

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426
November 21, 2022

OFFICE OF ENERGY PROJECTS

Project No. 2333-094 – Maine
Rumford Falls Hydroelectric Project
Rumford Falls Hydro LLC

VIA FERC Service

Luke Anderson
Brookfield Renewable
150 Main Street
Lewiston, ME 04240

**Reference: Determination on Requests for Study Modifications for the
Rumford Falls Hydroelectric Project**

Dear Mr. Anderson:

Pursuant to 18 C.F.R. § 5.13(c) of the Commission's regulations, this letter contains the determination on requests for modifications to the approved study plan for the Rumford Falls Hydroelectric Project located on the Androscoggin River in the Town of Rumford, Oxford County, Maine. The determination is based on the study criteria set forth in section 5.15(e) and 5.9(b) of the Commission's regulations, applicable law, Commission policy and practice, and the record of information.

Background

On September 27, 2019, Rumford Falls Hydro LLC (Rumford Falls Hydro) filed a Notice of Intent and Pre-Application Document for relicensing the Rumford Falls Hydroelectric Project. The study plan was approved with modifications on August 6, 2020, requiring Rumford Falls Hydro to conduct eight studies. Rumford Falls Hydro filed an initial study report on August 6, 2021. No modifications to the approved study plan were requested. On August 5, 2022, Rumford Falls Hydro filed an updated study report (USR). Rumford Falls Hydro held a USR meeting on August 17, 2022. Rumford Falls Hydro filed its license application on September 29, 2022.

Comments

On September 29, 2022, Inland Woods and Trails, the Appalachian Mountain Club, Maine Rivers, the Friends of Richardson Lake, American Whitewater and the Maine Council of Trout Unlimited (conservation groups) collectively filed a request to modify three components of the approved Water Quality Study: the Impoundment Trophic State Study, the Temperature and DO study, and the Benthic Macroinvertebrate Study. Rumford Falls Hydro did not file reply comments.

Study Plan Determination

Pursuant to section 5.15(d) of the Commission's regulations, any request to modify a required study must be accompanied by a showing of good cause and demonstrate that: (1) the approved study was not conducted as provided for in the approved study plan; or (2) the study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way. As specified in section 5.15(e), requests for new information gathering or studies must include a statement explaining: (1) any material change in law or regulations applicable to the information request; (2) why the goals and objectives of the approved study could not be met with the approved study methodology; (3) why the request was not made earlier; (4) significant changes in the project proposal or that significant new information material to the study objectives has become available; and (5) why the new study request satisfies the study criteria in section 5.9(b).

For the reasons explained in Appendix B, the conservation group's requested study modifications are not required. Commission staff considered all study plan criteria in section 5.9 and 5.15(d) and (e) of the Commission's regulations; however, only the specific study criteria particularly relevant to the determination are referenced in Appendix B.

Nothing in this study plan determination is intended, in any way, to limit any agency's proper exercise of its independent statutory authority to require additional studies. In addition, Rumford Falls Hydro may choose to conduct any study not specifically required herein that it feels would add pertinent information to the record.

P-2333-094

If you have any questions, please contact Ryan Hansen at ryan.hansen@ferc.gov or (202) 502-8074.

Sincerely,

for
Terry L. Turpin
Director
Office of Energy Projects

Enclosures: Appendix A – Summary of determinations on requested study modifications
Appendix B – Staff’s recommendations on requested study modifications

APPENDIX A

**SUMMARY OF DETERMINATIONS ON REQUESTED STUDY
MODIFICATIONS**

Study	Recommending Entity	Approved	Approved with Modifications	Not Required
<u>Water Quality Study Components</u>				
Impoundment Trophic State Study	Conservation groups			X
Temperature and DO Study	Conservation groups			X
Benthic Macroinvertebrate Study	Conservation groups			X

APPENDIX B

STAFF'S RECOMMENDATIONS ON REQUESTED STUDY MODIFICATIONS

The following discusses staff's recommendations on requests for study modifications.

Impoundment Trophic State Study

Background

Rumford Falls Hydro collected secchi disk depth, temperature, dissolved oxygen (DO), total phosphorous, chlorophyll a, color, pH, and total alkalinity data at the deepest spot (about 25 feet) in both the Upper Dam impoundment and the Middle Dam impoundment (Figure 1). The data were collected in accordance with the *Maine Department of Environmental Protection (Maine DEP) Lake Trophic State Sampling Protocol for Hydropower Studies*. Sampling occurred twice a month from June through October 2020 in the Upper Dam impoundment and from June through September 2020 in the Middle Dam impoundment. In October, the licensee was not able to collect data from the Middle Dam impoundment because of sampling constraints. Rumford Falls Hydro alerted Maine DEP to this omission and received confirmation that the sampling done to date was sufficiently representative of impoundment conditions and that no further data collection was necessary¹.

¹ See Initial Study Report, Water Quality Study Report, Appendix A.

