APPLICATION FOR WATER QUALITY CERTIFICATION

Water Division
Water Quality Certification Program

RSA: 485-A:12

Date of Request 19 April, 2024
Date Request Received by NHDES _____

I. Applicant Information

Principal Place of Business of the Applicant Great River Hydro, LLC	
Mailing Address [Street, PO Box, RR, etc.] 69 Milk Street; Suite 306	
City/Town and Zip Code Westborough, MA 01581	
Telephone No. 603-498-2851	Email Address jragonese@greatriverhydro.com
Name and Title of Signatory Official Responsible for the Activity for which Certification is Sought (e.g., President, Administrator) John L. Ragonese, FERC License Manager	

II. Project Information

Name of Project Vernon Hydroelectric Project, FERC No. 1904
Name of Town and County that contains the Project New Hampshire: Hinsdale, Cheshire County Vermont: Vernon, Windham County
Name of Receiving Waterbody and Drainage Basin Connecticut River, Connecticut River Drainage Basin
Summary of Activity (e.g., construction, operation, or other practice or action) The Applicant has filed with the Federal Energy Regulatory Commission Amended Applications for New License for Major Project - Existing Dam for the existing Wilder Hydroelectric Project. Additional information is provided in the attached narrative.

III. Additional Submittal Information

PLEASE SUBMIT AS MUCH INFORMATION AS POSSIBLE IN ELECTRONIC FORMAT

phone (603) 271-2457
fax (603) 271-7894
PO Box 95, Concord, NH 03302-0095
www.des.nh.gov

Please provide an individual response to each bullet, below. If applicable information is contained in the application materials, please provide a reference to the specific section in the application materials that will represent the response to the individual bullets below.

- Type of activity (e.g., construction, operation, other action such as water withdrawal) and the start and end dates of the activity.
- The characteristics of the activity: Whether the activity is associated with a discharge and/or water withdrawal and whether the discharge and/or withdrawal is proposed or occurring.
- The characteristics of the discharge and/or withdrawal
    - Flow rate (cfs)
    - Potential chemical, physical, biological constituents
    - Frequency (e.g., daily, hourly,)
    - Duration
    - Temperature (Celsius)
    - Latitude and longitude (dd:mm:ss)

- The existing and designated use(s) that are potentially affected by the proposed activities. (Designated Uses are listed in the NHDES Consolidated Assessment and Listing Methodology).
- The provision(s) of surface water quality standards (Env-Wq 1700) that are applicable to the designated uses affected by the proposed activities.
- A pollutant loading analysis to show the difference between predevelopment and post-development pollutant loads for a typical year. The objective of the loading analysis is to show post-development pollutant loads do not exceed pre-development pollutant loads. Loading analysis guidance and a simple spreadsheet model will be provided by NHDES. The loading analysis will be used to determine appropriate stormwater management measures, which must be effectively designed, installed, and maintained to ensure compliance with surface water quality standards.
- A description of any other aspect of associated with construction and operation of the activity that would affect the chemical composition, temperature, flow, or physical aquatic habitat of the surface water.
- An original or color copy/reproduction of a United States Geological Survey Quadrangle Map that clearly shows the location of the activity and all potential discharge points.
- A copy of the final complete federal permit application or federal license application, including the federal permit, license, or project number.
- A copy of the NHDES wetlands permit (RSA 482-A:3), if necessary.
- A copy of the NHDES alteration of terrain permit (RSA 485-A:17), if necessary.
- The name(s) and address(es) of adjoining riparian or littoral abutters.
- A plan showing the proposed activities to scale including:
    - The location(s) and boundaries of the activities;
    - The location(s), dimension(s), and type(s) of any existing and/or proposed structures; and
    - The location(s), name(s), identification number(s), and extent of all potentially affected surface water bodies, including wetlands.
- For projects that involve a new surface water withdrawal, provide the following:

- a copy of the water conservation plan (WCP) submitted to the NHDES Water Conservation Program and the status of NHDES approval, or
- a copy of a waiver approved by the NHDES Water Conservation Program that waives the requirement to submit a WCP prior to or in conjunction with the application for water quality certification.

[Pursuant to Env-Wq 2101, and unless a waiver is applied for and granted by NHDES, all applicants for water quality certification are required to submit a water conservation plan (WCP) for projects that involve a new withdrawal from a surface water prior to or in conjunction with this application. Contact the NHDES Water Conservation Program for guidance related to drafting a WCP and the review and approval process. Information regarding the WCP, including contact information, may be found at NHDES' Water Conservation website.

- If the project is located within ¼ (one quarter) mile of a designated river, as defined under RSA 483 (the Rivers Management and Protection Act), provide documentation showing that the Local River Management Advisory Committee (LAC) has been provided with a copy of this complete application. A list and map of the designated rivers, as well as contact information, may be found at NHDES' Designated Rivers website.

Signature – MUST BE SIGNED AND DATED BY APPLICANT

To the best of my knowledge, the data and information described above, which I have submitted to the New Hampshire Department of Environmental Services, is true and correct. I understand that an approval of the requested water quality certification based upon incorrect data may be subject to revocation of the certification. I have complied with all local regulations or ordinances relative to the proposed activity and have obtained or will obtain, prior to the commencement of any work, all other approvals that may be required.

Signed: John Ragonese

Date: April 19, 2024

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1.0 Type of activity (e.g., construction, operation, other action such as water withdrawal) and the start and end dates of the activity.

The proposed activity consists of continued operation of the existing Vernon Hydroelectric Project (Project) in accordance with the amended Vernon Final License Application (Vernon FLA) submitted to Federal Energy Regulatory Commission (FERC or the Commission) on December 7, 2020[1], with a further revised composite Exhibit E for Wilder, Bellows Falls and Vernon Projects (Exhibit E) filed on June 7, 2023[2]. The Great River Hydro (GRH) proposal, as outlined in the Vernon FLA Exhibit B (Exhibit B) reflects the proposed operation in accordance with a Memorandum of Understanding (MOU) executed on December 1, 2020[3] between Great River Hydro, the Project certifying authorities (including NHDES), and other participating stakeholders. The MOU includes an Exhibit A "Great River Hydro's Proposed Alternative Operation for the Projects" that is the basis of the proposed Project operation in the Vernon FLA. The Vernon FLA also included a proposed set of fish passage environmental measures that have since been incorporated into a Settlement Agreement on Fish Passage (SAFP) executed by New Hampshire Fish and Game Department among other state and federal agencies and filed with the Commission on August 2, 2022[4]. This Water Quality Certificate application presents information collected and presented in the Exhibit E and assumes future operations consistent with the Vernon FLA, MOU and SAFP. Exhibit E provides a full description of the proposed Project activity and is summarized below. Additional supporting information is provided in the ILP Water Quality Study 6 Updated Study Report dated 12-15-2016[5] and ILP Fish Assemblage Study 10 Report dated 08-01-2016[6].

