

**New Hampshire Department of Environmental Services
 WATER QUALITY CERTIFICATION
 In Fulfillment of
 NH RSA 485-A:12, III**

Certification Number	WQC 2021-FERC-001
Activity Name	Rollinsford Hydroelectric Project (FERC Project No. 3777; NH Dam No. D205002)
Activity Location (of Project Dam)	Rollinsford, New Hampshire (Stratford, County) South Berwick, Maine (York County)
Potentially Affected Surface Waters Near the Activity (other affected surface waters may exist)	Salmon Falls River: NHIMP600030406-03 (impoundment upstream of Dam) NHRIV600030406-04 (immediately downstream of Dam) Unnamed wetlands
Owner/Applicant	Town of Rollinsford, New Hampshire
Agent Filing Application on Behalf of Owner/Applicant	John Greenan, P.E. Green Mountain Power 2152 Post Road Rutland, VT 05701
Applicable Federal License or Permit Requiring Section 401 water quality certification	Federal Energy Regulatory Commission (FERC) - Subsequent License for Minor Water Power Project
Decision (subject to Conditions below)	Approved
Date of Issuance	June 10, 2021

A. INTRODUCTION

Green Mountain Power (GMP), on behalf of the Town of Rollinsford (Applicant) who owns the Project, has applied for a license from the Federal Energy Regulatory Commission (FERC) to continue operation of the Rollinsford Hydroelectric Project (Project) located on the Salmon Falls River in Rollinsford, New Hampshire as a hydroelectric project (Project or Activity). The Project has a total installed capacity of 1.5 megawatts (MW) and is proposed to be operated run-of-river. A more complete description of the Activity is provided in Findings D-3 through D-6 of this certification.

In accordance with the Section 401 of the federal Clean Water Act (CWA) and New Hampshire law (RSA 485-A:12, III) the Applicant has applied for a water quality certification (WQC or certification) from the New Hampshire Department of Environmental Services (NHDES). The purpose of the certification is to provide assurance that discharges from the proposed Activity will comply with New Hampshire surface water quality standards (NH RSA 485-A:8 and NH Code of Administrative Rules Env-Wq 1700). Additional details are provided herein.

This certification includes the following:

- A – Introduction
- B – Decision
- C – Facts and Law
- D – Findings
- E – Conditions
- F – Enforcement
- G – Appeal
- Signature
- Attachment A – Approval email

Documents cited in this certification that were filed with FERC, can be accessed on the [FERC elibrary](#) by date or Accession Number.

B. DECISION

Based on the facts, laws, findings and conditions included herein, NHDES has determined that discharges from the proposed Project will comply with New Hampshire surface water quality standards (RSA 485-A:8 and Env-Wq 1700)¹. NHDES hereby issues this certification in accordance with RSA 485-A:12, III, subject to the conditions in Section E of this certification.

C. FACTS AND LAWS

Federal 401 Certification Laws and Regulations

- C-1. Section 401(a)(1) of the federal Clean Water Act (CWA) (33 U.S.C. §1341(a)(1)) requires any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate...that any such discharge will comply with the applicable provisions of the CWA. The CWA provision most applicable for this project is compliance with state surface water quality standards. CWA section 303 (33 U.S.C § 1313).
- C-2. Section 401(d) (33 U.S.C §1341(d)), of the CWA provides that: “Any certification provided under this section [401] shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with [enumerated provisions of the CWA]... and with any other appropriate requirement of State law set forth in such certification, and shall become a condition on any Federal license or permit subject to the provisions of this section.”
- C-3. Federal regulations regarding Section 401 water quality certification may be found in the Code of Federal Regulations (CFR), Title 40, PART 121 (40 CFR 122) entitled “State Certification of Activities Requiring a Federal License or Permit”. On July 13, 2020, the U.S. Environmental Protection Agency (EPA) published final revisions to this rule in the Federal Register (Vol. 85, No. 134, pages 42210 to 42287), which became effective on September 11, 2020. According to EPA, Section 401 certification

¹ Federal CWA Section 401 regulations (40 CFR § 121.7(c)), which is applicable to water quality certification requests submitted on or after September 11, 2020, requires States to include a statement in the certification that the discharge from the proposed project “will comply” with water quality requirements as defined in 40 CFR § 121.1(n).

requests submitted on or after September 11, 2020 should be processed in accordance with the new rule and certification requests submitted before September 11, 2020 should be processed in accordance with the previous (1971) regulations².

- C-4. In the federal section 401 rule (40 CFR Part 121) which became effective on September 11, 2020 (see Fact C-3) “discharges” mean a discharge from a point source into a water of the United States. The term “discharge,” as applied under section 401 of the Clean Water Act means the potential for a discharge. It does not need to be a certainty, only that it may occur should the federal license or permit be granted. Further, the discharge does not need to involve the addition of pollutants (such as water released from the tailrace of a dam). As the U.S. Supreme Court has stated “[w]hen it applies to water, ‘discharge’ commonly means a ‘flowing or issuing out’” and an addition of a pollutant is not “fundamental to any discharge.”³
- C-5. The CWA Section 502(7) (33 U.S.C. §1362(7)) defines “navigable waters,” as “waters of the United States”.
- C-6. Waters of the United States are defined in 40 CFR §122.2

State 401 Certification Law

- C-7. NH RSA 485-A:12, III, states: “No activity, including construction and operation of facilities, that requires certification under section 401 of the Clean Water Act and that may result in a discharge, as that term is applied under section 401 of the Clean Water Act, to surface waters of the state may commence unless the department certifies that any such discharge complies with the state surface water quality standards applicable to the classification for the receiving surface water body. The department shall provide its response to a request for certification to the federal agency or authority responsible for issuing the license, permit, or registration that requires the certification under section 401 of the Clean Water Act. Certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide assurance that the proposed discharge complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA 485-A:22.”

State Surface Water Quality Standards⁴

- C-8. NH RSA 485-A:8 and Env-Wq 1700 (Surface Water Quality Standards), together fulfill the requirements of Section 303 of the Clean Water Act (CWA) (33 U.S.C 1313) that the State of New Hampshire adopt water quality standards consistent with the provisions of the CWA.
- C-9. Env-Wq 1701.01 Purpose. “The purpose of these rules is to establish water quality standards for the state’s surface water uses as set forth in RSA 485-A:8, I, II, III and V. These standards are intended to protect public health and welfare, enhance the quality of water and serve the purposes of the federal Clean Water Act, 33 U.S.C. 1251 et seq., and RSA 485-A. These standards provide for the protection and propagation of fish, shellfish, and wildlife, and provide for such uses as recreational activities in and on

² See slide 4 of EPA’s presentation on the new rule at [Clean Water Act Section 401 Certification Rule - State and Tribal Webinar 1 \(epa.gov\)](#).

³ The Supreme Court case that is referred to is *S.D. Warren Co. v. Maine Board of Environmental Protection et al*, 547 U.S. 370, 126 S. Ct. 1853 (2006).

⁴ All New Hampshire surface water quality standards apply to the Activity. The standards specifically called out in the certification should not be interpreted as the only standards that may apply.

the surface waters, public water supplies, agricultural and industrial uses, and navigation in accord with RSA 485-A:8, I and II.”

C-10. Env-Wq 1701.02, entitled “Applicability,” states that these rules shall apply to:

- “(a) All surface waters; and
- (b) Any person who:
 - (1) Causes any point or nonpoint source discharge of any pollutant to surface waters;
 - (2) Undertakes hydrologic modifications, such as dam construction or water withdrawals;
 - or
 - (3) Undertakes any other activity that affects the beneficial uses or the water quality of surface waters.”

C-11. Env-Wq 1703.01 entitled “Water Use Classifications; Designated Uses,” states the following:

- “(a) All surface waters shall be classified as provided in RSA 485-A:8, based on the standards established therein for class A and class B waters. Each classification shall identify the most sensitive use it is intended to protect.
- (b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.
- (c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.
- (d) Unless high or low flows are caused by naturally-occurring conditions, surface water quantity shall be maintained at levels that protect existing uses and designated uses.”

C-12. Env-Wq 1702.44 defines surface waters as “surface waters of the state” as defined in NH RSA 485-A:2, XIV and waters of the United States as defined in 40 CFR 122.2.

NH RSA 485-A:2, XIV defines “surface waters of the state” as “perennial and seasonal streams, lakes, ponds and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses and other bodies of water, natural or artificial.”

NH RSA 482-A:2, X, defines "Wetlands" as “[a]n area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

C-13. Env-Wq 1702.07 states that ““Best management practices” means those practices that are determined, after problem assessment and examination of all alternative practices and technological, economic and institutional considerations, to be the most effective practicable means of preventing or reducing the amount of pollution generated by point or nonpoint sources to a level compatible with water quality goals.”

C-14. Env-Wq 1702.05 states that ““Benthic community” means the community of plants and animals that live on, over, or in the substrate of the surface water.”

C-15. Env-Wq 1702.06 states that ““Benthic deposit” means any sludge, sediment, or other organic or inorganic accumulations on the bottom of the surface water.”

C-16. Env-Wq 1702.08 states that ““Biological integrity” means the ability of an aquatic ecosystem to support

and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.”

- C-17. Env-Wq 1702.26 states that ““Mixing zone” means a defined area or volume of the surface water surrounding or adjacent to a wastewater discharge where the surface water, as a result of the discharge, might not meet all applicable water quality standards.”
- C-18. Env-Wq 1702.15 states that ““Cultural eutrophication” means the human-induced addition of wastes that contain nutrients to surface waters, resulting in excessive plant growth or a decrease in dissolved oxygen, or both.”
- C-19. Env-Wq 1702.17 states that ““Designated uses” means those uses specified in water quality standards for each water body or segment whether or not such uses are presently occurring. The term includes the following:
- (a) “Swimming and other recreation in and on the water, meaning the surface water is suitable for swimming, wading, boating of all types, fishing, surfing, and similar activities;
 - (b) Fish consumption, meaning the surface water can support a population of fish free from toxicants and pathogens that could pose a human health risk to consumers;
 - (c) Shellfish consumption, meaning the tidal surface water can support a population of shellfish free from toxicants and pathogens that could pose a human health risk to consumers;
 - (d) Aquatic life integrity, meaning the surface water can support aquatic life, including a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of the region;
 - (e) Wildlife, meaning the surface water can provide habitat capable of supporting any life stage or activity of undomesticated fauna on a regular or periodic basis; and
 - (f) Potential drinking water supply, meaning the surface water could be suitable for human intake and meet state and federal drinking water requirements after adequate treatment.”
- C-20. Env-Wq 1702.18 states that ““Discharge” means:
- (a) “The addition, introduction, leaking, spilling, or emitting of a pollutant to surface waters, either directly or indirectly through the groundwater, whether done intentionally, unintentionally, negligently or otherwise; or
 - (b) The placing of a pollutant in a location where the pollutant is likely to enter surface waters.”
- C-21. Env-Wq 1702.22 states that ““Existing uses” means those uses, other than assimilation waste transport, that actually occurred in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.”
- C-22. Env-Wq 1702.33 states that ““Nuisance species” means any species of flora or fauna living in or near the water whose noxious characteristics or presence in sufficient number or mass prevent or interfere with a designated use of those surface waters.”
- C-23. Env-Wq 1702.37 states that “Point source” means a discernible, confined, and discrete conveyance from which pollutants are or might be discharged, excluding return flows from irrigated agriculture or agricultural stormwater runoff. The term includes, but is not limited to, a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft.