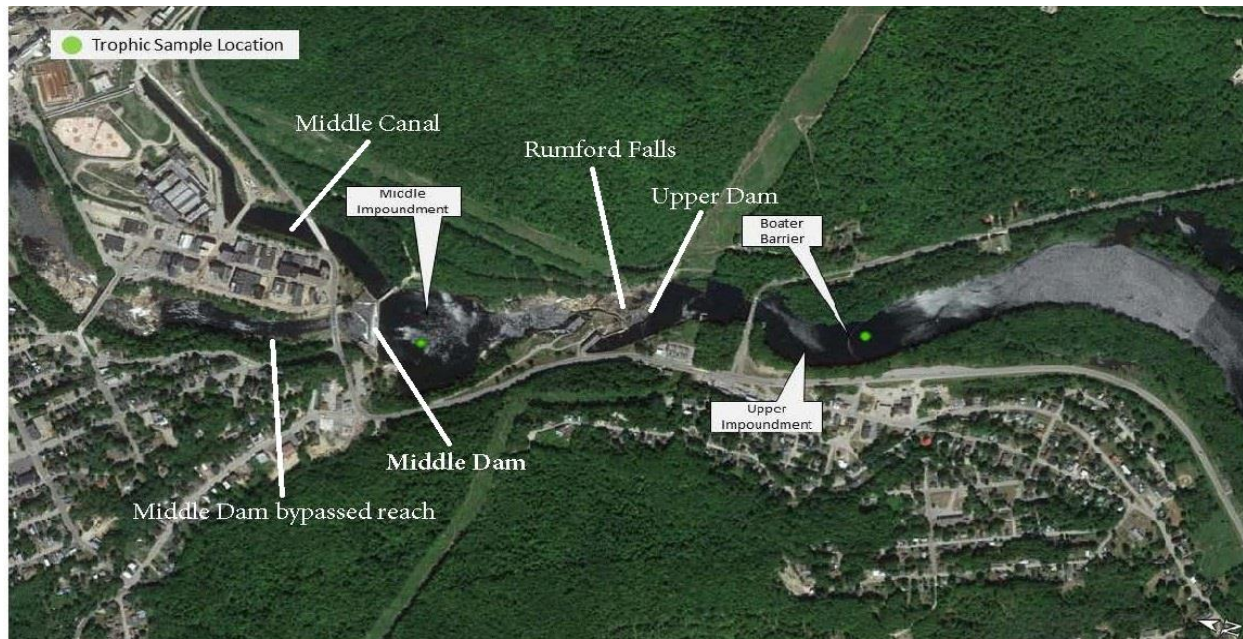


Figure 1: Location of project features and Impoundment Trophic State Study sampling locations.

Requested Study Modification

The conservation groups request that Rumford Falls Hydro collect secchi disk depth, temperature, DO, total phosphorous, chlorophyll a, color, pH, and total alkalinity data from the Middle Canal. The conservation groups argue that the Middle Canal is a separate impoundment with different characteristics than the Upper and Middle Dam impoundments where the other samples were taken. They state that the data are required to determine the trophic state of all impounded waters and would identify stratification effects on the dissolved oxygen within the Middle Canal.

Discussion and Staff Recommendation

The Rumford Falls project consists of two developments, the Upper Station development and the Lower Station development. The Upper Station development includes the Upper Dam which creates the Upper Dam impoundment. For most of the year, all inflow into the Upper Dam impoundment passes through the project's upper powerhouse creating a 650-foot-long bypassed reach that is Rumford Falls. Middle Dam is located downstream of the Upper Dam development. This dam creates the Middle Dam impoundment which serves as the water supply for the Lower Station development and the adjoining paper mill. Water from the Middle Dam impoundment is directed into the project's power canal which is also known as the Middle Canal. The Middle Canal is approximately 2,400 feet long, with depths ranging from 8 to 11 feet. The canal ranges in width from 75 to 175 feet with the upstream end of the canal being the widest. The Lower Station development's tailrace empties into the river downstream of the Middle Dam

creating another 2,685-foot-long bypassed reach in the Androscoggin River.

Rumford Falls Hydro conducted the Impoundment Trophic State study as required by the approved study plan. Data collected in both the Upper Dam impoundment and the Middle Dam impoundment show water temperatures were generally uniform throughout the water columns of both impoundments and varied by less than 1°C. Water temperatures in the impoundments ranged from 18 to 25 °C throughout the June through October 2020 study period. There was little variation in temperature between the two sampled sites. There was no evidence of thermal stratification during the study in either impoundment. As with water temperature, there was little variation in DO with depth in either impoundment. DO concentrations ranged from about 7 to 11 mg/L at all times during data collection. No DO concentrations were below the state 5.0 mg/L instantaneous standard, or the 6.5 mg/L 30-day average DO standard for Class C waters in the state of Maine. DO saturation in the impoundments ranged from about 84 to 103% saturation. DO saturation was never below the instantaneous DO standard of 60 percent or the 30-day average DO standard of 78 percent (as estimated from the 6.5 mg/L standard at a temperature of 24 °C) at either impoundment during the study. The data collected as a part of the approved study plan suggest that water quality in the project area is well within state standards for Class C waters.

