic resources.

If you have any questions, you can call or e-mail me at the contact information below.

Sincerely,

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