- C-24. Env-Wq 1702.38 states that ““Pollutant” means “pollutant” as defined in 40 CFR 122.2.” According to 40 CFR 122.2, “pollutant” means “dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.”
- C-25. Env-Wq 1703.01 entitled “Water Use Classifications; Designated Uses” states the following:
- (a) All surface waters shall be classified as provided in RSA 485-A:8, based on the standards established therein for class A and class B waters. Each classification shall identify the most sensitive use it is intended to protect.
 - (b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.
 - (c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.
 - (d) Unless high or low flows are caused by naturally-occurring conditions, surface water quantity shall be maintained at levels that protect existing uses and designated uses.
- C-26. Env-Wq 1703.03 entitled “General Water Quality” includes the following:
- (c)(1) “All surface waters shall be free from substances in kind or quantity that:
 - a. Settle to form harmful benthic deposits;
 - b. Float as foam, debris, scum or other visible substances;
 - c. Produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses;
 - d. Result in the dominance of nuisance species; or
 - e. Interfere with recreational activities.”
- C-27. Env-Wq 1703.06 includes water quality criteria for bacteria.
- C-28. Env-Wq 1703.07 entitled “Dissolved Oxygen” includes the following:
- “(a) Class A waters shall have a dissolved oxygen content of at least 75% saturation, based on a daily average, and an instantaneous minimum of at least 6 mg/l at any place or time except as naturally occurs.
 - (b) Except as naturally occurs and subject to (c) and (e), below, class B waters shall have a dissolved oxygen content of:
 - (1) At least 75% of saturation, as specified in RSA 485-A:8, II, based on a daily average; and
 - (2) An instantaneous minimum dissolved oxygen concentration of at least 5 mg/l.
 - (c) In areas identified by the New Hampshire fish and game department (NHF&G) as cold water fish spawning areas of species whose early life stages are buried in the gravel on the bed of the surface water, the 7 day mean dissolved oxygen concentration shall be at least 9.5 mg/l and the instantaneous minimum dissolved oxygen concentration shall be at least 8 mg/l for the period from October 1 of one year to May 14 of the next year, provided that the time period shall be extended to June 30 for a specific discharge to a specific waterbody if modeling done in consultation with the NHF&G determines the extended period is necessary to protect spring spawners or late hatches of fall spawners, or both.

- (d) Unless naturally occurring or subject to (a), above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments, and reservoirs or within the epilimnion shall contain a dissolved oxygen content of at least 75 percent saturation, based on a daily average and an instantaneous minimum dissolved oxygen content of at least 5 mg/l. Unless naturally occurring, the dissolved oxygen content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.
- (e) As specified in RSA 485-A:8, III, waters in a temporary partial use area established under RSA 485-A:8, II as a surface water that is receiving a combined sewer overflow discharge shall contain not less than 5 parts per million of dissolved oxygen for the duration of the discharge and up to 3 days following cessation of the discharge.”

C-29. Env-Wq 1703.08 entitled “Benthic Deposits” states the following:

- “(a) Class A waters shall contain no benthic deposits, unless naturally occurring.
- (b) Class B waters shall contain no benthic deposits that have a detrimental impact on the benthic community, unless naturally occurring.”

C-30. Env-Wq, 1703.09, 1703.10 and 1703.12 include water quality criteria for oil and grease, color and slicks, odors, and surface floating solids respectively.

C-31. Env-Wq 1703.11 entitled “Turbidity” states the following:

- “(a) Class A waters shall contain no turbidity, unless naturally occurring.
- (b) Class B waters shall not exceed naturally occurring conditions by more than 10 NTUs.
- (c) Turbidity in waters identified in RSA 485-A:8, III shall comply with the applicable long-term combined sewer overflow plan prepared in accordance with Env-Wq 1703.05(c).
- (d) For purposes of state enforcement actions, if a discharge causes or contributes to an increase in turbidity of 10 NTUs or more above the turbidity of the receiving water upstream of the discharge or otherwise outside of the visible discharge, a violation of the turbidity standard shall be deemed to have occurred.”

C-32. Env-Wq 1703.13 entitled “Temperature” states the following:

- “(a) There shall be no change in temperature in class A waters, unless naturally occurring.
- (b) Temperature in class B waters shall be in accordance with RSA 485-A:8, II, and VIII.”

NH RSA-A:8, II states the following for Class B waters “[A]ny stream temperature increase associated with the discharge of treated sewage, waste or cooling water, water diversions, or releases shall not be such as to appreciably interfere with the uses assigned to this class.”

NH RSA-A:8, VIII states the following: “In prescribing minimum treatment provisions for thermal wastes discharged to interstate waters, the department shall adhere to the water quality requirements and recommendations of the New Hampshire fish and game department, the New England Interstate Water Pollution Control Commission, or the United States Environmental Protection Agency, whichever requirements and recommendations provide the most effective level of thermal pollution control.”

C-33. Env-Wq 1703.14, entitled “Nutrients” states the following:

- “(a) Class A waters shall contain no phosphorous or nitrogen unless naturally occurring.

- (b) Class B waters shall contain no phosphorous or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.
- (c) Existing discharges containing either phosphorous or nitrogen which encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards.
- (d) There shall be no new or increased discharge of phosphorous into lakes or ponds.
- (e) There shall be no new or increased discharge(s) containing phosphorous or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes and ponds.”

C-34. Nutrient Numeric Thresholds: New Hampshire does not currently have numeric surface water quality criteria for nutrients (total phosphorus and total nitrogen) in regulation (i.e., Env-Wq 1700) but has established numeric thresholds for nutrient response parameters such as chlorophyll-a that are used for surface water quality assessments. These numeric thresholds are included in the State’s Consolidated Assessment and Listing Methodology or CALM⁵. The CALM states the following regarding the numeric chlorophyll-a threshold established to protect the recreation designated use: “Excessive algal growth (high biomass and high chlorophyll-a values) can impair the public safety and aesthetic enjoyment of surface waters. The General Water Quality Criteria (Env-Wq 1703.03) require that surface waters be free of substances which: produce color or turbidity making the water unsuitable for the designated use, or interfere with recreational activities (Env-Wq 1703.03 (c)(1) c & e). For assessment purposes, chlorophyll-a concentrations in excess of 15 µg/L in fresh water and 20 µg/L in salt water are indicators of excessive algal growth that interferes with recreational activities.”

C-35. Env-Wq 1703.18, entitled “pH” states the following:

- “(a) The pH of Class A waters shall be as naturally occurs.
- (b) As specified in RSA 485-A:8, II, the pH of Class B waters shall be 6.5 to 8.0, unless due to natural causes.
- (c) As specified in RSA 485-A:8, III, the pH of waters in temporary partial use areas shall be 6.0 to 9.0 unless due to natural causes.”

C-36. Env-Wq 1703.19, entitled “Biological and Aquatic Community Integrity” states the following:

- “(a) All surface waters shall support and maintain a balanced, integrated and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.
- (b) Differences from naturally-occurring conditions shall be limited to non-detrimental differences in community structure and function.”

C-37. Env-Wq 1703.21 entitled “Water Quality Criteria for Toxic Substances” states the following:

- “(a) Unless naturally occurring or allowed under part Env-Wq 1707, all surface waters shall be free from toxic substances or chemical constituents in concentrations or combinations that:

- (1) Injure or are inimical to plants, animals, humans or aquatic life; or

⁵ STATE OF NEW HAMPSHIRE 2018 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. New Hampshire Department of Environmental Services. R-WD-20-20. [2018 CALM \(nh.gov\)](https://www.nh.gov/Portals/0/DESD/2018_CALM.pdf).

- (2) Persist in the environment or accumulate in aquatic organisms to levels that result in harmful concentrations in:
 - a. Edible portions of fish, shellfish, or other aquatic life; or
 - b. Wildlife that might consume aquatic life.”

C-38. Antidegradation provisions are included in Env-Wq 1702 and Env-Wq 1708.

- a. Env-Wq 1702.03 states that ““Antidegradation” means a provision of the water quality standards that maintains and protects existing water quality and uses.”
- b. Env-Wq 1708.02 states that “Antidegradation shall apply to: (a) Any proposed new or increased activity, including point source and nonpoint source discharges of pollutants, that would lower water quality or adversely affect the existing or designated uses; (b) Any proposed increase in loadings to a waterbody when the proposal is associated with existing activities; (c) Any increase in flow alteration over an existing alteration; and (d) Any hydrologic modifications, such as dam construction and water withdrawals.”
- c. Antidegradation applies to all parameters as evidenced by Env-Wq 1708.08 (Assessing Waterbodies) which states “The applicant shall characterize the existing water quality and determine if there is remaining assimilative capacity for each parameter in question.”
- d. According to Env-Wq 1708.03 (b), “A proposed discharge or activity shall not eliminate any existing uses or the water quality needed to maintain and protect those uses.”
- e. Env-Wq 1702.04 states that ““Assimilative capacity” means the amount of a pollutant or combination of pollutants that can safely be released to a waterbody without causing violations of applicable water quality criteria or negatively impacting uses.”
- f. Env-Wq 1708.08 describes the process for assessing waterbodies to determine if there is remaining assimilative capacity for each parameter in question.
- g. Env-Wq 1708.09 entitled “Significant or Insignificant Determination” states the following: “(a) Any discharge or activity that is projected to use 20% or more of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass of pollutants, or volume or flow rate for water quantity, shall be considered a significant lowering of water quality.
(b) The department shall not approve a discharge or activity that will cause a significant lowering of water quality unless the applicant demonstrates, in accordance with Env-Wq 1708.10, that the proposed lowering of water quality is necessary to achieve important economic or social development in the area where the waterbody is located.”
- h. Env-Wq 1708.01(b)(1), in general, states that: For significant changes in water quality, where the quality of the surface waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the department finds, after full satisfaction of the intergovernmental coordination and public participation provisions and the analysis required by Env-Wq 1708.10, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the surface waters are located. In allowing such degradation or lower water quality, the department shall assure water quality adequate to fully protect existing uses. Further, the department shall assure that the highest statutory and regulatory requirements shall be achieved for all new and existing point sources and that all cost effective and reasonable best management practices for nonpoint source control shall be implemented.
- i. Env-Wq 1708.01(b)(2), in general, states that: The department shall not approve any proposed discharge or activity that might cause degradation or lower water quality, without such conditions as are necessary to ensure that:
 - a) Water quality will be adequate to protect existing uses; b) The highest statutory and

regulatory requirements will be achieved for all new and existing point sources; and c) All cost effective and reasonable best management practices for nonpoint source control will be implemented.

C-39. Env-Wq 1708.04 entitled "Protection of Water Quality in ORW" states the following:

- "(a) Surface waters of national forests and surface waters designated as natural under NH RSA 483:7-a, I, shall be considered outstanding resource waters (ORW).
- (b) Subject to (c), below, water quality shall be maintained and protected in surface waters that constitute ORW.
- (c) The department shall allow a limited point or nonpoint source discharge to an ORW only if:
 - (1) The discharge will result in no more than temporary and short-term changes in water quality, wherein "temporary and short-term" means that degradation is limited to the shortest possible time;
 - (2) The discharge will not permanently degrade water quality or result at any time in water quality lower than that necessary to protect the existing and designated uses in the ORW; and
 - (3) All practical means of minimizing water quality degradation are implemented."

