

**FEDERAL ENERGY REGULATORY COMMISSION
Washington D.C. 20426**

Office of Energy Projects

Project No. 2572-136—Maine
Ripogenus Hydroelectric Project
Great Lakes Hydro America, LLC

August 22, 2023

VIA FERC Service

Kelly Maloney
Great Lakes Hydro America, LLC
150 Main Street
Lewiston, ME 04240-1398

Subject: October 2021 to April 2022 Flow Deviations, and Allegations of June and October 2022 Flow Deviations and Stranding Effects

Dear Ms. Maloney:

This letter is in reference to your April 28, 2022 filing notifying the Federal Energy Regulatory Commission (Commission) of minimum flow deviations at the Ripogenus Hydroelectric Project No. 2572 that occurred between October 15, 2021 and April 18, 2022. The letter also addresses comments filed between April 28, 2022 through September 23, 2022,¹ made by the Maine Council of Trout Unlimited (Trout Unlimited) and members of the public alleging additional related minimum flow deviations. Minimum flow requirements are established by Article 402 of the project license.²

¹ Commission staff also received multiple phone calls on the matter, through May 19, 2023, from the same parties. No new information was provided during the calls that had not already been filed on the record.

² Order Issuing License (77 FERC ¶ 61,066), issued October 22, 1996.

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License Requirements Relevant to the Flow Deviation Allegations***Article 402 – Minimum Flow Releases***

Article 402 requires minimum flow releases into the West Branch of the Penobscot River, below McKay Station, based on salmonid spawning needs, whitewater recreation, and power generation. From September 16 through October 14, you must provide 1,000 cubic feet per second (cfs) to facilitate the drawdown of the North Twin Development of the downstream Penobscot Mills Hydroelectric Project No. 2458. From October 15 through November 15, you must provide salmon spawning minimum flows of at least 1,422 cfs or inflow, but not less than 1,300 cfs. From November 16 to June 7, the minimum flow for salmon incubation must be greater than 1,422 cfs or matching that year's spawning flow. The spawning and incubation minimum flows are established in consultation with the U.S. Fish and Wildlife Service (FWS) and Maine Department of Inland Fisheries and Wildlife (Maine DIFW) each year and may be modified with both agencies' concurrence.

Article 402 also requires minimum flow requirements to be supplemented by whitewater recreation flows established by your 1993 Settlement Agreement.³ Whitewater recreation flow releases vary based on water year type. From May 1 through September 15, between the hours of 08:30 and 17:00 local time, during normal water years,⁴ you must release 2,300 cfs on Saturdays and Sundays, 2,200 cfs on Mondays and Fridays, and 2,000 cfs on Tuesdays through Thursdays. In wet or dry years, you must release 2,200 cfs on Saturdays and Sundays, 2,000 cfs on Mondays and Fridays, and 1,800 cfs on Tuesdays through Thursdays. Further, from September 16 through October 1, between the hours of 08:30 and 17:00 local time, during normal water years, you must release 2,300 cfs on Saturdays and Sundays. During wet or dry years, you are required to release 2,200 cfs on Saturdays and Sundays. From June 8 through October 14, minimum flows during non-peak whitewater boating hours, between the hours of 17:00 and 08:30

³ The Settlement Agreement was executed between the licensee and the Maine Professional River Outfitters on September 2, 1993, and filed with the Commission on September 8, 1993.

⁴ The range of "normal" available water represents the expected available water during normal hydrologic conditions. It is defined as the range between $x-s$ and $x+s$, where "x" is the mean value and "s" is the standard deviation. Based on a statistical analysis, total available water is expected to be within this "normal" range two-thirds of the time, and outside of this ranges ("wet" or "dry" years) one-third of the time.

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local time, must remain at or above 1,000 cfs.

Additionally, Article 402 includes provisions that, in the event of failure of generating units at McKay Station, you are only required to provide 400 cfs; however, you must return to the scheduled minimum flows as quickly and practically as possible, but no more than 3 days following the initial outage.