Project Description

The Vernon Project dam and powerhouse are located on the Connecticut River at river mile (RM) 141.9, approximately 2 mile upstream of the Ashuelot River confluence and 7.4 miles downstream of the West River, in the town of Vernon, Vermont, and in the town of Hinsdale, New Hampshire. The Project

[1] Accession Nos. 20201207-5219 (Public), - 5220 (Privileged);-5221 (CEII); Amended Final License Applications of Great River Hydro, LLC for Bellows Falls Project, et. al. under P-1855 et. al.

[2] Accession No. 20230608-5103 Great River Hydro, LLC submits Revised Final License Application and Exhibits for the Bellows Falls Hydroelectric Project et. al. under P-1855 et. al. Includes composite Exhibit E for Wilder, Bellows Falls and Vernon Projects revised 06-07-2023.

[3] Memorandum of Understanding between Great River Hydro and the United States Fish and Wildlife Service, the New Hampshire Department of Environmental Services, the New Hampshire Fish and Game Department, the Vermont Department of Environmental Conservation, the Vermont Department of Fish and Wildlife, The Nature Conservancy, and the Connecticut River Conservancy; filed with Vernon Project FLA Exhibit B of Amended Final License Applications of Great River Hydro, LLC for Bellows Falls Project, et. al. under P-1855 et. al. Accession Nos. 20201207-5219 (Public),

[4] Accession No. 20220803-5124 Great River Hydro, LLC submits Offer of Settlement between Great River Hydro, LLC and the U.S. Department of Interior et. al, and Revisions to Exhibit D Documents for the Vernon Hydroelectric Project et, al. under P-1855, et. al.

[5] Accession No. 20161215-5280 ILP Study Reports 6, 25 and 30, final reports and supplements, TransCanada Hydro Northeast Inc. under P-1892, et al filed December 15, 2016

[6] Accession No. 20160801-5232 TransCanada Hydro Northeast Inc. August 1, 2016 Updated Study Report under P-1855, et. al.

consists of a concrete gravity dam; an approximately 26-mile long impoundment; a powerhouse, storage/maintenance building and yard; fish passage facilities; and appurtenant facilities.

The dam is a composite overflow and non-overflow ogee-type, concrete gravity structure extending across the Connecticut River from Vernon, Vermont, to Hinsdale, New Hampshire. The dam is 956 ft long with a maximum height of about 58 ft. It consists of the integral powerhouse with a sluice gate block section that is about 356 ft long and a concrete overflow spillway section about 600 ft long. The spillway portion of the dam is divided into 12 bays containing, from west to east, a trash/ice sluice, 4 tainter gates, 2 hydraulic flashboard bays, 3 stanchion bays, and 2 tainter gates. In addition, 8 submerged hydraulic flood gates (6 functional) are located below the ogee spillway and the 10-ft by 50-ft tainter gates. The various bays are separated by concrete piers supporting a steel and concrete bridge that runs the length of the dam for access and for operation of flashboards. The trash sluice is a skimmer gate that passes logs and other debris deflected away from the powerhouse by a log and ice boom in the powerhouse forebay

The Project impoundment extends upstream about 26 miles to the Route 123 Bridge at Westminster Station, Vermont. The Project has limited storage capacity because of the relatively flat terrain from the upper extent of the Project impoundment to the dam. The impoundment has a surface area of 2,550 acres and about 69 miles of shoreline and a total volume of 40,000 acre-feet (acre-ft) at elevation (El.) 220.13 ft at the top of the stanchion boards. Maximum drawdown to the spillway crest (at El. 212.13 ft) if hydraulic and stanchion flashboards are lowered or removed under high flows, equates to a maximum usable storage capacity of 18,300 acre-ft. The impoundment operating range depends on the proposed modes of operation: Inflow Equals Outflow (IEO); Flexible Operation, including Transitional operations; Emergency and System Operation modes; High Water Operations. The proposed operation is described below and detailed in the Vernon FLA Exhibit B “Project Operations and Resource Utilization” and the MOU.

The powerhouse contains 10 turbine generating units. Unit Nos. 1-4 are single runner vertical Francis units each with a maximum hydraulic capacity of 1,465 cfs and minimum hydraulic capacity of 400 cfs. Nameplate capacity for Unit Nos. 1-4 is 2,500 kilovolt-amperes (kVA) at 0.8 power factor, or 2,000 kilowatts (kW) for each unit. Unit Nos. 5-8 are vertical axial flow Kaplan units each with a maximum hydraulic capacity of 1,800 cfs and minimum hydraulic capacity of 300 cfs. Nameplate capacity for Unit Nos. 5-8 is 5,000 kVA at 0.9 power factor, or 4,000 kW for each unit. Unit Nos. 9 and 10 are single runner vertical Francis units each with a maximum hydraulic capacity of 2,035 cfs and minimum hydraulic capacity of 500 cfs. Nameplate capacity for Unit Nos. 9 and 10 is 6,000 kVA at 0.7 power factor, or 4,200 kW for each unit.

At full load, with inflow equaling a maximum station discharge of at least 15,400 cfs, the Project has the capability of producing 32.0 megawatts (MW) and the 9-year average annual generation, accounting for 2008 as first full year of re-developed Units 5-8 operation (2008–2016), was approximately 162,557 MWh.

The Project also includes an upstream fish passage ladder and downstream fish passage through a “fish pipe” that discharges through the powerhouse and a secondary smaller “fish bypass” at the Vermont end of the powerhouse, and recreation facilities including a boat launch, portage, picnic areas, hiking

trail, fish ladder viewing area, and fishing access. Plans and schedules for additional upstream and downstream passage enhancements are detailed in the SAFP.

Proposed Operations

Great River Hydro, with support from relevant state and federal resource agencies, and regional and national non-governmental organizations that have actively participated in scoping and study phases of relicensing, proposes a modified Project operation (proposed operation) that significantly reduces both the frequency, amplitude and rate of change in Project-related discharge and impoundment water surface fluctuation in comparison to the current operation. The proposed operation is detailed in the Vernon FLA Exhibit B "Project Operations and Resource Utilization" and the MOU.

The proposed operation focuses on creating more stable reservoir water surface elevations, reducing the magnitude of changes and the frequency of sub-daily changes in discharge from the Project, increasing the amount of time that the Project is operated as inflow equals outflow and at full reservoir. At the same time, the proposed operation maintains Great River Hydro's capability to be flexible and responsive to current wholesale energy, forward capacity, reserve, and other ancillary services markets managed by the New England Independent System Operator (ISO-NE). The proposed operation will also remain responsive to ISO-NE system emergencies when ISO-NE requires operation for reserves, security, system stability (e.g., VAR support), system over-supply conditions (ISO-NE minimum generation emergency or negative prices), and critical events or emergencies involving dam and public safety. The proposed operation ensures the Project's ability to address future regional energy demands and system needs as those evolve over time.