C-40. "Protection of Class A Waters" states the following:

- "(a) As specified in RSA 485-A:8, I, discharges of sewage or waste to class A waters shall be prohibited.
- (b) Proposed new or increased activities that the department determines do not involve the discharge of sewage or waste shall be reviewed in accordance with this part."

C-41. Env-Wq 1708.06 entitled "Protection of Water Quality in High Quality Waters" states the following:

- "(a) Subject to (b) through (d) below, high quality waters shall be maintained and protected.
- (b) The department shall evaluate and authorize insignificant changes in water quality as specified in Env-Wq 1708.09.
- (c) The department shall allow degradation of significant increments of water quality, as determined in accordance with Env-Wq 1708.09, in high quality waters only if the applicant can demonstrate to the department, in accordance with Env-Wq 1708.10, that allowing the water quality degradation is necessary to accommodate important economic or social development in the area in which the receiving water is located.
- (d) If the waterbody is Class A Water, the requirements of Env-Wq 1708.05 shall also apply."

C-42. Env-Wq 1708.12 states the ""transfer" means the intentional conveyance of water from one surface water to another surface water for the purpose of increasing volume of water available for withdrawal from the receiving surface water. The term does not include the transfer of stormwater, for the purpose of managing stormwater during construction, between basins created or otherwise lawfully used for stormwater detention or treatment, or both, and does not include the discharge of stormwater from a detention or treatment basin to a surface water."

C-43. The Salmon Falls River in the vicinity of the Project Activity is Class B. NH Chapter Law 1961, 40:1, X and 1967, 147:15.

- C-44. A “Designated River” is a river that is managed and protected for its outstanding natural and cultural resources in accordance with the Rivers Management and Protection Act (RSA 483).
- C-45. Env-Wq 2102 includes requirements for Water Use Registration and Reporting (WURR).
- C-46. NH RSA 485:61 regarding Rules for Water Conservation, states the following:
- I. The department shall adopt rules, pursuant to RSA 541-A, for water conservation practices for water users. These rules shall strike a reasonable balance between environmental, energy, and economic impacts and be consistent with current industry standards and practices for different types of water users.
 - II. The water conservation rules in paragraph I of this section shall apply to all new permit applicants and applications for water withdrawals subject to the provisions of RSA 485:3, RSA 485:48, RSA 485-C:21 and section 401 of the Clean Water Act.
 - III. Water conservation rules shall be consistent with applicable state or federal rules and regulations. Water Conservation Rules were adopted May 14, 2005 and currently codified as Env-Wq 2101.”
- C-47. Env-Wq 2101.24 entitled “Water Conservation Plan Required,” states the following:
- “(a) The applicants for approval of a source that would be a conservation source shall submit a water conservation plan that demonstrates compliance with the applicable provisions of Env-Wq 2101.05 through Env-Wq 2101.22 in accordance with the following.”
- “(5) For a new withdrawal from a surface water associated with a project requiring a 401 Water Quality Certification, the water conservation plan shall be submitted prior to or in conjunction with the application for a 401 Water Quality Certification pursuant to Section 401 of the federal Clean Water Act;
 - (6) For a new withdrawal from a surface water that requires water quality certification pursuant to RSA 485-A:12, IV, the water conservation plan shall be submitted prior to or in conjunction with the certification request.”

Env-Wq 2101.23, entitled Waivers, allows NHDES to grant waivers of certain provisions in Env-Wq 2101 provided the person requesting the waiver submits a written request to NHDES that includes the information specified in Env-Wq 2101.23(d).

- C-48. In 2010, NHDES published guidance (hereinafter called the [2010 instream flow guidance](#) or 2010 ISF guidance) for estimating instream flow requirements for the protection of aquatic life.
- C-49. Section 303(d) of the Clean Water Act (33 U.S.C. 1313(d)) and the regulations promulgated thereunder (40 C.F.R. 130.0 – 40 C.F.R. 130.11) require states to identify and list surface waters that are violating state water quality standards (i.e., Section 303(d) List) that do not have an approved Total Maximum Daily Load (TMDL) for the pollutants causing impairment. For these water quality-impaired waters, states must establish TMDLs for the pollutants causing the impairments and submit the list of impaired surface waters and TMDLs to the U.S. Environmental Protection Agency (EPA) for approval. TMDLs include source identification, determination of the allowable load and pollutant reductions (by source) necessary to meet the allowable load. Once a TMDL is conducted, the pollutant/surface water is transferred to the list of impaired waters with approved TMDLs (known as Category 4A waters). The Section 303(d) List is, therefore, a subset of all impaired waters. The most recent Section 303(d) list of

impaired waters submitted to EPA is the [2018 Section 303\(d\) List](#). A list of all impaired waters is available through the [NHDES website](#).

- C-50. On December 20, 2007, EPA approved the [Northeast Regional Mercury TMDL](#) which addressed mercury impairments in all New Hampshire fresh surface waters.
- C-51. On September 21, 2010, EPA approved the [Statewide Bacteria TMDL](#) for 394 surface waters listed as impaired on the 2008 303(d) List of impaired waters.
- C-52. On November 22, 1999, EPA approved [A Phased TMDL For the Salmon Falls River Watershed Use Attainability Analysis for the Lower Salmon Falls River May 1999](#) by the Maine Department of Environmental Protection.
- C-53. When a surface water does not meet water quality standards (i.e., when it is impaired), the addition of pollutants causing or contributing to impairment should be avoided as indicated in the following regulation and statute:

Env-Wq 1703.03 (a) states that “The presence of pollutants in the surface waters shall not justify further introduction of pollutants from point or nonpoint sources, alone or in any combination.”

NH RSA 485-A:12 (I) (Enforcement of Classification) states that “After adoption of a given classification for a stream, lake, pond, tidal water, or section of such water, the department shall enforce such classification by appropriate action in the courts of the state, and it shall be unlawful for any person or persons to dispose of any sewage, industrial, or other wastes, either alone or in conjunction with any other person or persons, in such a manner as will lower the quality of the waters of the stream, lake, pond, tidal water, or section of such water below the minimum requirements of the adopted classification.”

- C-54. On August 29, 2019, and pursuant to 18 CFR Section 4.61, Green Mountain Power Corporation (GMP) on behalf of the Town of Rollinsford, New Hampshire (Applicant) submitted to the Federal Energy Regulatory Commission (FERC) an Application for a Subsequent License for Minor Water Power Project for the Rollinsford Hydroelectric Project, FERC No. 3777 (also referred to herein as the Final License Application or FLA) ⁶.
- C-55. On June 25, 2020, the U.S. Department of Interior (USDI) through the U.S. Fish and Wildlife Service (USFWS) filed comments, recommendations and prescriptions ⁷ for the Activity with FERC to prevent loss of, or damage to, fish and wildlife resources. The document includes the USFWS’ Federal Power Act (FPA) Section 10(j) recommendations ⁸ and the USFWS’ preliminary fishway prescriptions in accordance with the Section 18 of the FPA⁹.
- C-56. On March 5, 2021, Green Mountain Power Corporation (GMP) on behalf of the Town of Rollinsford, filed an Offer of Settlement¹⁰ consisting of the Settlement Agreement for Modified Prescription for Fishways

⁶ Final License Application: FERC Accession Number 20190829-5206.

⁷ USFWS Section 10(j) recommendations and Section 18 preliminary fishway prescriptions: FERC Accession Number 20200625-5042.

⁸ Section 10(j) of the FPA requires FERC to consider resource agency recommendations pursuant to the Fish and Wildlife Coordination Act to protect, mitigate damages to, and enhance fish and wildlife resources.

⁹ Section 18 of the FPA authorizes resource agencies to prescribe upstream and downstream fishway passage requirements.

¹⁰ Settlement Agreement: FERC Accession Number 20210305-5218.

("Settlement Agreement" executed by and between the Town of Rollinsford, GMP and the U.S. Department of Interior ("Interior") Fish and Wildlife Service ("USFWS"). The purpose of the Settlement Agreement is to resolve among the Parties their disagreements over the appropriate terms of a prescription for fishways for American shad and river herring to be included in the subsequent license for the Project pursuant to Section 18 of the Federal Power Act ("FPA").

- C-57. On June 12, 2020 the New Hampshire Department of Environmental Services (NHDES) received an application (aka certification request) for a CWA Section 401 certification for the Activity. The application included portions of the Final License Application filed by the Applicant with FERC. The record for this certification decision includes the information provided in the application as well as information filed with FERC for this relicensing through March 30, 2021.
- C-58. Natural Resource Agencies include, but are not limited to, NHDES, NHFGD, USFWS of USDI, NMFS of the NOAA, MEDEP, MDMR and MEDIFW as defined in footnote 11.
- C-59. NHDES issued a draft section 401 Water Quality Certification for public comment from April 23, 2021 to 4 p.m. on May 26, 2021.

D. FINDINGS

- D-1. The Applicant has submitted an Application for a Subsequent License for Minor Water Power Project for the Rollinsford Hydroelectric Project, FERC No. 3777 (also referred to herein as the Final License Application or FLA) to the Federal Energy Regulatory Commission (FERC). Fact C-54.
- D-2. The Applicant submitted a request to NHDES for a Clean Water Act (CWA) Section 401 water quality certification (aka, WQC or certification). Fact C-57.

Existing and Proposed Project Facilities and Operation

- D-3. *Background:* The Rollinsford Project is located on the Salmon Falls River in Strafford County, New Hampshire and York County, Maine and is within the Towns of Rollinsford, New Hampshire and South Berwick, Maine. The Salmon Falls River watershed drains an area of 236 square miles in Maine and New Hampshire which is close to the approximate 232 square miles of watershed draining to the Project. The Salmon Falls River begins at Great East Lake, and flows south-southwest for approximately 38 miles along the border between Maine and New Hampshire which is the approximate middle of the river. The Salmon Falls River and the Cocheco River join in Dover, New Hampshire, approximately 4.9 miles downstream from the project, to form the Piscataqua River. The Piscataqua River flows for approximately 10.5 miles before reaching Portsmouth Harbor, which empties into the Gulf of Maine.
- D-4. *Existing Facilities:* The Town of Rollinsford is the licensee under the current FERC Order (i.e., license) which expires on August 31, 2021. The existing Rollinsford Project consists of: (1) a 317-foot-long, 19-foot-high concrete-masonry dam that includes, from east to west: (a) a 12-foot-long left abutment, (b) a 247-foot-long overflow spillway section with a crest elevation 71.00 NGVD 29¹² that is topped with 15-

¹¹ NHDES means New Hampshire Department of Environmental Services; NHFGD means New Hampshire Fish and Game Department; USFWS means United States Fish and Wildlife Service of the US Department of Interior (USDI); NMFS means National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA); MEDEP means the Maine Department of Environmental Protection; MDMR means Maine Department of Marine Resources; MEDIFW means the Maine Department of Inland Fisheries and Wildlife.