As part of the temperature and DO component of the study, Rumford Falls Hydro collected these data at the lower powerhouse intake (i.e. the endpoint of the Middle Canal) from July through September of 2020. Water temperature ranged from about 13 to 26° C during this period which is the same temperature range measured in both impoundments during the same timeframe. DO values varied from 7.53 to 10.28 mg/L, with an average of 8.63 mg/L. No DO concentrations were below the 5.0 mg/L instantaneous, or the 6.5 mg/L 30-day average DO state standard for Class C waters during this study.

The Middle Dam impoundment trophic water quality sampling site is less than 1,000 feet upstream from the Middle Canal sampling site recommended by the conservation groups; the temperature and DO samples taken at the lower powerhouse intake is about 1,000 feet downstream of the conservation groups recommended sampling site. The water quality data collected in the impoundment and at the lower powerhouse intake show little difference. Impoundment temperatures ranged from 18 to 25° C; intake temperatures ranged from 13 to 26° C. DO ranged from 7 to 11 mg/L in the impoundment and from 7 to 10 mg/L at the intake. Therefore, we do not expect any difference in the water quality as water flows through the canal. Because the existing information is representative of conditions at the conservation group's requested additional site and sufficient to characterize water quality conditions in the project's impoundments (section 5.9(b)(4)), we do not recommend requiring Rumford Falls Hydro to conduct additional trophic water quality sampling in the Middle Canal as requested by the conservation groups.

Temperature and DO Study and Benthic Macroinvertebrate Study

Background

Rumford Falls Hydro also collected hourly water temperature and DO levels within the Middle Dam bypass reach and in the Middle Canal directly upstream of the Lower Development intake during the summer low flow, high temperature period (from July 23 to September 24, 2020). The sampling locations were established in consultation with Maine DEP.

Rumford Falls Hydro collected benthic macroinvertebrates at one site downstream of the Middle Dam within the bypassed reach following the sampling protocol in Maine DEP's *Methods for Biological Sampling and Analysis of Maine's Rivers and Streams*. A set of three rock baskets were deployed at the sampling location, which was established in consultation with Maine DEP. The baskets were filled with clean, washed cobble and were deployed during the late summer low-flow period from July 1 to September 30 for about 28 days. Upon retrieval, the cobble was emptied from the baskets and cleaned thoroughly to collect all benthic macroinvertebrates that colonized the rocks during deployment. Macroinvertebrates were preserved, counted, and identified to the lowest practical taxonomic level. Macroinvertebrate data were provided to Maine DEP for analysis to assess the attainment of aquatic life standards.

Requested Study Modifications

The conservation groups request temperature and DO monitoring and macroinvertebrate collection at four additional sites: at three ephemeral pools directly downstream of the Upper Dam and at one site directly downstream of the Lower Station development's tailrace. In support of their request, the conservation groups state that the Temperature and DO Study ignored the Upper Dam bypassed reach (i.e. Rumford Falls) as well as the reach where the flows from the Lower Station development rejoin the natural river channel. The conservation groups state that a study of these reaches is critical to determine whether current in-stream flow releases affect attainment of Maine habitat and aquatic life criteria in the Androscoggin River below the Rumford Falls dams.

Discussion and Staff Recommendation

Rumford Falls Hydro provides a minimum flow of 1 cubic foot per second (cfs) via dam leakage to the bypassed reach. During high flow conditions where inflow exceeds 4,550 cfs, excess water is spilled over the Upper Dam into the bypassed reach. Spill occurs approximately 30% of the year. As indicated in Rumford Falls Hydro's pre-application document, aquatic habitat within the bypassed reach is poor to non-existent, with only a few small, intermittent, shallow, bedrock-dominated pools that provide poor temporary habitat for fish that spill over the dam during high flows and a few

macroinvertebrates. Because of the poor habitat, Rumford Falls Hydro did not propose to collect any water quality data within the bypassed reach. No entity, including Maine DEP and the conservation groups, recommended water quality sampling in the bypassed reach during study plan development or following the reporting of the water quality results in the initial study report, and the conservation groups offer no reason for the late request for water quality sampling (section 5.15(f)).

Because sufficient information is in the record to characterize conditions within the bypassed reach (section 5.9(b)(4)), there is no reason to sample temperature, DO and macroinvertebrates within Rumford Falls as requested by the conservation groups.

The requested sampling of temperature, DO, and macroinvertebrates directly downstream of the Lower Station development tailrace is also not practicable because there is no location within the free-flowing reach that is not affected by discharges from an adjoining paper mill. Therefore, the sampling sites recommended by the conservation groups would not be representative of the project discharge. This was also the conclusion of the Maine DEP based on a site visit on June 24, 2020 during study plan development.² In lieu of placing a temperature and DO logger in the free-flowing tailwater reach downstream of the lower powerhouse, Rumford Falls Hydro and Maine DEP agreed that placement of the logger at the downstream end of the Middle Canal (adjacent to the intake at the lower powerhouse) would provide continuous water quality data representative of discharge from the lower powerhouse. Because the water quality samples collected by Rumford Hydro adequately characterize the project discharges, we do not recommend Rumford Falls Hydro collect additional temperature, DO, and macroinvertebrate data directly below the Lower Station development.

² See Rumford Falls Hydro's Revised Study Plan, Appendix C-1.