The proposed operation will predominantly maintain a specified water surface elevation (Target WSE) at the dam and, as a result, maintain flow below the Project equal to the approximate inflow as measured or calculated at the dam (inflow equals outflow or IEO). Specifically, a Target WSE of 219.63 ft m.s.l. (NVGD 29) will be maintained at the Vernon dam by passing inflow within a Target WSE Bandwidth between 220.13 ft and 219.13 ft to account for potential differences between anticipated inflow and actual instantaneous inflow. In addition to IEO Operation, the Project will have restricted discretionary Flexible Operation capability to respond to elevated energy prices as well as unrestricted capability to respond to emergencies and ISO-NE transmission and power system requirements. The proposed operation is described in detail in Attachment A of the MOU, and evidence of stakeholder support is provided in Attachment B of the MOU. Elements associated with the proposed operation including modes of operation, capabilities, restrictions, requirements and allowances are defined and described below.

The Project will comply with an Inflow Equals Outflow (IEO) operating condition, as described in the Vernon FLA and MOU, applying Target WSE and associated Target WSE Bandwidths as described below, unless:

- Flexible Operation along with Transition Operation are applied and implemented;
- IEO Operation is suspended due to either High Water Operation, or Emergency and System Operation Requirements; or
- IEO Operation is suspended due to non-emergency maintenance requirements that mandate deviating from IEO Operation, but only after consultation with relevant state and federal

resource agencies prior to initiating a necessary deviation and developing a suitable refill plan and schedule.

Target WSE for the Project is 219.63 ft and the corresponding Target WSE bandwidth is between 219.13 and 220.13 ft, representing 0.5 ft above and below the Target WSE. Rates of change in station discharge to maintain a Target WSE (matching inflow with outflow) will be limited to reasonable changes necessary to continue or adjust the actual WSE to the Target WSE within the Target WSE Bandwidth.

Flexible Operations , when the Project is operated at the discretion of GRH and deviates from IEO Operation, are limited, in part, by maximum allowable Flexible Operations hours specified below, which are allocated on a monthly basis in order to reflect the seasonal criticality of instream aquatic resources as well as the criticality and fuel security concerns associated with winter peaking loads in New England.

- December, January, February, March: no more than 65 hours in each month.
- April, May, June: no more than 10 hours in each month.
- July: A total of 20 hours with no more than 10 hours from July 1 through July 15. Although a maximum of 10 hours is allowed from July 1 through July 15, in order to further enhance the potential for successful Sea Lamprey spawning, Great River Hydro will strive to minimize the hours of Flexible Operation during this period when conditions allow.
- August, September, October: a total of no more than 20 hours in each month.
- November: a total of 42 hours with no more than 10 hours from November 1 through 15.

Flexible Operations will comply with the Flexible Operations Impoundment Range, which is between 218.3 and 219.63 ft, and will be in accordance with Flexible Operations Operation Hours requirements.

Flexible Operations Maximum Discharge will be based upon the calculated inflow as follows:

- When calculated inflow is approximately 1,800 cfs or less, Flexible Operation Maximum Discharge is 4,500 cfs;
- When calculated inflow is greater than approximately 1,800 cfs, the Flexible Operation Maximum Discharge is limited to 2.5 times the calculated inflow and will not exceed the Vernon Maximum Station Generating Capacity of 15,400 cfs.

There are no limitations on the number of Flexible Operation events per day or the duration of Flexible Operation events other than those indirect limitations due to Inflow and Transition Operation requirements as specified in the Vernon FLA and MOU.

Scheduled Flexible Operation will require one hour of Transition Operation up-ramping (i.e. gradual flow increase from IEO Operation to Flexible Operation). Unscheduled (in response to Real-Time price signals) Flexible Operation, and Emergency and System Operation Requirements will not require up-ramping.

All Flexible Operation events will require Transition Operation down-ramping (i.e. gradual flow decrease from Flexible Operation to IEO Operation) and refill (i.e. to restore stable Target WSE) as defined in the Vernon FLA and MOU. The Transition Operation modes will be applied as follows:

	Up-Ramping	Down-Ramping	Refill
IEO Operations	Not Applied	Not Applied	Not Applied

Flexible Operations, Scheduled	Applied during the hour prior	Applied as Defined	Applied as Defined
Flexible Operations, Un-scheduled	Not Applied	Applied as Defined	Applied as Defined
High Water Operations	Not Applied	Not Applied	Not Applied
Claimed Capacity Audits and Reactive Power Demonstrations	Not Applied	Applied as Defined	Applied as Defined
Emergencies and System Emergencies	Not Applied	Not Applied	Not Applied

Start and End Dates of the Activity

The Project is currently operating under the terms and conditions of the most recent FERC License originally issued on June 25, 1979, as amended, and expired on April 30, 2019. Since the expiration of the present license in 2019, FERC has issued from year-to-year an annual license under the terms and conditions of the present license until a new license is issued, or the Project is otherwise disposed of. Great River Hydro is seeking a new 40-year license as outlined in its Vernon FLA. The start of the proposed activity will be the date of license Issuance and the 40-year term typically is based upon the last day of the month in which the license is issued by the FERC.

2. The characteristics of the activity: Whether the activity is associated with a discharge and/or water withdrawal and whether the discharge and/or withdrawal is proposed or occurring

The activity is a proposed modified continuation of hydroelectric power generation operations at the Vernon Project under a 40-year Federal License and consists of maintenance of a target water surface elevation in the Project impoundment, direction of flows through the ten generating units in the powerhouse, and regulation of outflows through various flow control structures within the spillway as well as upstream and downstream fish passage structures in accordance with the proposed operation in the Vernon FLA, MOU, and SAFP. The powerhouse is integrated with the dam and there is no bypassed reach downstream of the dam. Current and proposed water withdrawals and discharges are limited to non-consumptive flow through the powerhouse and passage of river flow. The proposed operation for the Project will predominately consist of run-of-river operation, where inflow equals outflow for the majority of time and minimal water surface elevation fluctuations; both of which will reduce the degree of sub-daily discharge fluctuation that occurs under current operation. Under the relicensing proceeding or associated with this WQC application, there are no immediate proposed construction activities or other activities that require water withdrawals or discharges outside of the proposed operation presented in the Vernon FLA and MOU.

3. The Characteristics of the Discharge and/or Withdrawal: a) Flow Rate; b) Potential Chemical, Physical, Biological Constituents; c) Frequency (e.g. daily, hourly); d) Duration; e) Temperature (Celsius); f) Latitude and Longitude

The withdrawals and discharges associated with the proposed operation consist of passing flows in the Connecticut River at Vernon Dam through the Vernon station or powerhouse and discharging into the tailrace at the base of the station. The remaining river flow in excess of powerhouse capacity are passed instantaneously through spillway structures and as needed through fish passage structures.