¹² NGVD 29 means National Geodetic Vertical Datum of 1929

inch-high flashboards, (c) a 22-foot-long right abutment; and (d) a 36-foot-long gated section consisting of five, 5.5-foot-high by 5.5-foot-wide vertical lift gates that convey flow to the intake headworks; (2) a 82-acre impoundment with a gross storage capacity of 534 acre-feet at a normal maximum elevation of 71.25 feet NGVD 29, including the spillway flashboards and an average depth of 6.51 feet; (3) an 82-foot-long, 52-foot-wide intake headworks facility that consists of: (a) a 22.8-foot-wide, 15.7-foot-high penstock intake protected by a 22.8-foot-wide by 17.6-foot-high trash rack structure with 2.5-inch clear bar spacing, (b) an 8-foot-wide skimmer waste gate, and (c) a 4-foot-wide by 4-foot-high inoperable sluice gate; (4) a 350-foot-long, 10-square-foot concrete penstock that empties into a 250-foot-long, 9-foot diameter steel penstock that directs flow to a 30-foot-long, 40-foot-wide reinforced concrete forebay that is integral with the powerhouse; (5) a 38-foot-long, 60-foot-wide concrete and brick masonry powerhouse containing two, vertical Francis turbine-generator units rated at 750 kilowatts (kW) each for a total installed capacity of 1,500 kW; (6) a 38-foot-long, 34-foot-wide tailrace channel at a normal tailwater surface elevation of 24 feet NGVD 29; (7) a 100-foot-long underground transmission line that extends from the powerhouse to a step-up transformer where voltage is increased from 4.16-kilovolt (kV) to 13.8 kV; and (8) appurtenant facilities. The Project also includes an approximate 680-foot-long bypass reach that extends from the Project dam downstream to the tailrace.

- D-5. *Existing Operation:* The Town voluntarily operates the project in a run-of-river mode using an automatic pond level control system to regulate turbine operation, such that outflow from the project approximates inflow. The control system maintains the project impoundment at a normal maximum elevation of 71.25 feet NGVD 29 which is the elevation of the top of flashboards. The project bypasses approximately 680 feet of the Salmon Falls River. The existing license requires the Town to release: (1) a continuous minimum flow of 10 cubic feet per second (cfs) or inflow, whichever is less, from the dam to the bypassed reach; and (2) a minimum flow of 115 cfs or inflow, whichever is less, through the powerhouse to the downstream reach. The Town releases the minimum flow to the bypassed reach via a 5-foot, 9-inch wide by 5-inch deep notch in the flashboards during normal project operation, and via the skimmer gate during maintenance and repair operations. When inflow falls below the minimum hydraulic capacity of the powerhouse (80 cfs), the minimum flow requirement for the downstream reach is met by releasing flows over the dam. When inflow exceeds the maximum hydraulic capacity of the powerhouse (456 cfs), flow is passed over the spillway and the skimmer gate is opened fully. When water rises to about 6 feet above the dam crest (70 feet), the five, manually operated vertical lift gates are closed to prevent the powerhouse forebay from overtopping. The project operates under an estimated average head of 45 feet. The average annual generation was 5,837.9 megawatt-hours for the period of record from 2005 to 2018.
- D-6. *Applicant's Proposed Operation and Environmental Measures:* The Applicant proposes to: (1) continue to operate the project in a run-of-river mode using an automatic pond level control system, and maintain the impoundment at the flashboard crest elevation of 71.25 feet NGVD 29; (2) provide a minimum flow release of 35 cfs, or inflow, whichever is less into the bypassed reach by resizing the current minimum flow release notch in the flashboard section; (3) conduct a two-season eel ramp siting study beginning the first full upstream passage season after the effective date of a subsequent license, and install and operate an upstream eel ramp within 4 years of the effective date of a subsequent license; (4) install and operate a downstream fish passage facility for adult eels and resident and migratory fish species within 4 years of the effective date of a subsequent license; (5) implement nighttime turbine shutdowns from 8 p.m. to 4 a.m. during the months of September and October for 3 consecutive nights following rain accumulations of 0.5 inches or more over a 24-hour period; (6) conduct a one-season tagging study, within two years of the effective date of a subsequent license, to quantify movements of river herring and American shad migrating downstream from the project tailwater through the bypassed reach to the project dam; and (7) consult with the New Hampshire and Maine State Historic Preservation Officers to determine the need to conduct archeological or historical surveys and to implement avoidance or

mitigation measures before beginning any land-disturbing activities or alterations to known historic structures within the project boundary. There is no construction proposed aside from fish passage facilities.

CWA Section 401 WQC Required

- D-7. The Salmon Falls River is a water of the United States (Facts C-1, C-5, C-6).
- D-8. The Activity may include discharges from upstream of the Project dam to downstream of the dam including, but not limited to, through the turbines, various gates and/or over the dam spillway (Fact C-4; Findings D-4, D-5, D-6).
- D-9. Because the Project may involve discharges (as that term is used in the CWA) to a water of the United States in New Hampshire, and because the Project requires a federal license or permit, a CWA section 401 water quality certification (aka certification) is required from New Hampshire unless certification is waived (Facts C-1, C-4, C-7; Findings D-1, D-4, D-7, D-8).
- D-10. The New Hampshire Department of Environmental Services (NHDES) is the authority (aka certifying authority) responsible for issuing CWA Section 401 water quality certifications in New Hampshire ¹³ (Fact C-7).

State Authority for Certification Conditions, Modifications and Monitoring

- D-11. RSA 485-A:12,III (Fact C-7) states the following: “Certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide assurance that the proposed discharge complies with applicable surface water quality standards.” Monitoring includes, but is not limited to, the following:
- monitoring to determine compliance with conditions in this certification;
 - on-site inspections;
 - development, submission and implementation of monitoring plans;
 - analysis, preparation and submittal of reports summarizing monitoring results;
 - notifying appropriate authorities in a timely manner when excursions from conditions in this certification occur; and
 - uploading monitoring data into the NHDES Environmental Database (EMD) so that is readily accessible to the public and useable by NHDES for surface water quality assessments required by section 305(b) and 303(d) of the federal Clean Water Act.

Potential Environmental Impacts of Hydroelectric Projects

- D-12. The following description of potential environmental impacts of hydroelectric projects is from a summary report of the 2010 summit meeting meeting on Environmental Mitigation Technology for Hydropower ¹⁴. “Although hydroelectric power plants have many advantages over other energy sources, they also have potential environmental impacts (Table 1). Most of the adverse impacts of dams are caused by habitat alterations. Reservoirs associated with large dams can inundate large areas of

¹³ Because the Project also discharges to Maine waters, it is NHDES’ understanding that MEDEP will also issue a CWA section 401 water quality certification.

¹⁴ Environmental Mitigation Technology for Hydropower: Summary Report on Summit Meeting Convened by Oak Ridge National Laboratory, the National Hydropower Association, and the Hydropower Research Foundation. Washington, D.C. June 2-3, 2010. [EMTSSummit4.pdf \(hydro.org\)](#)

terrestrial and river habitat. Diverting water from the stream channel or curtailing reservoir releases in order to store water for future electrical generation can dry out streamside (riparian) vegetation. Insufficient water releases degrade habitat for fish and other aquatic organisms in the river below the dam. Water in a reservoir is stagnant compared to that in a free-flowing river. Consequently, water-borne sediments and nutrients can be trapped, resulting in the undesirable proliferation of algae and aquatic weeds (eutrophication) and a change in water quality in the reservoir and in reservoir releases. In some cases water spilled from high dams may become supersaturated with nitrogen gas resulting in gas-bubble disease in aquatic organisms inhabiting the tailwaters. Hydropower projects can also affect aquatic organisms directly. The dam can block upstream movements of fish, which can have severe consequences for anadromous fish (e.g., salmon, steelhead, American shad), catadromous fish (e.g., American eels), or riverine fish that make seasonal migrations to spawn (e.g., sturgeon and paddlefish). Fish moving downstream may be drawn into the power plant intake flow (entrained). Entrained fish are exposed to physical stresses (pressure changes, shear, turbulence, strike) as they pass through the turbine that may cause disorientation, physiological stress, injury, or mortality.”

Potentially Affected Surface Waters and Applicable Water Quality Standards

D-13. NHDES has assigned Assessment Unit (AU) identification numbers to many, but not all surface water waters in New Hampshire, with many surface waters divided into smaller segments based on their characteristics. AUs (where available) for surface waters located immediately upstream and downstream of the Activity are shown in the table below. Because these surface waters are located closest to the Activity, the designated uses (e.g., aquatic life integrity) in these surface waters have the most potential to be impacted by the Activity. It is possible, however, that other surface waters may also be affected by the Activity (e.g., flow alterations caused by the Activity may also affect aquatic habitat in river reaches further downstream, and lack of adequate fish passage can impact fish communities located further upstream and downstream).

Assessment Unit ID	Description
NHIMP600030406-03	Salmon Falls River - Rollinsford Dam impoundment
NHRIV600030406-04	Salmon Falls River - riverine segment immediately downstream of Dam
	Unnamed wetlands along the river banks of each of the above Assessment Units.

D-14. New Hampshire surface water quality standards are summarized in Facts C-8 through C-43 and apply to all New Hampshire surface waters as defined in Fact C-12, including the potentially affected surface waters identified in Finding D-13.

D-15. The potentially affected surface waters (Finding D-13) are classified as Class B (Fact C-43).

D-16. The goal of Class A and B surface waters is to support the designated uses defined in Env-Wq 1702.17, which include swimming and recreation in and on the water, fish consumption, shellfish consumption (for tidal waters), aquatic life integrity, wildlife, and after adequate treatment as a water supply (Fact C-19). Designated uses apply “...whether or not such uses are presently occurring” (Env-Wq 1702.17 –Fact C-19).

D-17. The Activity is not within ¼ mile of a Designated River under the Designated Rivers Program (RSA 483, Fact C-44). As such, the Activity is not within the jurisdiction of the Designated Rivers Program.

- D-18. The surface waters in the vicinity of the Activity are not Outstanding Resource Waters (Env-Wq 1708.04, Fact C-39).
- D-19. The Salmon Falls River is a warmwater fishery with diadromous fish, however, the NHFGD does stock trout upstream of the Milton Three Ponds Dam¹⁵.

Rare, Threatened and Endangered Species

- D-20. Table E.6.1.2-1 beginning on page E-136 of the Final License Application (Fact C-54) lists the federal and state rare, threatened and endangered species found in the Project region as well as species of special concern in New Hampshire and Maine.
- D-21. *Federal Rare, Threatened and Endangered Species:* On March 16, 2021, FERC staff accessed the USFWS' ECOS-IPaC website¹⁶. One federally-listed species was identified that may occur within the Rollinsford Hydroelectric Project boundary or be affected by the Project: the threatened northern long-eared bat¹⁷.
- D-22. The USFWS Section 10(j) recommendations include conditions to protect the northern long-eared bat (Fact C-55).
- D-23. The flow and impoundment requirements in Condition E-10 and the fish passage requirements in Conditions E-13 are expected to be protective of the rare, threatened and endangered aquatic species as well as aquatic species of special concern in the vicinity of the Project.