Article 402 allows you to modify minimum and recreational flows temporarily if required by operating emergencies beyond your control, and for short periods upon agreement with the Maine Department of Environmental Protection (Maine DEP) and Maine Land Use Regulation Commission (Maine LURC), and during hydrologic conditions beyond your control upon agreement with the FWS, Maine DIFW, Maine DEP, and Maine LURC. Any such modifications must be reported to the Commission no later than 10 days after each such incident.

Article 406 – Habitat Improvement Plan

Article 406 of the project license requires the licensee to implement a Habitat Improvement Plan (Plan) for landlocked Atlantic salmon at the project's Holbrook Side Channel, in consultation with the FWS, Maine DIFW, and Maine LURC.⁵ The intent of the improvements to the Holbrook Side Channel was to provide rearing habitat for landlocked salmon. The Plan described intended habitat improvements and how the modified habitat would be monitored. The Plan required you to monitor production and outmigration for a minimum of 5 years but included provisions for extending monitoring efforts if projected production or outmigration objectives were not achieved. Your monitoring report filed on December 23, 2002, demonstrated that the Holbrook Side Channel can produce and exceed the projected densities of salmon fry. Based on these results, the Commission approved the discontinuation of monitoring on February 20, 2003.⁶

⁵ Order Approving Habitat Improvement Plan (80 FERC ¶ 62,204), issued September 9, 1997.

⁶ Order Approving Recommendations of Habitat Improvement Plan Under Article 406 (102 FERC ¶ 62,116).

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Project Operations

The Ripogenus Project operates as store-and-release, rather than run-of-river, and provided power for papermaking facilities in Millinocket and East Millinocket, Maine, at the time of licensing. Store-and-release operations maximize the combined annual energy generation at Ripogenus and Penobscot Mills⁷ hydroelectric projects by keeping flows within each development's hydraulic capacity. Store-and-release operations also moderate extreme seasonal variation in streamflow, primarily by reducing flood risk associated with high spring flows. This mode of operation further maximizes baseload energy generation, which had been a priority for the papermaking facilities.

Salmon Flow Modifications

On April 28, 2022, you notified the Commission that, after agency consultation, you reduced salmon spawning and incubation flows below 1,300 cfs, as low as 800 cfs, from the project into the West Branch of the Penobscot River below McKay Station, from October 15, 2021 through April 18, 2022, due to severe drought in the watershed limiting inflows to the project.⁸ Target flows were originally set to be 1,100 cfs; however, further reductions were initiated on March 4, 2022, wherein flows could be reduced to 800 cfs. Your filing indicates that the flow reductions were made after consultation with the Maine DIFW, Maine DEP, FWS, and Maine LUPC, and that you were not aware of any adverse effects to aquatic resources resulting from the flow reduction.

⁷ The Ripogenus Project and downstream Penobscot Mills Project were operated as a part of an integrated system developed by Great Northern Paper Company to provided baseload electric power for its Millinocket and East Millinocket paper mills. At the time of licensing, Ripogenus Dam and the Millinocket Lake and North Twin Developments of the Penobscot Mills Project were operated in a store-and-release mode prioritizing power production, while the downstream Millinocket, Dolby and East Millinocket developments were operated in a run-of-river mode to recreate a more natural hydrograph downstream of the mills.

⁸ According to the U.S. National Oceanic and Atmospheric Administration's National Integrated Drought Information System (drought.gov), Maine experienced a significant drought in 2020 that transitioned to a snowpack drought through 2022. Depleted snowpack and groundwater conditions remained after 2020, so even as precipitation returned to normal, water availability remained diminished.

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Subsequently, on May 9, 2022, local resident, Mr. Ed Spear, requested that the Commission impose a civil penalty for the flow change, due to prolonged duration and failure to notify the Commission in a timely manner. Mr. Spear alleged that the flow reduction caused the loss of juvenile salmon. On May 31, 2022, Mr. Spear filed photos of the Holbrook Side Channel to support his claim.