Flows in the Connecticut River equal to or less than station capacity (i.e. flows used for hydroelectric power production) are passed through the gravity concrete intake structures on the upstream face of the powerhouse directly into the scroll or wheel cases, through the turbine(s), discharging through draft tubes cast in the concrete foundation, into the tailrace area on the downstream side of the Vernon powerhouse. The powerhouse intake facilities consist of two water passages for units No. 9 and No. 10 and a single water passage for No. 1 – No. 8. The water passages for Units No. 9 and No. 10 have trash racks (3.625 inch clear spacing) and head gates consisting of two concrete gates. Units No. 1 – No. 8 have a trash rack clear spacing of 1.75 inches. Units No. 1 – No. 4 head gates consist of a single steel-hinge gate, one for each unit. Units No. 5 – No. 8 have one steel slide gate for each unit equipped with an electrically driven fixed hoist. The intake invert elevation for Units No. 1 - No. 4 is approximately 189.13 ft; Units No. 5 – No. 8 is 190.15 ft, and Units No. 9 and No. 10 is 191.13, which equates to about 30.5 ft, 29.5 ft, and 28.5 ft respectively below the Target WSE for the proposed operation. The tailrace area is located immediately south of the Vernon powerhouse, which spans approximately the western third of the dam length, is adjacent to the Vermont shoreline and is partly excavated into the bank and the bedrock riverbed (see Figure 2.1-3 in Exhibit E). The tailrace elevation is affected by the discharge from the Vernon Project and the operation of the downstream Northfield Mountain Pumped Storage Project, owned, operated and undergoing relicensing by FirstLight Power Resources.

3.a. Flow Rate (cfs)

Under proposed operation, flow rates below the Project are determined by inflow as measured at the dam, when operating in an inflow equals outflow operation (IEO Operation). In addition to IEO Operation, the Project will have restricted discretionary Flexible Operation capability to respond to elevated energy prices as well as unrestricted capability to respond to emergencies and ISO-NE transmission and power system requirements. During these events, flow rates will exceed inflow for short periods and be lower than inflow during impoundment re-fill periods. While operating in Flexible Operation, preceding Up-ramping and subsequent Down-ramping, flows will be maintained above or equal to inflow. While operating in Transition Refill Operation (item 19.c in the MOU) discharge will be approximately 70% of estimated inflow and adjusted as necessary through hourly real-time monitoring and calculation of estimated inflow. Discharge during refill will not fall below the seasonal Minimum Base Flows, as specified in the MOU, of: Oct 1 through March 31 - 1,600 cfs; April 1 through May 31 - 3,000 cfs; June 1 through Sept 30 - 1,400 cfs. These are not minimum flows nor guaranteed minimum inflows. They represent levels which, for Flexible Operation, planning and decisions would need to consider before initiating such operation. If inflows were low and the required discharge of 70% of

inflow (to refill the impoundment) were below the minimum base flows, the flexible operation should not be initiated. Inflow is not guaranteed to be above these levels but based upon upstream seasonal minimum flow requirements, it is anticipated that inflow would be above these flow rates. When inflow exceeds the station capacity of 17,100 cfs, spillway gates and hydraulic and stanchion flashboards are operated to pass the excess flow. The selection of gates used and procedures for their operation during high flows is determined by the amount of flow and the presence or absence of ice. The proposed operation, including specific flow criteria, are described in Exhibit B of the Vernon FLA and in Exhibit A of the MOU.

3.b. Potential Chemical, Physical, Biological Constituents

Project operations pass Connecticut River flow instantaneously through turbines, flow control structures, or fish passage structures and therefore have limited direct effects on the chemical, physical, or biological constituents in the discharge. The potential effects on water quality are primarily through the hydrologic modification associated with the dam structure/operations and the variable source of outflows – i.e. at depth in the forebay through the turbines or through the spillway gates and other hydraulic controls. The greatest concern for hydroelectric operations on water quality is thermal/chemical stratification in the impoundment which can then be preferentially conveyed downstream via submerged intake structures (Friedl and Wüest, 2002). Therefore, water quality studies for hydroelectric projects tend to be most focused on dissolved oxygen and temperature patterns in the project area. Nutrient cycling in an impoundment is also a concern, particularly phosphorus which is the limiting nutrient in freshwater systems (NHDES, 2020), and therefore phosphorus data and chlorophyll-a data (another trophic state indicator) are typically collected and reviewed for hydroelectric water quality demonstrations (NHDES, 2020).

Water quality studies were completed for the FERC license application for Vernon Project in 2012 and 2015, the scope of which included continuous monitoring of dissolved oxygen (DO), temperature, specific conductance, and pH as well periodic discrete measurements of the same parameters, including vertical profiles in the dam forebay, and collection of samples for laboratory analysis of nutrients and other chemical parameters (including phosphorus and chlorophyll-a). Weak temperature and DO stratification were documented in the Vernon forebay during the 2012 water quality study; however, there were no exceedances of New Hampshire DO standards, as determined from both the continuous monitoring data and the periodic discrete measurements at multiple Vernon stations (Table 3.5-37 in Exhibit E). Likewise, the 2015 study did not document any exceedances of New Hampshire DO standards at the Vernon continuous or discrete monitoring stations, including the 10-day, high-temperature, low-flow monitoring period (Exhibit E Tables 3.5-40, through 3.5-43). The dissolved oxygen and temperature data collected in 2012 and 2015 indicate that thermal/chemical stratification in the Vernon impoundment was uncommon, spatially limited, and there were no exceedances of NH DO standards (Exhibit E pages 3-208 through 3-210).

In both the 2012 and 2015 water quality studies, pH was measured continuously at multiple stations with additional discrete measurements at multiple stations, including as vertical profiles. The NH pH standard for Class B waters is 6.5-8.0 standard pH units, unless due to natural causes. On average, during the 2012 study, pH was within the 6.5-8.0 range at all monitoring stations with few documented exceedances (Exhibit E Table 3.5-37). Over the duration of the 2012 study, pH only exceeded the New

Hampshire upper water quality standard at one station, in the tailrace, for 1.5 hours (range 8.01 to 8.04) on June 21, 2012 (Exhibit E Page 3-225). In the 2015 study, pH levels were generally similar at the forebay and tailrace stations and ranged from 7.3 to 8.05, while at the middle impoundment, upper impoundment, and upstream stations, pH ranged from 7.4 to 8.06. (Exhibit E Tables 3.5-40 through 3.5-43). PH values documented in 2015 were consistent throughout the water column and did not exhibit changes in depth due to stratification. The pH time-series for all stations during the 10-day, high-temperature, low-flow monitoring period showed well-defined diel fluctuations in pH levels at the upstream and upper impoundment stations, and less pronounced or no diel fluctuations in pH at the middle impoundment and forebay stations, respectively (see ILP Study 6).

Water samples were collected from the Vernon forebay and laboratory analyzed for nutrients and chlorophyll-a during the 2012 and 2015 water quality studies. Samples collected in 2012 indicated total phosphorus samples were on average in the eutrophic range of 0.012 mg/L < TP <= 0.028 mg/L with a median value of 0.013 mg/L and chlorophyll-a concentrations fell within the mesotrophic range of 3.3 ug/L <= chlorophyll-a <= 5.0 ug/L with a median concentration of 3.6 ug/L (Exhibit E Table 3.5-44). In 2015, concentrations were similar with total phosphorus samples averaging within the mesotrophic range of 0.008 mg/L <= TP <= 0.012 mg/L with a median value of 0.012 mg/L and chlorophyll-a concentrations within the mesotrophic range with a median concentration of 2.9 ug/L (Exhibit E Table 3.5-45). There were no visual observations of algal blooms during the Vernon water quality studies and it was determined that Project-affected waters were in compliance with state water quality standards for nutrients and designated uses were maintained and supported (Exhibit E Page 3-252).