Water Chemistry

- D-24. *Current surface water quality assessment:* According to the 2018 305(b)/303(d) lists of impaired waters (Fact C-49), the following surface waters in the vicinity of the proposed Activity are listed as impaired. All impairments, with the exception of those highlighted in bold (which have approved TMDLs) and "Habitat Assessment," are on the Section 303(d) List. It should be noted that this assessment did not account for water quality monitoring conducted in 2018 for the Project (Finding D-25):

Assessment Unit (AU)	Waterbody Name	Cause of Impairment (Designated Use Impaired)
NHIMP600030406-03	Salmon Falls River - Rollinsford Dam impoundment	Non-native Aquatic Plants Mercury (FC) pH (AL)
NHRIV600030406-04	Salmon Falls River - riverine segment immediately downstream of Dam	Dissolved Oxygen (AL) Mercury (FC)
Notes: AL = Aquatic Life, PCR = Primary Recreation, SCR = Secondary Recreation, FC = Fish Consumption, SFC = Shellfish Consumption Impairments highlighted in bold have approved TMDLs. All other impairments are on the Section 303(d) List. All fresh surface waters are impaired mercury due to elevated levels of mercury in fish tissue which has resulted in statewide fish consumption advisory.		

¹⁵ Email from NHFGD staff on April 13, 2020.

¹⁶ USFWS ECOS-IPaC website <https://ecos.fws.gov/ipac/>

¹⁷ USFWS letter regarding rare, threatened and endangered species- FERC Accession Number 20210316-3004.

When a surface water does not meet water quality standards (i.e., when it is impaired), the addition of pollutants causing or contributing to impairment should be avoided (see Fact C-53). As noted above, all fresh surface waters in New Hampshire are impaired for mercury due to concentrations found in fish tissue which have resulted in a statewide fish consumption advisory. On December 20, 2007, EPA approved the Northeast Regional Mercury TMDL which addressed mercury impairments in all New Hampshire fresh surface waters (see Fact C-50). The primary source of mercury addressed in the TMDL is atmospheric deposition from in-state and out-of-state emissions. Atmospheric deposition from in-state and out-of-state emissions of fossil fuel byproducts can also cause low pH in rain (aka, acid rain) which can contribute to pH violations in surface waters. Other pollutant sources can also impact mercury concentrations and pH in surface waters. Finding D-29 discusses the Salmon Falls River TMDL that was conducted to address dissolved oxygen impairments.

- D-25. The Applicant conducted a Water Quality Study in 2018 to determine compliance with State surface water quality standards. The goals of the study were to 1) determine if the Project is impacting water quality in the Salmon Falls River upstream and downstream of the Project dam, and 2) to determine compliance with New Hampshire (and Maine) surface water quality standards. The objectives of the study were to 1) collect water temperature, dissolved oxygen, and pH in the Project impoundment as well as chlorophyll-a, nutrients, vertical temperature and dissolved oxygen profiles and Secchi disk data, and 2) collect continuous water temperature and dissolved dissolved oxygen and discrete samples of pH upstream of the Project impoundment and downstream of the Project dam. All objectives were to be conducted under various river flow, river temperature and Project operation conditions that included, but was not limited to, low flow and relative high water temperatures. Continuous estimates of inflow, flow in the tailrace and flow in the bypass channel were estimated as follows:
- Turbine Flow- A relationship between turbine wicket gate opening (%), which is recorded at the Project, and flow was used to determine turbine flow for each unit. An estimated 10 cfs of leakage was assumed through each of the two turbine units during non-generation periods;
 - Bypass Flow- A water stage recorder (15-minute measurement interval) was installed in the bypass reach from 6/21/18 to 10/23/18. Several streamflow measurements were made to develop a rating curve, which in turn was used to calculate bypass reach flows; and
 - Total Project Inflow was set equal to the sum of Turbine Flow and Bypass Flow.
- D-26. The Water Quality Study was conducted from June 5, 2018 to October 23, 2018. Compared to long-term averages from 1981 to 2010, July through September were 1.4°C to 2.5°C warmer than normal and experienced 0.7 to 0.93 inches more of rain than normal. June and October were 0.1 °C and 0.7 °C, respectively, colder than normal and had 0.79 and 0.72 inches, respectively, less rain than normal.
- D-27. Estimates of river inflow during the Water Quality Study varied from a low of 28 cfs on September 5, 2018 to a high of 626 cfs on October 5, 2018 and included periods when there was no generation as well as periods when there was generation. To put this in perspective with regards to low flow, the 7Q10 low flow¹⁸ in the vicinity of the Activity is estimated to be approximately 28.7 cfs based on the the 1999 Salmon Falls River TMDL (Fact C-52).
- D-28. Results of the 2018 water quality study indicated that the Project impoundment thermally stratifies in the summer and that New Hampshire surface water quality standards for dissolved oxygen (mg/L and daily average percent saturation) and pH as well as of NHDES' numeric threshold for chlorophyll-a

¹⁸ The 7Q10 low flow is the average seven -day low flow that occurs, on average, once every ten years.

specified in the Consolidated Assessment and Listing Methodology for recreation (Fact C-34), were not met in the impoundment.

- D-29. The 1999 Salmon Falls River TMDL (SFR TMDL) (Fact C-52) set allowable loadings for ammonia-nitrogen, biochemical oxygen demand (BOD), and total phosphorus (TP) to address dissolved oxygen impairment and nutrient related issues (e.g., algal blooms) in the river. The TMDL established wastewater treatment plant (WWTP) effluent limits for ammonia-nitrogen, BOD and TP for Milton, Somersworth and Rollinsford New Hampshire, and for Berwick and South Berwick Maine. Both the Berwick and Somersworth WWTPs (as well as the Milton WWTP located further upstream) discharge to the Rollinsford impoundment and Rollinsford's effluent discharges to the South Berwick impoundment.
- D-30. The SFR TMDL, which is a phased TMDL, includes the following recommendations regarding re-evaluating the TMDL: "Re-evaluate 1st phase of TMDL after five years. If non-compliance of water quality standards continues to occur, modify TMDL. If compliance of standards occur, the phased TMDL becomes final." Since 2006, FB Environmental Associates (FBE) has been conducting seasonal (summer) compliance monitoring for the Phased SFR TMDL on behalf of the municipalities of Somersworth and Rollinsford, New Hampshire, and Berwick and South Berwick, Maine. No revisions to the TMDL have been made.
- D-31. The SFR TMDL also includes the following recommendation regarding dam releases to improve dissolved oxygen during summer low flow periods: "It is recommended that dam operational changes be implemented as a method of improving dissolved oxygen in impoundment bottom areas for one round of licensing (five years) as the first phase of the TMDL. During low flow conditions, the lower three impoundments of the Salmon Falls (South Berwick, Rollinsford, and Lower Great Falls) do not generate power and typically spill water. Although the spilling of water improves river dissolved oxygen below each dam, the routing of water over surface layers probably enhances chemical stratification in these impoundments which ultimately results in lower dissolved oxygen levels in bottom areas. It is proposed that a bottom release in addition to a surface release at each dam be implemented. This should result in lower layer dissolved oxygen complying with established criteria. It is not desirable to have entirely bottom releases at each dam, since this could lead to lower dissolved oxygen levels below each dam."
- D-32. The Project has altered the wetted natural river channel (deeper, wider) and associated discharge characteristics (slower, more stagnant) which makes the river more prone to adverse water quality impacts (Finding D-12). These alterations, combined with the effluent discharges containing nutrients and other pollutants from the upstream wastewater treatment plants, as well as other sources, has contributed to dissolved oxygen, pH and chlorophyll-a exceedances of New Hampshire surface water quality standards in the Project impoundment.
- D-33. *Water Quality Mitigation and Enhancement Plan*: On March 22, 2021, GMP, on behalf of the Applicant, submitted a draft Water Quality Mitigation and Enhancement Plan (WQMEP) to NHDES and MEDEP. This plan was submitted in response to previous comments made by MEDEP regarding violations of MEDEP dissolved oxygen regulations in the impoundment based on the 2018 water quality study. The purpose of the plan is to detail measures that would be taken during critical low flow periods to achieve compliance with MEDEP water quality standards in the Project impoundment, while maintaining compliance with applicable MEDEP water quality standards in the Project bypass and tailrace. The plan includes temporarily drawing the impoundment down 1.25 feet (to elevation 70.0 NGVD 29) by passing flow through the turbine when total inflow from the Project has been less than 80 cfs for 7 consecutive days during the months of July 1 through September 15 in consultation and with prior approval from MEDEP. Water quality would be monitored in the impoundment, bypass reach and tailrace for three years (during the July 1 through September 15 timeframe) after issuance of the Project license and

implementation of the plan. Because the penstock draws water from the entire water column, it is thought that during periods of low inflow and substandard water quality, temporarily drawing down the impoundment could serve to improve water quality by flushing stagnant water from the entire water column in the impoundment. The plan also includes a proposal for records and reporting. Conceptually, NHDES concurs with the plan with the understanding that it will be subject to NHDES (as well as MEDEP) approval to assure the plan also satisfies NHDES' monitoring objectives. Such objectives include, but are not limited to, having results also compared to New Hampshire surface water quality standards, collecting, analyzing and reporting data in accordance with NHDES protocols, the duration of monitoring, impoundment refill rates, and obtaining prior approval from NHDES (as well as MEDEP) prior to temporarily drawing down the impoundment. To address potential impingement / entrainment concerns associated with the proposed drawdowns (especially prior to implementation of downstream fish passage), a first step may be to conduct monitoring to determine if increasing the minimum bypass reach conservation flow from 10 cfs to 35 cfs (as proposed by the Applicant) will sufficiently improve water quality without having to lower the impoundment. Condition E-14 addresses this Finding.

- D-34. *Long-Term Water Quality Monitoring and Reporting:* Results of the 2018 Water Quality Study conducted by the Applicant indicated dissolved oxygen, exceedances in the Project impoundment. To determine if dissolved oxygen exceedances continue in the future, additional monitoring is necessary during the term of the license. This is because FERC licenses are typically issued for 40 to 50 years and, during that time, conditions in the watershed that could affect water quality in the Project impoundment and Project discharges to the tailrace and bypass reach, can change. For example, due to climate change "Warmer summer temperatures will likely lead to an increase in drought (through increased evaporation, heat waves, and more frequent and extreme convective precipitation events)."¹⁹ An increase in the frequency and magnitude of lower river flows and higher temperatures could result in an increase in the frequency and magnitude of dissolved oxygen exceedances and higher water temperatures. To determine the impact of the Project and Project discharges on these parameters in the future, and if New Hampshire surface water quality standards are met, additional monitoring is needed. Condition E-15 addresses this need. Inclusion of monitoring conditions is authorized by RSA 485-A:12,III (Fact C-7) which states the following: "Certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide assurance that the proposed discharge complies with applicable surface water quality standards".

As indicated in Condition E-15, NHDES is proposing that water quality monitoring in the Salmon Falls River be conducted every five years beginning the fifth year after the license for the Project is reissued by FERC, and ending five years prior to the expiration of the reissued license. Every five years is considered a reasonable interval between monitoring periods to track water quality changes and is also the maximum age of data for rivers specified in the NHDES Consolidated Assessment and Listing Methodology⁵ that can be used by NHDES to affirmatively assess a water as being supportive of a designated use (such as aquatic life integrity). Ending monitoring five years prior to the expiration of the reissued license is proposed because within five years of license expiration, the Applicant will likely be required to conduct additional water quality studies for the next license renewal in accordance with FERC regulations. Initiating long-term monitoring the fifth year after the license is reissued by FERC assumes little to no monitoring is conducted in the first five years. If monitoring is conducted in the first five years, and depending on what it entails, NHDES will consider extending the start date for long-term monitoring.