On May 12, 2022, Trout Unlimited also requested that the Commission consider the flows from October 15, 2021 through April 18, 2022, a violation of the project license.⁹ Trout Unlimited noted that during the months prior to October 15, 2021, you released flows in excess of the minimum flow requirement, and that operational experience should have better informed your choice to release water that could have been stored for salmon spawning season. Additionally, Trout Unlimited requested public access to operational data and access to the project's Part 12D Dam Safety Inspection Report.¹⁰

On May 26, 2022, Commission staff requested that you respond to the comments described above. In your June 8, 2022 response, you reiterate that you implemented the flow reductions only after consultation with the required resource agencies, and you point out that flows from the Ripogenus Project were necessary for license compliance at the downstream Penobscot Mills Project No. 2458. You also note that flows prior to October 15, 2021 complied with Article 402 and reiterate the severity of the drought during the flow reduction period. Your filing includes operational data covering the duration of the flow reduction (October 15, 2021 through April 18, 2022) demonstrating that flows were maintained at or above 800 cfs throughout the planned flow reduction and that additional flows were provided as available.

⁹ Trout Unlimited's May 12, 2022 filing also included comments related to the relicensing of the project; however, those comments will be addressed by the Commission's Division of Hydropower Licensing under the docket P-2572-133. This applies to any relicensing-related comments included in the filings discussed throughout the rest of this letter as well.

¹⁰ At the time of filing, the most recent 10th Part 12D Dam Safety Inspection Report was issued on May 11, 2022; however, a more recent report was issued May 3, 2023. Information regarding accessing critical energy/electric infrastructure information, such as the dam safety inspection reports, is located in 18 C.F.R. § 388.113(g) and on our website at <https://www.ferc.gov/enforcement-legal/ceii/electronic-ceii-request-form>.

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On June 8, 2022, Mr. Jeff Kaine filed comments broadly opposing flow fluctuations at the project and indicating that he witnessed sculpins and macroinvertebrate strandings resulting from rapid downramping. He alleged that these strandings have negatively affected food available to salmon populations.

On June 17, 2022, Mr. Spear filed additional comments. Mr. Spear stated that project inflows increased in April 2022. He believed that, based on Article 402's requirement to provide 1,422 or inflow, salmon incubation flows should have been increased concurrently with inflow. He alleged that the Holbrook Bypass Channel and downstream spawning areas were dewatered, causing adverse effects to salmon populations. Mr. Spear also disagreed with your June 8, 2022 comments suggesting that you could not have anticipated the severity of the drought or managed water more efficiently based on the information available prior to October 15, 2021. He pointed to a February 23, 2022 email included in your April 28, 2022 filing wherein your staff stated that drought-induced water conservation measures had been in place since 2020. He also described how he believed the upstream Storage Project No. 2634 could have been used to redistribute water to maintain Ripogenus outflows.¹¹ Mr. Spear further indicated that recreational boating flows were excessive when peak energy demand typically occurs.

Trout Unlimited filed additional comments on June 24, 2022, expressing similar concerns as Mr. Spear with your June 8, 2022 filing. Trout Unlimited's filing included outflow data that it believed showed peaking operations, which it thought dewatered loon nests and restricted boating activities on Chesuncook Lake,¹² in addition to the alleged effects to salmon discussed in Mr. Spear's June 17, 2022 filing.

In response to your June 8, 2022 letter, Ms. Kathleen Houston filed comments with the Commission on June 27, 2022, also contesting your assertion that the drought necessitated flow reductions and suggesting that the reductions could have been reduced by stopping recreational boating flows at 1700 hours. Ms. Houston also provides a comparison of the actual flows to the minimum flows required during August 2021 and disputes that requirements downstream necessitated the releases provided. Specifically,

¹¹ While Great Lakes Hydro America, LLC is also the licensee for the Storage Project, the projects are licensed and operated separately.

¹² Chesuncook Lake is immediately upstream of Ripogenus Lake. Construction of Ripogenus Dam created Ripogenus Lake, and the increased water levels essentially connected it to Chesuncook Lake, as well as raising the water levels in Caribou Lake and Moose Pond.

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Ms. Houston states that if a release of 2,000 cfs, for example, is required from the next reservoir downstream, a release of 2,000 cfs from the Ripogenus Project should provide adequate water.