Water quality data were collected in 2004 by NHDES and EPA and all sites sampled for that study in the Vernon Project area were found to fully support the designated uses of aquatic life and primary and secondary contact recreation (Exhibit E Page 3-143). Additional details of water quality in the vicinity of the Vernon Project and potential Project impacts on water quality are provided in Exhibit E sections 3.5.1.2, 3.5.2.2, 3.5.3.2, and 3.5.4.2.

3.c. Frequency (e.g. daily, hourly)

Flow through the Project is continuous, based primarily on inflow at the dam. During IEO Operation, the rate of flow may fluctuate on an hourly basis based on dispatch schedules derived from predicted inflow or in real-time schedule adjustments made in an effort to match discharge with actual inflow. Adjustment to match inflow could potentially be made less frequently than hourly as long as the Vernon impoundment WSE is within a Target WSE Bandwidth between 220.13 ft and 219.13 ft (NVGD 29). In addition to IEO Operation, the Project will have restricted discretionary Flexible Operation capability to respond to elevated energy prices as well as unrestricted capability to respond to emergencies and ISO-NE transmission and power system requirements. Flexible, Transition, or emergency and system operation as described in the MOU (Appendix B) is also scheduled or performed on an hourly basis.

3.d. Duration

Great River Hydro proposes a modified Project operation, as described in the Vernon FLA and MOU, that will be in effect during all times under a new license. The flows through the powerhouse or dam will be instantaneous, non-consumptive and will not divert out of stream (i.e. form a bypassed reach). Under the proposed operation, flow through the impoundment will largely mirror inflow (upstream inflow into

the Project plus intermediate tributary inflow into the impoundment) except during periods of flexible operation or emergency and system operation. The requirements set forth in the proposed operation will be in effect at all times under a new license.

3.e. Temperature (°C)

Project water temperatures are primarily determined by ambient river and weather conditions with potential for modification by Project operations. Impoundments and hydroelectric operations have the potential to affect water temperature primarily through hydrologic modification of the natural river system, increasing storage volumes and residence times and decreasing turbulence which can lead to longitudinal temperature increases and development of thermal stratification (Friedl and Wüest, 2002).

Water temperatures were measured in the Vernon Project area as part of two water quality studies in 2012 and 2015 and included both continuous measurements and discrete readings, including vertical profiles in the Vernon forebay as described in Sections 3.5.1.2, 3.5.2.2, 3.5.3.2, and 3.5.4.2 of Exhibit E and ILP Study 6. Those studies demonstrated that overall, current Project operations effects on water temperatures were indistinguishable from daily water temperature fluctuations (Exhibit E Pages 3-233 to 3-235, 3-244). Temperature increases of more than 1 degree Fahrenheit (°F, 0.56°C) can occur within the Project area, as was measured during the 2015 study (ILP Study 6), however the cause of temperature rise was equivocal and could be attributed to natural variations. Thermal stratification can occur in the Vernon forebay during an atypical warm year, such as 2012, but stratification documented during that study was intermittent, spatially limited, and short in duration. Downstream temperature effects are likely to be mitigated as tailrace temperatures were found to be slightly cooler than forebay surface temperatures due to entrainment and discharge of cooler hypolimnetic waters. Temperature effects from current Project operations were determined to support and maintain NH designated uses for Class B waters as any increase in temperature from upstream riverine areas to the Project dam will be gradual over the 26 river-mile Project area and variations caused by operations were indistinguishable from daily variations throughout the Project area (Exhibit E Pages 3-233 to 3-235, 3-244).

The Proposed Operation under the new license, which largely mirrors a natural flow regime through and below the Project, will reduce residence time in the impoundment and increase instantaneous base flow in the riverine section below the Project. These flow regime attributes of the proposed operation will reduce the potential for water temperature increases caused by Project operation.

3.f. Latitude and Longitude

The Vernon Powerhouse is located at approximately 42°46'16.88"N, 72°30'51.21"W. The intake structures are located immediately north of the powerhouse and the discharge is located immediately south of the powerhouse. The powerhouse area occupies approximately one third of the river cross section at the Vernon dam on the right bank (Vermont side) of the Connecticut River. The spillway and various hydraulic control structures are located east of the powerhouse spanning the center and left bank two thirds of the river

4. The existing and designated use(s) that are potentially affected by the proposed activities. (Designated Uses are listed in the NHDES Consolidated Assessment and Listing Methodology).

Assessment Units are segments or portions of waterbodies used for reporting the results of all water quality assessments. Five New Hampshire assessment units along the mainstem Connecticut River encompass the Vernon Hydroelectric Project:

- NHRIV801070501-10-02 (CT River from the BF Station to Houghton Brook, NH)
- NHRIV801070502-06 (CT River from Partridge Brook, NH to Houghton Brook, NH)
- NHRIV801070505-10 (CT River from West River, VT - Partridge Brook, NH
- NHIMP801070507-01 (CT River from Vernon Dam to West River, VT)
- NHRIV802010501-05 (CT River from VT Stateline to Vernon Dam

Designated uses in these assessment units are described in the 2014 Section 305(b)/303(d) surface water quality list (NHDES, 2015). Drinking Water After Adequate Treatment is a listed use in all five assessment units, while Aquatic Life, Primary and Secondary Contact Recreation are listed uses in only some. In NHRIV801070505-10, use by Aquatic Life is impaired due to pH exceedance, the cause of which is unknown, while in NHRIV802010501-05, Aquatic Life is marginally and severely impaired because of aluminum and copper concentrations, respectively, and a TMDL is needed. Sufficient information is lacking to determine whether wildlife designated uses are supported in any of these assessment units. See Exhibit E Page 3-137 for detailed discussion of each assessment unit.

The entire portion of the Connecticut River encompassing the assessment units for the Vernon Project is impaired for fish consumption because of mercury from atmospheric deposition. A Northeast-wide TMDL was completed for mercury and approved by EPA in 2007 for the entire Northeastern United States, which includes these New Hampshire assessment units (NEIWPCC, 2007).

Additionally, two tributary assessment units that flow into the Project waters and two assessment units of the Connecticut River within the Project area were identified as impaired or threatened waters for which a TMDL is needed according to the NHDES 303(d) list:

- NHRIV801070503-03, “Partridge Brook” (Tributary entering NHRIV801070505-10)
- NHRIV801070505-10, “Connecticut River, Partridge Brook to West River Confluence”
- NHRIV801070507-01, “Ash Swamp Brook” (Tributary entering NHIMP801070507-01)
- NHRIV802010501-05, “Connecticut River, Downstream of Vernon Dam to MA Border”

These tributaries and sections of the Connecticut River mainstem are listed as unable to support Aquatic Life due to impairments including pH, Fishes bioassessments, Benthic macroinvertebrate bioassessments, Aluminum, and Copper (Exhibit E Table 3.5-10).

