

# **Water Quality Certification Bear Swamp Hydroelectric Project FERC License No. 2669**

## **Applicant: Bear Swamp Power Company**

### **INTRODUCTION**

The Bear Swamp Hydroelectric Project (FERC No. 2669) (“Project”) is located on the Deerfield River in Berkshire and Franklin Counties. Bear Swamp Power Company LLC (“BSPC”), a subsidiary of Brookfield Power US Holding America Co., jointly owns the Project with Emera, Inc. On April 28, 1970, the Federal Power Commission (“FPC”), predecessor to the Federal Energy Regulatory Commission (“Commission” or “FERC”), issued an original license for the Project in accordance with the Federal Power Act (“FPA”), 16 U.S.C. § 791(a) *et seq.* The Project’s existing license expired on March 31, 2020 and was administratively continued by the Commission.<sup>1</sup>

On December 19, 2014, BSPC initiated the Commission’s Integrated Licensing Process (ILP) described at 18 C.F.R. Part 5. On March 30, 2018, BSPC filed a final application for a new license with the Commission to continue to operate and maintain the Project. On January 30, 2019, the Commission issued its Notice of Acceptance and Ready for Environmental Analysis (REA Notice). On March 27, 2019, the Massachusetts Department of Environmental Protection (“MassDEP”) received a request for a Section 401 Water Quality Certification (“WQC” or “certification”) for the Project. BSPC published public notice of the filing of the WQC request in the *Greenfield Recorder*, a daily newspaper in circulation in Franklin County, Massachusetts, and the *Berkshire Eagle*, a daily newspaper in circulation in Berkshire County, Massachusetts. The public notices of filing were published in the *Greenfield Recorder* on March 29, 2019, and in the *Berkshire Eagle* on March 29, 2019.

### Federal Law & Regulations

Congress enacted § 401 of the federal Clean Water Act, 33 U.S.C. § 1341, to provide states and authorized tribes with an important tool to help protect water quality of federally regulated waters within their borders in collaboration with federal agencies. Under § 401, a federal agency may not issue a license or permit to conduct any activity that may result in any discharge into waters of the United States, unless the state where the discharge would originate either issues a WQC

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<sup>1</sup> An annual license for the Project was issued on May 7, 2020, for the continued operation of the Project under the terms and conditions of the prior license. The prior license for the Project issued for a term of 50 years. *See New England Power Co.*, 43 FPC 568 (1970). A license order clarifying the effective date of the license term as April 1, 1970, was issued on May 25, 1970. *See New England Power Co.*, 43 FPC 785 (1970) (original license). The license was transferred to BSPC on March 11, 2005. *See New England Power Co.*, 82 FERC 62,138 (1998); *USGen New England, Inc.*, 85 FERC 62,079 (1998); *USGen New England, Inc.*, 110 FERC 62,245 (2005).

finding compliance with existing water quality requirements or waives the certification requirement. Section 401(d) allows the certifying authority to include conditions to assure that the applicant will comply with enumerated CWA provisions and “other appropriate requirements of State law.”<sup>2</sup> Furthermore, EPA’s certification regulations applicable to BSPC’s WQC request direct MassDEP to certify that there is “reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards.” 40 C.F.R. § 121.2(a)(2)-(3).<sup>3</sup>

### State Law and Regulations

#### Massachusetts Clean Waters Act

The Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 (“State Act”) creates “a comprehensive program for protection of the surface and groundwaters of the Commonwealth.” *Friends & Fishers of the Edgartown Great Pond, Inc. v. Department of Env’tl. Protection*, 446 Mass. 830, 837 (2006). It confers on MassDEP “the duty and responsibility . . . to enhance the quality and value of water resources and to establish a program for prevention, control, and abatement of water pollution.” M.G.L. c. 21, § 27. Like the Federal Act, the State Act creates a comprehensive permitting program to ensure water quality standards are met. *See* M.G.L. c. 21, §§ 43 and 44.

More specifically, the State Act confers on MassDEP the authority to:

- Establish standards of minimum water quality which shall be applicable to the various waters or portions of waters of the Commonwealth. *See id.* at § 27(5).
- Prescribe effluent limitations, permit programs and procedures applicable to the management and disposal of pollutants, including, where appropriate, prohibition of discharges. *See id.* at § 27(6).
- Require dischargers to establish monitoring, sampling, record keeping and reporting procedures and to submit to MassDEP data it reasonably needs to carry out the purposes of the State Act. *See id.* at § 27(7).
- Take all action necessary or appropriate to secure to the Commonwealth the benefits of the Federal CWA. *See id.* at § 27(3).