Additional Comments and Allegations

On June 27, 2022, Ms. Sarah Sindo, who was employed at the Chewonki Foundation at Big Eddy Campground on the West Branch of the Penobscot River, notified the Commission that she observed a low flow event on June 24, 2022, wherein flows, as reported on the SafeWaters website,¹³ were 1,900 cfs rather than the scheduled 3,500 cfs. She indicated that it was a busy fishing weekend and that significant flow decreases adversely affect recreational fishing.

On June 29, 2022, Ms. Julie Puleio, also of the Chewonki Foundation at Big Eddy Campground, indicated that she also observed the June 24, 2022 flow reduction previously reported by Ms. Sindo and was unable to go surfing as intended. She also stated that she has observed other rapid drops in flow that have resulted in strandings of aquatic macroinvertebrates. On July 14, 2022, we requested additional information regarding the June 24, 2022 low flow event.

You responded to our request for additional information on July 21, 2022. Your filing indicates that, at 16:38 on June 24, 2022, a unit at McKay Station tripped offline, resulting in a drop in flows to approximately 1,900 cfs. You identified the cause of the trip to be a transmission line fault, and you state that the project-maintained flows well above the 400 cfs minimum required during a unit trip, pursuant to Article 402. Consequently, you did not report the incident as a deviation from license requirements.

On July 25, 2022, Mr. Paul Heinze filed comments with the Commission, broadly alleging that, in his over 20 years of fishing the West Branch of the Penobscot River, flows have been allowed to fluctuate more dramatically in recent years. Mr. Heinze recalled seeing prolific caddisfly emergences that are no longer occurring, and he attributed the decline to how the Ripogenus Project is operated.

¹³ The SafeWaters website is a recreational resource provided and maintained by Brookfield Renewable U.S. with the intent of improving recreational experiences and safety at the Ripogenus Hydroelectric Project and other hydropower facilities.

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Fish Stranding Study

On October 12, 2022, you reported a planned, 4-hour flow reduction that occurred on October 5, 2022, after consultation with the Maine DIFW, Maine DEP, and Maine LUPC, in order to conduct a Fish Stranding Study (Study) as a part of the relicensing process for the project.¹⁴ The minimum flow modification was necessary to conduct the Commission-approved Study, which was required as part of the pending relicensing proceeding. Article 402 permits you to modify flows for short periods of time after consultation with and receiving approval from the resource agencies. Thus, you were permitted to modify flows, and you reported it to the Commission within 10 days, as required.

On April 24, 2023, you filed the results of the Study. While this filing was required pursuant to your relicensing proceedings, the results are pertinent to the comments and allegations of noncompliance discussed above. The Study was originally requested by Trout Unlimited on February 21, 2022. The intent was to determine whether unit outages and the resulting flow reductions result in strandings, and to quantify how frequently outages occur. The Study identified five outages that occurred from 2018 through 2022, averaging 3.2 hours in duration. It verified that you were able to maintain minimum flows of 400 cfs, and therefore, your compliance with Article 402; however, stranded fish and macroinvertebrates were found in large numbers in 7 distinct reaches of the West Branch of the Penobscot River, between McKay Station and the Nesowadnehunk Deadwater. While not all strandings resulted in mortalities, juvenile landlocked salmon were the most commonly stranded species with the highest individual number of mortalities at 105 observed mortalities. The highest mortality rate by percentage of strandings was attributed to the 10 slimy sculpin found stranded, where none survived. Changes in water elevation in the West Branch of the Penobscot River between McKay Station and Nesowadnehunk Deadwater ranged from 1.4 to 3.4 feet, with the greatest change closest to McKay Station. There was no change in water elevation in the Holbrook Side Channel.

Conclusion

Based on our review of the record, the allegations of noncompliance with your license flow requirements are not violations of the project license. The low flow events were associated with unexpected unit trips or were planned reductions implemented only

¹⁴ See May 13, 2023 Study Plan Determination issued under dockets P-2572-133 and P-2458-247.