Of the designated uses discussed above, Aquatic Life is an existing use within the Project waters that has the greatest potential to be impacted by Project operations. The reaches of the Connecticut River within the Vernon Project area provide aquatic habitat for a variety of fish, freshwater mussels and

macroinvertebrates which depend on suitable habitat for migration, reproduction and rearing. Numerous relicensing studies were conducted to evaluate fisheries resources and survey freshwater mussel populations within the Project area and are discussed in detail in Exhibit E Sections 3.6.1.3, 3.6.1.4, and 3.6.1.5. No fish species present in the Project area are listed as threatened or endangered under the federal ESA, though four species of concern (American Eel, American Shad, Brook Trout, and Sea Lamprey) were found during field work for ILP Study 10 conducted in 2015 (also see Exhibit E Table 3.6-1). Collectively, these sensitive species constituted only 3.1 percent of the total catch in the Vernon Project area in that study (Exhibit E Table 3.6-3). Mussel surveys in 2011 and 2013 found six of the nine freshwater mussel species supported in the Connecticut River watershed in New Hampshire and Vermont within the mainstream and near the mouth of mainstream tributaries (Exhibit E Table 3.6-9).

In general, the proposed operational changes would provide environmental protection through an Inflow equals Outflow (IEO) operation most of the time and discretionary generation for a limited number of hours each mouth (1.4 to 9 percent of the total hours in a month), with fewer hours in April-October period and more in the late fall to early spring months and even fewer instances where operations will address emergency and system needs. This operating protocol will protect critical aquatic resources during the most sensitive periods between April and mid-November while allowing for more operational flexibility during less sensitive winter months when many aquatic resources are dormant (Exhibit E Section 3.3). Under the proposed operation, WSEs in the Project impoundment will exhibit much greater stability and remain at or near the impoundment's Target WSE for 60 percent to over 90 percent of the time in most months (Exhibit E Table 3.3-1, Figure 3.3-1). The proposed operation will also reduce the frequency of WSE fluctuations by 58 to 100 percent (average 79 percent) (Exhibit E Table 3.3-4), and the magnitude of WSE changes during Flexible Operations flows is expected to be less than 0.4 ft in most months (average 0.23 ft) (Exhibit E Table 3.3-2, Figure 3.3-2). Additionally, the proposed operation will result in flows close to or equal to naturally occurring flow through the Project (Exhibit E Figure 3.3-3 and Figure 3.3-4).

The proposed operations will reduce the frequency and magnitude of WSE fluctuations in the impoundment backwater habitats, which will significantly support spawning and rearing environments. An increase in the base flow levels and reduction in frequency, occurrence and amount of change in flow, support wetted habitat protection of gravel and cobble-bars in the riverine reaches of the Project areas and provide a stable environment for riverine species. In particular, the proposed flow regime is expected to support spawning success and utilization of shallow shoal habitats. The higher base flow and Transitional Operation of up-ramping and down-ramping preceding and following Flexible Operation will provide consistent habitat for mussel recruitment and protect against stranding of mussels and other less mobile species, including small fish fry. Reduction in frequency, occurrence, and amount of change in flow, will also reduce the potential for nest scour or abandonment due to high velocities, reduce displacement of newly emerged fry of many species and provide extended periods of more stable flow for nest construction (Exhibit E Section 3.6.2.1).

The proposed operations will not affect the capability to operate structures allowing for fish passage (Exhibit E Sections 3.6.2.6 through 3.6.2.8). Additionally, Great River Hydro proposes to improve and enhance fish passage through the Project. Under the terms of the SAFP the ladder shall be opened on April 1 (if conditions allow), providing opportunities for spring spawners such as Walleye and White

Sucker to utilize the fish ladder. Monitoring of fish ladder use by eels, an eel PIT study of in-ladder movement, fish ladder engineering assessment, and an eel survey below the powerhouse and spillway will lead to the design, installation and operation of permanent upstream eel passage at the Project. Studies will be conducted upstream of the dam to support development of downstream eel passage as well as improving downstream passage for juvenile and adult American Shad. Design, construction, operation and evaluation of downstream eel passage will be undertaken under the new License as stipulated in the SAFP. The proposed operation will provide a higher base flow, far fewer instances of high-peak flow, and a significantly reduced range and pace of flow fluctuation, all of which should generally improve conditions for migratory species including American Shad, American Eel and Sea Lamprey. Water residency time will be reduced, allowing for improved downstream migration in terms of reduced transit times through the reservoir and subsequent improved fitness.

Despite the absence of data supporting Primary and Secondary Contact Recreation, existing in-stream recreational use, particularly power boating, paddle boating (both local and through-paddlers), and fishing is prevalent throughout the Connecticut River within or affected by the Vernon Project. Under Great River Hydro's proposal, current access to the river within the Project Boundary will be maintained or enhanced through capital improvements to the boat launches, improved portage/boat transport support, and general recreation area access and parking. The proposed operation will result in higher base flow conditions in the river that will more closely resemble natural flows enhancing river paddling conditions while at the same time providing for stable impoundment water surface elevations that support the continuation of power boating, flat water canoeing and rowing. Fishing conditions and opportunities are anticipated to continue or improve under the proposed operation.

Anticipated and actual flow and discharge information below Vernon Project will continue to be made available to the general public to inform recreation use.

5. The provision(s) of surface water quality standards (Env-Wq 1700) that are applicable to the designated uses affected by the proposed activities.

It is anticipated that the provisions of the surface water quality standards that are applicable to the designated uses that could potentially be affected (Aquatic Life) are Env-Wq 1703.13 Temperature, Env-Wq 1703.07 Dissolved oxygen (DO), 1703.18 pH, 1703.11 Turbidity, and 1703.14 Nutrients. Given that the Project is an existing project and there is no proposed new or increased discharge, or other change in operations that would reasonably be expected to result in increased loading of any pollutant, the NH antidegradation rules (Env-Wq 1708) do not apply to this activity.

ILP Study 6, *Water Quality Study*, was conducted to assess water quality within the Project waters under current operational conditions (Exhibit E Section 3.5.1.2) and the potential water quality effects due to the Project are discussed in Exhibit E Section 3.5.2.1, 3.5.2.2, 3.5.3.2, and 3.5.4.2. In general, it was found that any adverse effects caused by current normal operational flows and impoundment fluctuations on water quality appear to be minimal to no effects in most cases.

WSE fluctuations were found to have negligible effects on water temperatures, with water temperature patterns primarily driven by factors other than Project operations such as weather and longitudinal

effects. Therefore, any effects of Project generation on water temperatures would generally be indistinguishable from daily water temperature fluctuations (Exhibit E Pages 3-233 to 3-235, 3-244).

The water quality data collected in 2012 suggest that low-flow, warm-weather conditions, as observed in 2012, can lead to thermal stratification potentially resulting in low-DO levels in the hypolimnetic waters of the forebay. However, this condition was not persistent in either the 2012 or 2015 water quality studies and was spatially limited to the forebay area with no documented exceedances of dissolved oxygen standards in the Vernon tailrace area in either study. As water is passed through the Project powerhouse it enters the shallower and more turbulent tailrace area below the dam, which supports re-oxygenation, and state water quality standards are expected to be maintained in downstream reaches of the Connecticut River under a variety of flow and temperature conditions (Exhibit E Pages 3-244 to 3-245). Operations under the inflow equals outflow conditions proposed maintains a continuous passing of water through the powerhouse, thus reducing the potential for low-DO conditions downstream.