¹⁹ Wake, Cameron P.; Burakowski, Elizabeth A.; Wilkinson, Peter; Hayhoe, Katharine; Stoner, Anne; Keeley, C.; and LaBranche, Julie, "Climate Change in Southern New Hampshire: Past, Present and Future" (2014). The Sustainability Institute. 2. <https://scholars.unh.edu/sustainability/>

The purpose of the monitoring is to 1) determine the future effects of Project operation during the duration of the new license, both spatially and temporally (in terms of flow, impoundment elevation and power generation) on water temperature and dissolved oxygen (mg/L and percent saturation), 2) to compare results to New Hampshire surface water quality standards, and 3) to determine if additional changes in Project operation are necessary to comply with surface water quality standards.

In each year that monitoring is conducted, Condition E-15 requires submittal of a monitoring and reporting plan to NHDES for review and approval. This is so the plan can be updated (if necessary) to conform to NHDES' latest monitoring protocols and/or to any changes in dissolved oxygen or temperature surface water quality standards. Condition E-15 also includes some specifics of what the monitoring and reporting plan shall include which are very similar to the monitoring and reporting protocols used to by the Applicant to prepare the 2018 Water Quality Study included in the Final License Application⁶. This includes submittal of data in a working spreadsheet and input of all data into the NHDES Environmental Monitoring Database (EMD) so the data is accessible to the public and is available for use by NHDES to conduct surface water quality assessments required every two years by the Sections 305(b) and 303(d) of the federal Clean Water Act.

Lastly, if results indicate that water quality standard exceedances persist, the Applicant must consult with NHDES regarding changes to Project operation to improve water quality, implement the NHDES approved revisions to Project operation and update the flow and impoundment level monitoring and compliance plan (FICMP) discussed in Condition E-12.

- D-35. *Water Use Registration and Reporting:* Based on discussions in March and April 2021 with staff in the NHDES Water Use Registration and Reporting program (WURRP), the Activity is currently registered with the WURRP and must continue to report under this program in accordance with Env-Wq 2102. The purpose of Env-Wq 2102 is to "...is to implement RSA 488 by establishing requirements relative to documenting the identity and location of water uses and collecting accurate water use data to support management of the state's water resources." Staff also stated that the Applicant should contact them to determine if a water conservation plan (in accordance with Env-Wq 2102.24) is required for the Activity. If a water conservation plan is not required, the Applicant will need to request a waiver in accordance with Env-Wq 2101.23. The WURRP provides valuable data for tracking discharges (such as those from the Project) to and withdrawal volumes from surface waters and other sources throughout the state. This water quantity data assists NHDES with managing water resources to help assure surface waters have sufficient water to support the designated uses (Fact C-19) specified in the New Hampshire surface water quality standards (NH RSA 485-A:8 and Env-Wq 1700, Fact C-8).

Flow / Impoundment Management

- D-36. *Applicant's Proposal:* As discussed in Finding D-6, the Applicant proposes to (1) continue to operate the project in a run-of-river mode using an automatic pond level control system, and maintain the impoundment at the flashboard crest elevation of 71.25 feet NGVD 29; and (2) provide a minimum flow release of 35 cfs, or inflow, whichever is less into the bypassed reach by resizing the current minimum flow release notch in the flashboard section.
- D-37. *Run-of-River:* In their Section 10(j) recommendations filed with FERC (Fact C-55) the USFWS recommended that the Project "operate in an instantaneous run-of-river mode whereby inflow to the Project equals outflow from the Project at all times and water levels above the dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods upon mutual agreement

between the Licensee, the Service, the New Hampshire Department of Environmental Services, NHFGD, NOAA Fisheries, the Maine Department of Environmental Protection, and the Maine Department of Environmental Protection and the Maine Department of Inland Fisheries and Wildlife.”

NHDES concurs with the USFWS’ Section 10(j) recommendation to operate the Project in an instantaneous run-of-river mode whereby outflow (i.e., discharges) from the Activity equals inflow on an instantaneous basis except during emergencies beyond the control of the Applicant and for short periods upon mutual agreement with the resource agencies. Operating in this manner will minimize impoundment fluctuations and maintain a more natural flow regime downstream of the tailrace, which will protect habitat for a range of aquatic and riparian species and help to assure compliance with State surface water quality standards including, but not limited to, “Biological and Aquatic Community Integrity” (Env-Wq 1703.19 – Fact C-36) and Env-Wq 1703.01(d) regarding maintaining surface water quantity at levels that protect existing uses and designated uses (Fact C-25). Condition E-10.a addresses this Finding.

- D-38. *Impoundment Water Level:* When the Project is generating and inflow is within the hydraulic operating range of the turbines (80 cfs to 456 cfs), the Applicant currently maintains a “stable pond” by keeping the impoundment at the top of the flashboards (elevation 71.25 feet NGVD 29). This is accomplished via an automated pond level control system which regulates the flow (discharge) through the turbines so that inflow equals outflow. Attachment 9 of the water quality certification application (Fact C-57), which included time series plots of impoundment elevation, indicates that the pond level can be kept within approximately 0.1 feet of the top of flashboards when inflow is within the turbine operating range, which is estimated to occur approximately 50 percent of the time based on the annual flow duration curve in the Final License Application²⁰. When inflow is below the minimum hydraulic turbine capacity (80 cfs) flow is spilled over the dam with a relatively small increase in water level above the top of flashboards. When flow is above the maximum turbine hydraulic capacity (456 cfs) the impoundment level is allowed to rise as needed, to pass the excess flow over the flashboards.

NHDES concurs with minimizing the frequency and magnitude of fluctuations in the impoundment by controlling discharges at the Project as much as possible, because it will help protect the flora and fauna in the littoral and riparian zones of the impoundment and help to assure compliance with State surface water quality standards including, but not limited to, “Biological and Aquatic Community Integrity” (Env-Wq 1703.19 – Fact C-36). Condition E-10.c addresses this Finding.

- D-39. *Impoundment Refill Procedures:* Following authorized drawdowns, a refill procedure is required to ensure adequate flow (i.e., discharge) from the Project is maintained downstream of the Project dam and adequate flow is available to refill the impoundment at an appropriate rate to protect aquatic habitat and aquatic life. In their Section 10(j) recommendations filed with FERC (Fact C-55), the USFWS recommended that “the Licensee implement an impoundment refill procedure whereby, during impoundment refilling after drawdowns for maintenance or emergency purposes, 90 percent of inflow is passed downstream and the headpond is refilled on the remaining 10 percent of inflow to the Project. This refill procedure may be modified on a case-by-case basis with prior approval from the the Service, the New Hampshire Department of Environmental Services, NHFGD, NOAA Fisheries, the Maine Department of Environmental Protection, and the Maine Department of Environmental Protection and the Maine Department of Inland Fisheries and Wildlife.”

NHDES concurs with the USFWS’ Section 10(j) recommended impoundment refill procedures because it will help to minimize dramatic and sudden reductions in downstream flow (i.e., discharges) due to

²⁰ Figure E.3.1.1.1-11 in the August 29, 2019 Final License Application. FERC Accession Number 201902829-5206.

Project operation, while still providing sufficient flow to refill the pond to the normal elevation after impoundment refill. These measures will help to maintain sufficient habitat for aquatic life and help to assure compliance with State surface water quality standards, including, but not limited to, “Biological and Aquatic Community Integrity” (Env-Wq 1703.19 – Fact C-36). Condition E-10.d addresses this Finding.

- D-40. *Impoundment Drawdown Rate During Scheduled Maintenance:* The NHFGD recommends controlling Project discharges when drawing the impoundment down for maintenance, so that the impoundment level decreases by no more than approximately six (6) inches per day. This is done to allow adequate time for the less mobile aquatic organisms (including, but not limited to mussels), to move and stay sufficiently submerged as the water level gradually recedes. NHDES also recommends that the Licensee be provided the opportunity to modify these maintenance impoundment drawdown procedures on a case-by-case basis with prior approval from NHFGD.

These measures to control Project discharges during drawdowns will help to maintain sufficient habitat for aquatic life and help to assure compliance with State surface water quality standards, including, but not limited to, “Biological and Aquatic Community Integrity” (Env-Wq 1703.19 – Fact C-36). Condition E-10.e addresses this Finding.

- D-41. *Bypass Reach Conservation Flows:* The Activity includes a 680-foot-long bypass reach. Currently, the Applicant is required to provide a year-round minimum flow (discharge) of 10 cfs in the bypass reach to maintain aquatic habitat during non-spill periods. Flow affects the quality and quantity of aquatic habitat, and directly impacts aquatic biota (e.g., movement, stranding, spawning and tributary access). In 2018, the Applicant conducted a bypass reach flow study utilizing the Modified Instream Flow Incremental Methodology. In the bypass reach, the Applicant mapped habitat, collected physical habitat data along four transects at multiple test flows and determined the bypass reach’s habitat suitability for various target fish species and life stages. Results indicate that pool, riffle and run habitat represent approximately 46, 18 and 24 percent of the total habitat respectively. The predominant substrate in the bypass reach is bedrock, boulder and cobble. Results also indicate that a minimum flow of approximately 60 cfs would provide about 79 percent of the maximum available habitat for alosine spawning and incubation and the Applicant’s minimum proposed bypass reach flow of 35 cfs (Finding D-36) would provide over 70 percent of the maximum available habitat for mayfly (*Ephemeroptera spp.*), caddisfly (*Trichoptera spp.*) adult brown trout (*Salmo trutta*), and adult longnose dace (*Rhinichthys cataractae*).

Based the results of the bypass flow study, the USFWS’ 10(j) recommendation (Fact C-55) stated the following:

“The Department recommends the Licensee provide a continuous conservation flow of 35 cfs to the bypass reach whenever the Project is generating. During the upstream alosine migration period (April 15-July 15), a minimum of 60 cfs should be released into the bypass to facilitate upstream passage and adult spawning and incubation. During periods when inflow is less than 80 cfs, the Licensee should release 100 percent of inflow over the spillway. These criteria may be modified as part of the Department’s Fish Passage Prescription in order to conform to the Service’s fish passage design guidelines (USFWS 2019).” For example, according to USFWS staff on April 21, 2021, if, based on the Settlement Agreement discussed in Finding D-48, a “nature-like fishway” (NLF) is installed, the bypass reach conservation flow from April 15 – July 15 may need to be increased to 110 cfs, or inflow, whichever is less, in order to conform with the USFWS fish passage design guidelines.

NHDES concurs with the USFWS' recommended conservation flows in the bypass reach as these measures will help to maintain sufficient habitat for aquatic life and help to assure compliance with State surface water quality standards including, but not limited to, "Biological and Aquatic Community Integrity" (Env-Wq 1703.19 – Fact C-36) and Env-Wq 1703.01(d) regarding maintaining surface water quantity at levels that protect existing uses and designated uses (Fact C-25). Condition E-10.b addresses this Finding.