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after consultation with the resource agencies, as required per Article 402. You maintained flows at or above the agreed upon minimums during the October 15, 2021 through April 18, 2022 flow reduction and October 5, 2022 relicensing study. On June 24, 2022, you maintained flows above 400 cfs and notified the pertinent resource agencies in a timely manner, as required by Article 402.

You generally reported deviations in a timely manner, however, you notified the Commission of the October 15, 2021 through April 18, 2022 salmon spawning and incubation flow reductions on April 28, 2022, within 10 days after the flow reduction ceased but approximately six months after the onset of the deviation. Article 402 requires you to notify the Commission of any flow deviations no later than 10 days after each such incident. Commission staff considers the intent of the requirement to notify us within 10 days of the onset of any deviation, rather than within 10 days of the conclusion of any deviation, to keep us apprised of your actions, which did not occur in this case. For future deviations, you must notify the Commission within 10 days of the onset of the deviation. Failure to do so may result in a violation of your license. In instances where deviations last longer than 10 days, we may require a follow-up report documenting the full duration and magnitude of the event as well as any potential effects that may not have been anticipated at the onset of the event. Additionally, in the future, you should file a request for Commission approval of a temporary variance for planned deviations exceeding short periods of time (2 to 3 weeks), prior to implementing the changes. In any such filing, please include documentation of approval from the resource agencies. For additional information on how to request a temporary variance to a license requirement, please see our website at <https://cms.ferc.gov/media/how-apply-temporary-variance>.

As stated above, the Ripogenus Project operates as store-and-release, not run-of-river, resulting in variable outflows. Based on the information filed in the record, it appears that the decrease in prioritizing consistent energy production for the papermaking facilities has resulted in an increase in flow variability to maximize energy production during peak hours. While flow variations departing from the natural hydrograph, particularly steep downramping rates, are technically within the current license requirements, they have resulted in adverse effects to aquatic life not anticipated at the time of licensing, as demonstrated by the numerous fish and macroinvertebrate strandings reported to us. Trout Unlimited and multiple members of the public have provided observations, including photographic evidence, of fish and macroinvertebrate mortalities resulting from unit outages at your project, despite your compliance with the current license. The Commission may address adverse effects resulting from conditions not foreseeable at the time of licensing. Standard Article 15 of the license, in relevant

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part, states that “that licensee shall, for the conservation of development of fish and wildlife resources... comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion... after notice and opportunity for hearing.” Therefore, as discussed below and based on the record, we direct you to determine, in consultation with appropriate agencies, whether there are interim protection measures for aquatic resources that would prevent or minimize adverse environmental effects.

Accordingly, we are requesting that you consult with the FWS, Maine DIFW, Maine DEP, and Maine LURC to identify measures aimed at reducing the instances of fish and macroinvertebrate strandings downstream of McKay Station during downramping events, such as unit outages, until the current relicensing process is concluded. Examples of possible measures include: increasing the frequency at which staff are present at McKay Station to respond to low flow events more quickly; a battery back-up system to reduce the instances and/or durations of outage-caused flow reductions; or automating a gate at Ripogenus Dam to release a preset minimum flow to the West Branch of the Penobscot River when McKay Station trips offline. By requesting interim protection measures, we are not prejudging requirements or other protection measures that may be determined during the relicensing process.

Please file, for Commission review and approval, proposed interim protection measures agreed upon by the resource agencies, documentation of agency consultation, and a plan and schedule for implementing the measures, within 90 days of the date of this letter. If you are unable to reach concurrence with the resource agencies within 90 days, please request for an extension of time, including a status update and a proposal, with justification, for a new, reasonable deadline within 90 days of the date of this letter.

This letter is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing may be filed within 30 days of the date of issuance of this letter, pursuant to 18 C.F.R. § 385.713 (2022).

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Thank you for your cooperation. We look forward to your response, **due November 20, 2023**. If you have any questions regarding this letter, please contact Alicia Burtner at (202) 502-8038 or alicia.burtner@ferc.gov.

Sincerely,

CARLISA
LINTON

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CarLisa Linton
Director
Division of Hydropower Administration
and Compliance

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