Data from ILP Study 6 showed pH exceedances of state water quality standards in 2012 in the impoundments was related to atmospheric deposition and increased rates of photosynthesis of algae and aquatic vegetation, not due to Project operations effects (Exhibit E Pages 3-247 to 3-248). ILP Study 6 also demonstrated that turbidity levels within the mainstem Project waters were very low (less than 5 NTU) for the majority of the time, though did increase in response to precipitation events that often result in high flows and spill conditions (Exhibit E Page 3-250). Nutrients and chlorophyll-a analysis in 2012 and 2015 indicate that Project-affected waters meet state water quality standards and that designated uses were maintained and supported and continued Project operations will not alter these conditions (Exhibit E Page 3-252).

6. Pollutant loading analysis

NHDES requires as part of the 401 WQC application a pollutant loading analysis to show the difference between pre-development and post-development pollutant loads for a typical year. The objective of the loading analysis is to show post-development pollutant loads do not exceed pre-development pollutant loads. Loading analysis guidance and a simple spreadsheet model will be provided by NHDES. The loading analysis will be used to determine appropriate stormwater management measures, which must be effectively designed, installed, and maintained to ensure compliance with surface water quality standards.

A pollutant loading analysis was not considered necessary for the Vernon FERC relicensing as the Project is an existing project and no new development or construction is proposed. Water quality considerations are discussed in Sections 3 and 5 of this additional information summary and are detailed in Sections 3.5.1.2, 3.5.2.2, 3.5.3.2, and 3.5.4.2 of Exhibit E and ILP Study 6 .

7. A description of any other aspect associated with construction and operation of the activity that would affect the chemical composition, temperature, flow, or physical aquatic habitat of the surface water.

Vernon Project is an existing project that has been in continuous operation for decades and no new development or construction associated with the Project is proposed. Similarly, anticipated, yet to be designed, fish passage enhancement construction and operation will not affect chemical composition, temperature, flow, or aquatic habitat. The licensee proposes a modified Project operation (See Exhibit B of the Vernon FLA and the MOU) that significantly reduces both the frequency, amplitude and rate of change in Project-related discharge and impoundment water surface fluctuation in comparison to current operation. The proposed operations are expected to result in a more stable aquatic environment that will support existing and designated uses in the Project-affected areas while remaining flexible and responsive to energy demand and system needs. Operation of the Project and associated effects on the chemical composition, temperature, flow, and physical aquatic habitat have been addressed in Sections 3.5.1.2, 3.5.2.2, 3.5.3.2, and 3.5.4.2 of Exhibit E.

8. An original or color copy/reproduction of a United States Geological Survey Quadrangle Map that clearly shows the location of the activity and all potential discharge points.

A USGS-based topographic map showing the location of the activity and all potential discharge points is included as Appendix A.

9. A copy of the final complete federal permit application or federal license application, including the federal permit, license, or project number.

Copies of the Vernon FLA (including Exhibit E), MOU, SAFP, ILP Study 6 Report and ILP Study 10 Report are referenced by endnotes. A list of these Supporting Documents, and hyperlinks to the documents in both the FERC's eLibrary and Great River Hydro's Public Information Document Library is included as Appendix B.

10. A copy of the NHDES wetlands permit (RSA 482-A:3), if necessary.

No NHDES wetlands permit is required for this Project.

11. A copy of the NHDES alteration of terrain permit (RSA 485-A:17), if necessary.

No NHDES alteration of terrain permit is required for this Project.

12. The name(s) and address(es) of adjoining riparian or littoral abutters.

This list is not included with the application package due to the large area abutting the Project impoundment. NHDES was consulted and concurred the abutter list is not necessary.

13. A plan showing the proposed activities to scale

NHDES requires a plan be included with the WQC application showing the proposed activities to scale including:

> The location(s) and boundaries of the activities;
>
> The location(s), dimension(s), and type(s) of any existing and/or proposed structures; and
>
> The location(s), name(s), identification number(s), and extent of all potentially affected surface water bodies, including wetlands.

A comprehensive Project plan is provided in Exhibit G of the Vernon FLA.

14. For projects that involve a new surface water withdrawal

NHDES requires projects that involve a new surface water withdrawal to provide the following information with the WQC application:

a. a copy of the water conservation plan (WCP) submitted to the NHDES Water Conservation Program and the status of NHDES approval, or
b. a copy of a waiver approved by the NHDES Water Conservation Program that waives the requirement to submit a WCP prior to or in conjunction with the application for water quality certification.

Pursuant to Env-Wq 2101, and unless a waiver is applied for and granted by NHDES, all applicants for water quality certification are required to submit a water conservation plan (WCP) for projects that involve a new withdrawal from a surface water prior to or in conjunction with this application. Contact the NHDES Water Conservation Program for guidance related to drafting a WCP and the review and approval process. Information regarding the WCP, including contact information, may be found at NHDES' Water Conservation website.

There is no new surface water withdrawal associated with this Project and therefore no WCP or waiver is required.

15. Rivers Management and Protection Act

The Connecticut River is a Designated River under the NH Rivers Management and Protection Program. The LAC under RSA 483 is represented by the Wantastiquet Local River Subcommittee to the Connecticut River Joint Commission. The LAC has been provided access to a complete digital copy of this application.

References

Friedl, G. and A. Wüest. 2002. Disrupting biogeochemical cycles-Consequences of damming. J Aquatic Sciences. 64(1): p. 55-65.

NEIWPCC (New England Interstate Water Pollution Control Commission). 2007. Northeast Regional Mercury Total Maximum Daily Load. New England Interstate Water Pollution Control Commission. Lowell, Mass. Available at: https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/final-mercury-tmdl-report.pdf.

New Hampshire Department of Environmental Services (NHDES). 2010. Final Report New Hampshire Statewide Total Maximum Daily Load (TMDL) for Bacteria Impaired Waters. New Hampshire Department of Environmental Services. Available at: https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/final-bacteria-tmdl-report-statewide-379.pdf.

NHDES. 2015. New Hampshire 2012 Section 305(b) and 303(d) Surface Water Quality Report and RSA 485-A:4.XIV Report to the Governor and General Court. New Hampshire Department of Environmental Services. Available at: https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/r-wd-12-4.pdf.

NHDES. 2020. 2020 Draft Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. October 16, 2020.