- D-42. *Flow and Impoundment Compliance Monitoring Plan:* The USFWS' 10(j) recommendations (Fact C-55) included the following:

The USFW "...recommends the Licensee develop a plan for maintaining and monitoring run-of-river operation and minimum flow releases at the Project. The plan should include a description of the mechanisms and structures that will be used, the level of manual and automatic operation, the methods used for recording data on run-of-river operation and minimum flow releases, an implementation schedule, and a plan for maintaining the data for inspection by the Service, the New Hampshire Department of Environmental Services, NHFGD, NOAA Fisheries, the Maine Department of Environmental Protection, and the Maine Department of Inland Fisheries and Wildlife. The plan should be provided for agency review and comment within 3 months of license issuance. Relevant operational data such as headpond elevation and station generation should be recorded hourly. Records should be maintained digitally for the term of any new license issued for the Project and made available for agency review within 72 hours of receiving a request"

NHDES concurs that development and implementation of a plan describing how flow and impoundment water level will be managed, monitored and reported (as allowed by RSA 485-A:12, III – Fact C-7 and Finding D-11) will help determine if discharges from the Project will comply with this certification and, therefore, comply with New Hampshire surface water quality regulations (Env-Wq 1700). Condition E-12 addresses this Finding.

Fish Passage

- D-43. *Fish Species:* "The Salmon Falls River, in the vicinity of the Project, is known to support at least 24 species of fish, and representative examples include macrohabitat generalists such as yellow perch (*Perca flavescens*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis machrochirus*), golden shiner (*Notemigonus crysoleucas*), brown bullhead (*Ameiurus nebulosus*), and redfin pickerel (*Esox americanus americanus*); the fluvial dependent white sucker (*Catostomus commersonii*) and fallfish (*Semotilus corporalis*), the catadromous American eel (*Anguilla rostrata*), and the anadromous alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and American shad (*Alosa sapidissima*)." (Source: Fact C-55.)
- D-44. *Impact of Dams on Fish Migrations:* "Dams can impact both upstream and downstream fish migration in rivers (Limburg and Waldman 2009, p. 961). Dams not only block or impede fish migration, but also alter the rivers' hydrology and aquatic habitat availability. Upstream of dams, where water flow is slowed, lake-like conditions, rather than riverine ones, prevail. Water flow downstream of dams, particularly at peaking hydroelectric projects, can be altered significantly (Limburg and Waldman 2009, p. 961) with dramatic changes in water depth and velocity occurring over short time periods. Depending on the severity and location of blockages and changes to hydrology, migratory fish populations can be severely reduced or extirpated due to dams (Limburg and Waldman 2009, p. 960)." (Source: Fact C-55.)
- D-45. *Current Status of Fish Passage Facilities:* There are currently no technical fish passage facilities at the

Rollinsford Project. “Presently, diadromous fish can ascend the Salmon Falls River up to the Rollinsford Dam (river mile 0.9) via the alosine (American shad, alewife, blueback herring) and eel fish passage facilities located at South Berwick (FERC No. 11163). Similarly, alosines and eel are provided safe egress at South Berwick, via the Project’s downstream fish passage facilities.” (Source: Fact C-55.)

- D-46. *Applicant’s Proposed Fish Passage Measures:* The Applicant’s proposed fish passage measures are discussed in Finding D-6.
- D-47. *USFWS Preliminary Prescription for Fishways:* On June 25, 2020, USFWS filed preliminary prescriptions for fishways (Preliminary Prescription document – Fact C-55) with FERC in accordance with section 18⁹ of the FPA. The Preliminary Prescription document was developed in consultation with the NHFGD and MEDMR and requires the Licensee to “construct, operate, maintain, monitor, and periodically test the effectiveness of fishways for river herring, American shad and American eel (collectively, the “target species”)” and that the “fishways will be designed, constructed, maintained, and operated (which includes project operations) to safely, timely, and effectively pass the target species upstream and downstream of the Project.” Preliminary prescriptions for fishways are provided in section 11 of the Preliminary Prescription document which includes general requirements for upstream and downstream passage (11.1), design populations (11.2), fish passage operating periods (11.3), fishway operation and maintenance (11.4), inspection (11.5), scheduling (11.6), fish passage effectiveness measures (11.7), upstream anadromous fish passage and justification (11.8), upstream American eel passage and justification (11.9), downstream American eel passage and justification (11.10) and downstream anadromous fish passage and justification (11.11).
- D-48. *Settlement Agreement. Upstream Anadromous Fish Passage:* On July 24, 2020, Green Mountain Power Corporation, on behalf of the Applicant, submitted to the USFWS, an alternative prescription for fishways and a request for a trial-type hearing on the disputed issues which were primarily associated with the USFWS’ preliminary prescriptions for upstream anadromous fish passage. Subsequently, the Parties entered into an agreement to stay the hearing process to allow time for settlement discussions. Those discussions were successful and led to the execution of a settlement agreement which became effective on January 31, 2021. On March 5, 2021 the executed Offer of Settlement consisting of the Settlement Agreement for Modified Prescription for Fishways (“Settlement Agreement”) and an Explanatory Statement was filed with FERC (Fact C-56). The Settlement Agreement sets forth the terms of a Modified Prescription for American shad and river herring to be submitted by USFWS within 60 days after the deadline for filing comments on FERC’s draft environmental document under 18 C.F.R. § 5.25(c).
- D-49. Adequate upstream and downstream anadromous fish and American eel passage is required to comply with State surface water quality standards, including, but not limited to, support of the aquatic life designated use (Env-Wq 1707.17(d) - Fact C-19), protection and propagation of fish (Env-Wq 1701.01 - Fact C-9), and to help assure compliance with the “Biological and Aquatic Community Integrity” surface water quality standard (Env-Wq 1703.19 – Fact C-36). Because the Project has created conditions and discharge characteristics that prevent adequate fish and eel passage up and downstream, and, therefore, compliance with State surface water quality standards, fish and eel passage conditions are necessary. It is expected that implementation of the fishway prescriptions in section 11 of the Preliminary Prescription document (Finding D-47), which include upstream and downstream passage for anadromous fish and American eel, and any future modifications to the fishway prescriptions that are acceptable to the USFWS (including, but not limited to, any modifications made to make the prescriptions consistent with the Settlement Agreement (Finding D-48)), will result in compliance with state surface water quality standards regarding fish passage. Condition E-13 addresses this Finding.

E. CERTIFICATION CONDITIONS

Unless otherwise authorized or directed by NHDES, the following conditions shall apply:

- E-1. **Effective Date and Expiration of Certification:** This certification shall become effective on the date of issuance and shall remain effective for the term of the federal license or permit. Should the federal authority deny a license or permit, the certification becomes null and void.
- E-2. **Conditions in Federal License or Permit:** Conditions of this certification shall become conditions of the federal license or permit (U.S.C. § 1314(d)).
- E-3. **Compliance with Water Quality Standards:** The Activity shall not cause or contribute to a violation of New Hampshire surface water quality standards.

(For an explanation and citations, see Fact C-7 and C-8, and C-53.)

- E-4. **Proposed Modifications to the Activity:** The Applicant shall consult with and receive prior written approval from NHDES regarding any proposed modifications to the Activity that could have a significant or material effect on the findings or conditions of this certification, including any changes to operation of the Activity. If necessary, to assure compliance with New Hampshire surface water quality standards and associated management objectives, the New Hampshire Department of Environmental Services (NHDES) may alter or amend this certification in accordance with condition E-5.

(For an explanation and citations, see Fact C-7 and Finding D-11.)

- E-5. **Modification of Certification:** The conditions of this certification may be altered or amended at any time by NHDES to assure compliance with New Hampshire surface water quality standards and associated management objectives, when authorized by law, and, if necessary, after notice and opportunity for hearing.

(For an explanation and citations, see Fact C-7 and Finding D-11.)

- E-6. **Reopening of License:** NHDES reserves the right to request, at any time, that FERC reopen the license to consider modifications to the license to assure compliance with New Hampshire surface water quality standards.
- E-7. **Compliance Inspections:** In accordance with applicable laws, the Applicant shall allow NHDES to inspect the Activity and affected surface waters to monitor compliance with the conditions of this certification.

(For an explanation and citations, see Fact C-7 and Finding D-11.)

- E-8. **Transfer of Certification:** Should this certification be transferred to a new owner, contact information for the new owner (including name, address, phone number and email) shall be provided to NHDES within 30 days of the transfer.
- E-9. **NHDES Water Use Registration and Reporting:** The Applicant shall register, measure, and report all withdrawals and discharges with the NHDES Water Use Registration and Reporting program (WURRP) in accordance with RSA 488:3 and its supporting regulations in Env-Wq 2102 and submit, if necessary,

a water conservation plan in accordance with Env-Wq 2101.24.

(For an explanation and citations, see Finding D-35.)

E-10. **Flow / Impoundment Management:** The following requirements (items a. through e.) may be temporarily modified if required by operating emergencies beyond the control of the Applicant and/or as specified below.

a. **Instantaneous Run-of-River Flow:** The Applicant shall operate the Activity in an instantaneous run-of-river mode whereby inflow to the Project equals outflow from the Project at all times and water levels above the dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Applicant or for short periods upon mutual agreement between NHDES, the New Hampshire Fish and Game Department (NHFGD), the U.S. Fish and Wildlife Service (USFWS), the Maine Department of Environmental Protection (MEDEP), the Maine Department of Marine Resources (MDMR) and the Maine Department of Inland Fisheries and Wildlife (MEDIFW).

(For an explanation and citations, see Finding D-37.)

b. **Bypass Reach Conservation Flows:** The Applicant shall comply with the following bypass reach conservation flow requirements (items 1-7).

1. Bypass reach conservation flows and the manner in which flows are released to the bypass reach, shall be determined by the USFWS in accordance with the USFWS's fish passage design guidelines²¹, and after consultation with the NHDES, NHFGD, MEDEP, MEDMR and MEDIFW.
2. The method and supporting information for passing the bypass conservation flows into the bypass reach, including any future modifications, shall be included in the Flow / Impoundment Compliance Monitoring Plan (Condition E-12).
3. When the Project is not generating power prior to implementation of downstream fish passage facilities, 100 percent of inflow shall be released over the spillway and into the bypass reach.
4. When the Project is not generating power after implementation of downstream fish passage facilities, 100 percent of inflow shall be released to the bypass reach. The manner the inflow is released to they bypass reach (i.e., the amount of inflow over the spillway, through the downstream passage facilities, and/or through volitional upstream passage facilities) shall be determined in accordance with item 1 above.
5. When the Project is generating power from July 16 through April 14, a continuous conservation flow of at least 35 cfs or inflow, whichever is less, shall be released to the bypass reach.
6. When the Project is generating power from April 15 through July 15, prior to implementation of volitional upstream alosine passage at the Project, a continuous conservation flow of at least 35 cfs or inflow, whichever is less, shall be released to the bypass reach.
7. When the Project is generating power from April 15 through July 15, after implementation of volitional upstream alosine passage at the Project, the bypass reach flow and the manner it is released to the bypass reach, shall be in accordance with item 1 above.

(For an explanation and citations, see Finding D-41.)

²¹ USFWS (U.S. Fish and Wildlife Service). 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley, Massachusetts. 135 pages + Appendices.