#### Massachusetts Surface Water Quality Standards

Pursuant to M.G.L. c. 21, § 27(5), MassDEP has adopted the Massachusetts Surface Water Quality Standards (“Standards”) published at 314 Code Mass. Regs. § 4.00. The Standards create “designated uses” for different classes of surface waters in the Commonwealth (e.g., fish habitat, recreation) and enumerate the criteria necessary to protect both existing and designated

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<sup>2</sup> MassDEP considers the Massachusetts Division of Fisheries and Wildlife’s (“MassWildlife”) enabling authorities which provide for the protection and management of the inland fish and wildlife resources of the Commonwealth, including, but not limited to, the Massachusetts Endangered Species Act, M.G.L. c. 131A, § 1 *et seq.*, “appropriate requirements of state law” for purposes of § 401 certification.

<sup>3</sup> On June 1, 2020, the U.S. Environmental Protection Agency (EPA) finalized the “Clean Water Act Section 401 Certification Rule” to implement the water quality certification process. The final rule published in the *Federal Register* on July 13, 2020, and it became effective on September 11, 2020. However, the final rule does not apply to WQC requests filed before the rule’s effective date.

uses. *See* 314 Code Mass. Regs. § 4.05 (2013). *See also* 33 U.S.C. § 1313(c)(2)(A) (2006). For MassDEP to issue a § 401 certification for an activity regulated by the Commission, instream flows must be maintained or restored to protect the existing and designated uses of the pertinent waterbody. *See* 314 Code Mass. Regs. § 4.03(3)(b) (2013). The applicant for a WQC is responsible for providing MassDEP sufficient information to demonstrate compliance with the Standards and other appropriate requirements of state law.

#### Massachusetts Endangered Species Act

M.G.L. c. 131A, the Massachusetts Endangered Species Act (“MESA”), was enacted to protect rare species and their habitats by prohibiting the “Take” of any plant or animal species listed as Endangered, Threatened, or Special Concern. MESA and its implementing regulations at 321 CMR 10.00, administered by the Natural Heritage and Endangered Species Program (NHESP) of the Division of Fisheries and Wildlife (MassWildlife), establish a comprehensive approach to the protection of the Commonwealth’s Endangered, Threatened, and Special Concern species and their habitats by establishing procedures for the listing and protection of rare plants and animals, outlining project review filing requirements for projects or activities that are located within a Priority Habitat of Rare Species.

### **PROJECT DESCRIPTION**

The Project consists of two developments, the Bear Swamp Pumped Storage Development (“PSD”) and the Fife Brook Development (“FBD”). The PSD generally consists of an 118 acre upper reservoir retained by four dikes and an emergency spillway, a submerged inlet/outlet structure and associated tunnel which bifurcates into two penstocks, an underground powerhouse containing two reversible Francis-type pump turbine units and motor-generator units with an authorized combined capacity of 666 megawatts (“MW”), two tailrace tunnels leading to an inlet/outlet structure in the lower reservoir, and the lower reservoir (“Fife Brook impoundment”) formed by the Fife Brook Dam on the Deerfield River. The FBD generally consists of the Fife Brook Dam, a tainter gate spillway structure, a concrete intake structure, and a single penstock leading to a concrete powerhouse containing one conventional Francis turbine-generator unit with a capacity of 10 MW.

The PSD is operated as a pumped storage facility generally producing electricity during daylight hours, with water from the Fife Brook impoundment pumped to the upper reservoir overnight. The FBD is operated as a run-of-release system, in response to regulated, peaking Inflows from the immediately upstream Deerfield River Project’s (“DRP”) (FERC No. 2323) Station No. 5 Development (“Station No. 5”), which is currently owned and operated by Great River Hydro, LLC (“GRH”).

In 1997, FERC approved the DRP Offer of Settlement (the “DRP Settlement”) and issued a new license for the DRP which incorporated the terms of the DRP Settlement. The DRP’s existing FERC license, DRP Settlement, and WQCs issued by the State of Vermont and MassDEP (which collectively do not expire until 2037) specify the minimum flows GRH must provide. The currently licensed minimum flow requirement for Deerfield Station No. 5 into the Fife Brook

impoundment is 73 cubic feet per second (cfs), which is less than the currently licensed minimum flow requirement of 125 cfs for the Project.

The Fife Brook Dam impounds approximately a 152-acre, 2.5-mile-long reservoir that has a 3.9 mile-long shoreline and a gross storage capacity of 6,900 acre-feet at a maximum allowable elevation of 870 feet National Geodetic Vertical Datum (NGVD). The Fife Brook impoundment has a usable storage capacity of 4,600 acre-feet and an allowable daily fluctuation of 40 feet between the maximum water surface elevation of 870 feet NGVD and the minimum elevation of 830 feet NGVD.