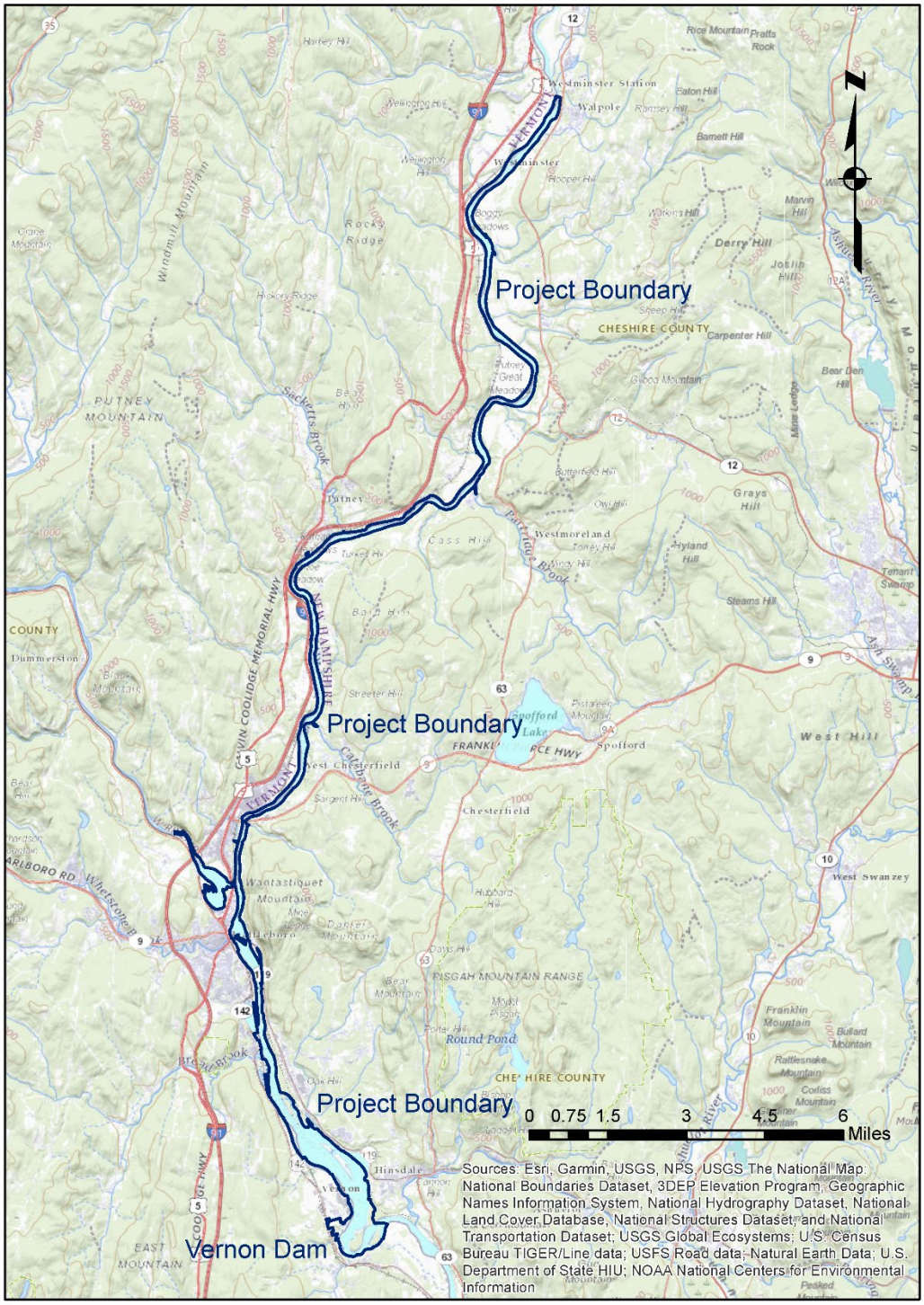
Appendices

Appendix A – USGS Map of Project Area

Appendix B – List of Supporting Documents to this Application

Appendix A – USGS Map of Project Area

Vernon Hydroelectric Project No. 1904



Appendix B – List of Supporting Documents to this Application NH 401 Water Quality Certification
Vernon Hydroelectric Project

Amended Vernon FLA 12-7-2020 (Including Initial Statement and Exhibits A, B, C, D, F, G, and H):

Accession Nos. 20201207-5219 (Public), - 5220 (Privileged);-5221 (CEII); Amended Final License Applications of Great River Hydro, LLC for Project, et. al. under P-1855 et. al.

GRH Website:
https://relicensing.greatriverhydro.com/overview/documents/?eeFront=1&ee=1&eeFolder=Documents%2F80-Amended-Final-License-Applications-AFLA%2F20-Vernon&eeListID=1

Revised Amended Exhibit E for Wilder, Bellows Falls and Vernon Projects; Revised 06-07-2023:

Accession No. 20230608-5103 Great River Hydro, LLC submits Revised Final License Application and Exhibits for the Bellows Falls Hydroelectric Project et. al. under P-1855 et. al

GRH Website: http://relicensing.greatriverhydro.com/wp-content/uploads/simple-file-list/Documents/85-Revised-Final-License-Application-BF-Min-Flow-Unit/2023-06-07-WLDR-BF-VERN-RFLA-Exhibit-E.pdf

Memorandum of Understanding executed December 1, 2020:

Included in 12-7-2020 FLA Exbibit B, Accession Nos. 20201207-5219 (Public) (see above). MOU between Great River Hydro and the United States Fish and Wildlife Service, the New Hampshire Department of Environmental Services, the New Hampshire Fish and Game Department, the Vermont Department of Environmental Conservation, the Vermont Department of Fish and Wildlife, The Nature Conservancy, and the Connecticut River Conservancy.

GRH Website: http://relicensing.greatriverhydro.com/wp-content/uploads/simple-file-list/Documents/80-Amended-Final-License-Applications-AFLA/10-Wilder/2020-12-07_WLDR_Amend_FLA_ExABCDFGH.pdf

Settlement Agreement on Fish Passage (SAFP) 08-02-2022:

Accession No. 20220803-5124. Settlement Agreement on Fish Passage (SAFP) executed by New Hampshire Fish and Game Department among other state and federal agencies and filed with the Commission on August 2, 2022.

GRH Website: http://relicensing.greatriverhydro.com/wp-content/uploads/simple-file-list/Documents/80-Amended-Final-License-Applications-AFLA/70-AFLA-Settlement-Agreement-Fish-Passage/2022-08-02-GRH-AFLA-Fish-Passage-Settlement-Agreement.pdf

ILP Study 6 Water Quality Updated Study Report:

Accession No. 20161215-5280 ILP Study Reports 6, 25 and 30, final reports and supplements, TransCanada Hydro Northeast Inc. under P-1892, et al filed December 15, 2016

GRH Website:
https://relicensing.greatriverhydro.com/overview/documents/?eeFront=1&ee=1&eeFolder=Documents%2F50-Study-Reports%2F130-Study-Reports-1-33%2FStudy-06-Water-Quality-Monitoring&eeListID=1

ILP Study 10 Fish Assemblage Study Report:

Accession No. 20160801-5232 TransCanada Hydro Northeast Inc. August 1, 2016 Updated Study Report under P-1855, et. al.

GRH Website:
https://relicensing.greatriverhydro.com/overview/documents/?eeFront=1&ee=1&eeFolder=Documents%2F50-Study-Reports%2F130-Study-Reports-1-33%2FStudy-10-Fish-Assemblage&eeListID=1