- c. **Impoundment Water Level:** The target impoundment water elevation shall be the top of the 15-inch flashboards (elevation 71.25 feet NGVD 29) plus any additional elevation required to pass the bypass reach conservation flows. The Applicant shall minimize the magnitude and frequency of fluctuations in the impoundment to the maximum extent practicable and shall not draw the water level in the impoundment down for the purpose of generating power. This requirement may be modified upon mutual agreement between NHDES, NHFGD, USFWS, MEDEP, MDMR and MEDIFW.

(For an explanation and citations, see Finding D-38.)

- d. **Impoundment Refill:** When refilling the impoundment after drawdown for maintenance or emergencies, the Applicant shall release 90 percent of the inflow downstream to the Salmon Falls River and utilize the remaining 10% of inflow to refill the impoundment. This refill procedure may be modified upon mutual agreement between NHDES, NHFGD, USFWS, MEDEP, MDMR and MEDIFW.

(For an explanation and citations, see Finding D-39.)

- e. **Drawdown Procedure for Scheduled Maintenance:** When drawing the water level in the impoundment down for scheduled maintenance, the Applicant shall lower the impoundment water level no more than six (6) inches per day. This drawdown procedure may be modified with prior approval of NHFGD.

(For an explanation and citations, see Finding D-40.)

- E-11. **Flow/Impoundment – Notification and Annual Report:** The Applicant shall comply with the following notification and reporting requirements:

- a. If the Activity causes a deviation from the flow/ impoundment management requirements in Condition E-10, the Applicant shall notify NHDES, NHFGD, USFWS, MEDEP and MEDIFW no later than 24 hours after each such incident. The notification shall include, to the extent known, an explanation as to why the deviations occurred, a description of corrective actions taken, and how long it will take until operations will comply with Condition E-10.
- b. Within 45 days after each incident, the Applicant shall submit a report to NHDES, NHFGD, USFWS, MEDEP, MDMR and MEDIFW that contains, to the extent possible, the cause, severity and duration of the incident, any observed or reported adverse environmental impacts from the incident, pertinent data and a description of corrective measures.
- c. By April 1 of each year (beginning the first April after the date the FERC license is reissued), the Applicant shall submit to NHDES, NHFGD, USFWS, MEDEP, MDMR and MEDIFW a summary report for the previous calendar year with appropriate tables, graphs, text and supporting documentation that demonstrates compliance with the flow/ impoundment management requirements in Condition E-10. Where excursions occurred, the summary shall indicate when the excursion occurred, the duration of the excursion and a description of corrective actions taken to prevent such excursions from reoccurring.

(For an explanation and citations, see Finding D-11)

- E-12. **Flow/Impoundment Compliance Monitoring Plan (FICMP):** Within 120 days of license issuance the Applicant shall develop, file and implement a flow and impoundment level monitoring and compliance

plan (FICMP) that, as a minimum, includes the following:

- a. a description of the level of manual, automatic, on-site and remote operation;
- b. a detailed description of how the Project will be operated under all conditions (i.e., under normal operating conditions as well as during low flow, high flow, maintenance and emergency conditions) to maintain compliance with the flow and impoundment level management requirements in Condition E-10;
- c. a description of how conservation flows will be maintained during scheduled drawdowns and the minimum impoundment level that will pass the conservation flows (including calculations);
- d. a description of the mechanisms and structures (i.e., type, location and accuracy of all flow and impoundment elevation monitoring equipment and gages) to be used for maintaining compliance with operational requirements;
- e. set point elevations for turning turbines on and off ²²;
- f. procedures for maintaining and calibrating monitoring equipment;
- g. rating curves and calculations for all methods of releasing flow downstream (including a working excel spreadsheet if requested by NHDES);
- h. procedures for collecting and recording continuous data (i.e., no less frequent than hourly and preferably every 15 minutes) on inflow, flow releases at the project (conservation flows in the bypass reach, spillage and turbine discharge), and impoundment levels.

The FICMP, including any proposed revisions, shall be developed in consultation with NHDES, NHFGD, USFWS, MEDEP, MDMR and MEDIFW, and shall be subject to NHDES review and approval. The FICMP shall be kept up-to-date so that it reflects current operation. The Applicant shall implement the approved FICMP.

(For an explanation and citations, see Finding D-11 and D-42.)

- E-13. **Fish Passage:** The Applicant shall comply with all of section 11 of the USFWS' "Preliminary Prescription for Fishways" ⁷ (Finding D-47), (which includes prescriptions for upstream and downstream passage for anadromous fish and American eel), and any modifications made to the preliminary prescriptions that are acceptable to the USFWS, including, but not limited to, any modifications made to be consistent with the "Settlement Agreement" ¹⁰ by and between the Town of Rollinsford, Green Mountain Power and the U.S. Department of Interior Fish and Wildlife Service (Finding D-48).

(For an explanation and citations, see Findings D-43 through D-49.)

- E-14. **Water Quality Mitigation and Enhancement Plan (WQMEP):** Within 60 days of License issuance by FERC, the Applicant shall consult with NHDES regarding finalization of the draft Water Quality Mitigation and Enhancement Plan (WQMEP) received by NHDES on March 22, 2021 to implement and monitor the effectiveness of measures to improve water quality in the Salmon Falls River during low flow. The NHDES approved plan shall then be implemented.

(For an explanation and citations, Facts C-2 and C-7, and Findings D-11 and D-33.)

- E-15. **Long Term Water Quality Monitoring and Reporting:** Unless otherwise authorized by NHDES, the Applicant shall conduct water quality monitoring in the Salmon Falls River every five years beginning the fifth year after the FERC license for the Project is reissued, and ending five years prior to the

²² Set point elevations for providing conservation flows should account for the accuracy of the pond level sensor equipment. For example, if the accuracy is +/- 0.01 feet, the sensor should be set 0.01 feet above the elevation determined to provide the conservation flow in order to assure that the conservation flow will be provided at all times.

expiration of the reissued license. Should monitoring be conducted within the first five years after the FERC license for the Project is reissued, the Applicant may submit a written request to NHDES to delay the start date for long term monitoring under this Condition and shall comply with NHDES' written decision on the request. The purpose of the monitoring is to 1) determine the future effects of Project operation during the duration of the reissued license, both spatially and temporally (in terms of flow, impoundment elevation and power generation) on water temperature and dissolved oxygen (mg/L and percent saturation), 2) to compare results to New Hampshire surface water quality standards, and 3) to determine if additional changes in Project operation are necessary to comply with surface water quality standards.

At least 90 days prior to monitoring in each year monitoring is conducted, the Applicant shall submit a monitoring and reporting plan to NHDES for review and approval that describes, in detail, how, when and where monitoring will be conducted and results reported. The Applicant shall then implement the NHDES approved plan. Unless otherwise authorized by NHDES, the plan shall specify that monitoring that year shall last for at least five weeks and include periods of relatively low flows and high temperatures as well as times when the Project is, and is not, generating. Continuous (i.e., every 15 minutes) monitoring of temperature and dissolved oxygen (mg/L and percent saturation) shall be conducted at the deep spot of the Project impoundment, the Project tailrace and the Project bypass reach and vertical profiles for temperature and dissolved oxygen shall be conducted each week at the deep spot of the impoundment. Continuous (i.e., every 15 minutes) estimates of impoundment elevation, inflow, tailrace flow, bypass reach flow and generation shall also be provided.

By December 31st of each year that monitoring is conducted, the Applicant shall submit a report and supplemental information that clearly demonstrates via text, tables and plots, the spatial and temporal effect of project operation (in terms of inflow and flow in the bypass reach and tailrace, impoundment elevation and power generation) on surface water quality and if New Hampshire surface water quality standards are met. Results of quality assurance/quality control checks (calibration, hand-held meter checks, duplicates, etc.) and identification of any deviations from the monitoring and reporting plan shall be clearly identified. In addition to the report, water quality (including uncorrected and any corrected data), continuous impoundment elevation, and continuous flow data (including calculations) should be provided in a working MS Excel workbook or other database acceptable to NHDES. The Applicant shall also enter all data into the NHDES Environmental Monitoring Database (EMD) within 120 days of when monitoring is completed in each year monitoring is conducted.

Should monitoring indicate that water quality standard exceedances persist, the Applicant shall consult with NHDES regarding changes to Project operation to improve water quality, and then implement the NHDES approved revisions to Project operation. Any NHDES approved changes to Project operation shall be included in the Flow/Impoundment Compliance Monitoring Plan (Condition E-12) and submitted to NHDES for approval within 60 days of learning that revisions are necessary.

(For an explanation and citations, see Facts C-2 and C-7 C-3and Findings D-11, D-33 and D-34)

F. Enforcement

Certification conditions are subject to enforcement mechanisms available to the federal licensing or permitting agency and to the state of New Hampshire.

G. Appeals

Any person aggrieved by this decision may appeal to the N.H. Water Council (“Council”) by filing an appeal that meets the requirements specified in RSA 21-O:14 and the rules adopted by the Council, Env-WC 100-200. The appeal must be filed directly with the Council within 30 days of the date of this decision and must set forth fully every ground upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council. Information about the Council, including a link to the Council’s rules, is available on the [New Hampshire Environmental Council website](#) (or more directly at the [Water Council page](#)). Copies of the rules also are available from the NHDES Public Information Center at (603) 271-2975.

If you have questions regarding this certification, please contact Gregg Comstock at (603) 271-2983 or william.g.comstock@des.nh.gov .

H. Signature

Approved electronically by email (see Attachment A of this Certification)


Rene J. Pelletier, P.E., Assistant Director
NHDES Water Division

Attachments: Attachment A: email from NHDES Water Division Assistant Director approving the certification


cc via email:


Bill Connolly, FERC	David Simmons, USFWS
Dennis Knowles, Chairman, Select Board, Rollinsford, NH	Julianne Rosset, USFWS
John Greenan, Green Mountain Power Corporation	Bjorn Lake, NOAA-NMFS
John Kareckas, Chair, Town Council, South Berwick, ME	Kathy Howatt, MEDEP
Carol Henderson, NHFGD	John Perry, MEDIFWA

ATTACHMENT A
Email from Rene J. Pelletier, Assistant Director, NHDES Water Division
Approving WQC #2021-FERC-001

 Pelletier, Rene | Comstock, Gregg; Diers, Ted ▾ 9:40 AM

Re: Approval requested today for Water Quality Certification for Rollinsford Hydroele...

 You replied to this message on 6/10/2021 10:34 AM. ▾



Gregg I approve the attached Rollinsford Hydroelectric Water Quality Certification

From: Comstock, Gregg <WILLIAM.G.COMSTOCK@des.nh.gov>
Sent: Thursday, June 10, 2021 8:05:57 AM
To: Pelletier, Rene <RENE.J.PELLETIER@des.nh.gov>
Cc: Diers, Ted <THEODORE.E.DIERS@des.nh.gov>
Subject: Approval requested today for Water Quality Certification for Rollinsford Hydroelectric Project.

Rene,

Water Quality Certification ([WQC 2021-FERC-001](#)) for the Rollinsford Hydroelectric Project on the Salmon Falls River, which is seeking a new license from the Federal Energy Regulatory Commission (FERC), is ready for your review and approval. Please send me an email today indicating your approval, which I will attach at the end of the WQC.

Thank you Rene.
Gregg

Gregg Comstock, P.E.
Supervisor, Water Quality Planning Section
Watershed Management Bureau
Water Division, NH Department of Environmental Services
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
Email: gregg.comstock@des.nh.gov