BSPC manages the volume of water in the Fife Brook impoundment such that there is sufficient volume to fill the upper reservoir to the maximum allowable water surface elevation of 1,600 feet NGVD under the current license and to manage the requisite minimum flow and recreational release requirements. The upper reservoir for the PSD has an allowable daily fluctuation of 50 feet. The 118-acre upper reservoir for the PSD has a gross storage capacity of 8,300 acre-feet at the normal maximum water level elevation of 1,600 feet. BSPC typically pumps water from Fife Brook impoundment to the upper reservoir during times of low electricity demand, which reduces water levels in Fife Brook impoundment. During periods of high electricity demand BSPC typically generates hydroelectric power using water stored in the upper reservoir, lowering the upper reservoir to an elevation of 1,555.5 feet NGVD, which in turn raises water levels in Fife Brook impoundment.

## IMPACTED RESOURCES

### Macroinvertebrates

#### Threatened and Endangered Species

Peaking creates rapid increases in water surface elevations that are harmful to and result in the killing of odonates that emerge from the river during the eclosure process within the elevation zone of the peaking. Eclosure is triggered when the odonate larvae initiate the transformation from an aquatic larva to a flighted adult. From eclosure to flight, odonates cannot survive contact with water, including inundation. Individuals washed away from the emergence surface, even if they have not begun eclosure, rarely survive being washed downstream. Both inundation of emerging individuals and washing away of individuals can occur during releases from the FBD during certain months of the year. Accordingly, FBD operations can have direct impacts to MESA-protected odonates, including the riffle snaketail (*Ophiogomphus carolus*, Threatened) and the ocellated darner (*Boyeria grafiana*, Special Concern). MassWildlife conducted a risk assessment of the existing operations of the Project for state-listed odonates and concluded that existing FBD up-ramping operations pose up to a 90% risk of impacting emerging state-listed odonates on a per day basis, depending on the timing of the releases in relation to the timing of odonate emergence and eclosure.

### Fish Resources

The natural movements of migratory fish in the Deerfield River have been restricted by the lack of effective fish passage at other hydropower developments downstream from the Project. The FBD generates power in a peaking mode, resulting in significant within-day flow fluctuations

between the minimum and Project capacity on an hourly or daily basis. Large and rapid changes in peaking flows from hydroelectric projects impact fish species life history requirements, biological interactions, and habitat quantity and quality, and are detrimental to trout by reducing spawning and recruitment. The reach of the Deerfield River extending more than 17 miles downstream from the FBD contains lotic habitat that supports native riverine species, including brook trout and the state listed longnose sucker (*Catostomus catostomus*), as well as an important recreational fishery for stocked and naturalized brown and rainbow trout (*Oncorhynchus mykiss*). Studies conducted by BSPC demonstrated that natural reproduction of trout species is occurring in the Deerfield River and/or tributary streams. The current license provides for a continuous flow of 125 cfs below the Fife Brook Dam.

BSPC conducted instream flow studies to evaluate minimum flows in the Deerfield River. Based on the results of the flow studies, BSPC maintained that the current minimum flow of 125 cfs generally provided suitable habitat for the spawning, juvenile, and adult lifestages of brown trout, brook trout, rainbow trout, and longnose sucker for the majority of the Deerfield River. However, the Deerfield River Chapter of Trout Unlimited (TU) sponsored a trout spawning survey in 2017 and 2018 which documented that when higher flows occurred, trout moved into shallower areas to spawn, and when flows were reduced from the FBD to 125 cfs, water receded in these shallow areas leaving insufficient water coverage over these spawning areas. The resulting change in water coverage at the minimum flow of 125 cfs creates shallow water conditions for redds in the Beaver Island and Long Pool spawning and other areas downstream from the FBD. Shallow water conditions leave eggs and/or fry at a higher risk of freezing, dehydration, suffocation, and/or predation. Based on the results of the trout spawning survey, TU maintained that the current 125 cfs minimum flow did not adequately protect trout redds documented in the spawning areas around Beaver Island and Long Pool and other locations during the spawning season.

### **Recreation**

The 2017 Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP) identifies outdoor recreation as central to the state's economic, environmental, and community values. BSPC's hydropower operations at the FBD directly and significantly benefit whitewater boating and other recreational opportunities in the Project area.

Each year, tens of thousands of kayakers, canoers, rafters, paddle boarders, and tubers enjoy the unique regional recreational opportunities in the Charlemont area. Whitewater releases from the altered hydrology imposed by the DRP have a positive impact on the region's recreation economy because they create significant job opportunities with commercial outfitters and other businesses that benefit from seasonal tourism.

BSPC studied the impact of its hydroelectric operations on whitewater boating opportunities in the Deerfield River in response to requests by American Whitewater, Appalachian Mountain Club, New England FLOW, Crab Apple Whitewater, Zoar Outdoor and other stakeholders. The results of BSPC's studies demonstrate that FBD whitewater releases during the recreation season provide opportunities for private and commercial whitewater boating on the Deerfield River that would otherwise not exist except for the altered hydrology imposed by the DRP.

Article 404 of BSPC's current license requires whitewater releases from the Fife Brook Dam at a minimum flow of 700 cfs for a duration of at least three continuous hours for 56 weekdays and 50 weekend days from April 1 through October 31. These 106 scheduled whitewater flow releases include 74 days of releases from the Fife Brook Development only (Fife Brook Only Release Days) and 32 days that the Deerfield River Project No. 2323 Station No. 5 Development (Station No. 5) is scheduled to release whitewater flows from into the Station No. 5 bypass reach (Station No. 5 Bypass Reach Release Days). Although the current license provides a minimum flow of 700 cfs BSPC has been providing whitewater flow releases of 800 cfs for these 106 releases.

### **Land Protection**

The riparian zone along the Deerfield River downstream of Fife Brook Dam includes forests, agricultural lands, residential areas, roads, and other types of development. However, much of the river, including agricultural and developed areas, has at least some riparian vegetation. Vegetated riparian zones help reduce sediment input into rivers and streams, reduce erosion along the banks, moderate high water temperatures by providing shade, slow and filter storm runoff, conserve and enhance species diversity, maintain wildlife movement corridors, provide woody debris for fish and other aquatic organisms, and protect aesthetic values.

The existing Project boundary, as established in the Commission's April 28, 1970 license order and amended in the Commission's April 4, 1997 and November 17, 2006 orders, encompasses approximately 1,474 acres of land, including: (1) the upper and lower reservoirs (approximately 270 acres); (2) land associated with project structures (approximately 130 acres); and (3) land around the reservoirs and downstream of FBD that is used for recreation and environmental protection (1,074 acres). The current Project boundary does not include any federal land.

Under the current license, a total of 1,407 acres of land within the Project boundary was protected by conservation easements that were granted to the Massachusetts Department of Conservation and Recreation in July 2001. Approximately 1,206 acres of the protected land occurs near the Project's upper and lower reservoirs, and 201 acres of the protected land occurs along the river corridor for approximately 7.5 miles downstream of the Fife Brook Dam.<sup>4</sup>

The 201 acres of river corridor are subject to in-perpetuity conservation easements, while the 1,206 acres near the Project's upper and lower reservoirs had been subject to conservation easements that expired with the current license on April 1, 2020. The conservation easements restrict use of the property to agricultural, forestry, educational, non-commercial recreation, open space, and electric transmission and hydroelectric generation purposes.

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<sup>4</sup> Article 405 of the current license requires the licensee to protect 1,257 acres of land. The prior licensee of the Project chose to establish a conservation easement for an additional 200 acres, including 50 acres outside of the project boundary. *See New England Power Company*, 79 FERC 61,009 (1997).

Bear Swamp Power Company's Final License Application (FLA) filed with FERC on March 30, 2018 does not propose to renew the conservation easements that expired on April 1, 2020 for 1,256 acres of land that is located near the upper reservoir and Fife Brook impoundment, 50 acres of which is located outside of the project boundary. BSPC's license application proposes a Project boundary that encompasses approximately 1,305.3 acres of land and water. The proposed boundary modifications would remove 161.8 acres of land that is currently part of a conservation easement, and 6.9 additional acres of land not required for Project purposes. A majority of the land BSPC is proposing to remove from the project boundary is associated with a conservation easement that was granted to the Massachusetts Department of Conservation and Recreation in July 2001 and that expired on April 1, 2020.

BSPC proposes modifying the current Project boundary by:

- Removing 109.74 acres of land northeast of the upper reservoir that that was formerly part of the term conservation easement that expired on April 1, 2020;  
Removing 20.04 acres of land west of the Fife Brook Dam that was formerly part of the term conservation easement that expired on April 1, 2020;  
Removing 31.99 acres of land associated with River Road and land north of Fife Brook impoundment that was formerly part of the term conservation easement that expired on April 1, 2020;
- Removing 5.9 acres of land associated with River Road downstream of the Fife Brook Dam that is not necessary for Project purposes; and
- Removing approximately 1.0 acre of land that was not part of any conservation easement and is not necessary for Project purposes due to minor adjustments to the Project boundary line.

BSPC has stated that the land it is proposing to remove, consists of mixed-use property that includes rugged upland areas (including steep, forested slopes) not typically used by the public for recreation or any other purposes. BSPC states that the removal of the land will not affect any existing or proposed shoreline access, recreation uses, or riverine habitat, nor will it affect BSPC's ability to operate or maintain the Project.

## **MASSACHUSETTS SURFACE WATER QUALITY STANDARDS**

The Project is located within the Deerfield River watershed, Segment MA33-01 on the Deerfield River in Rowe and Florida, Massachusetts. The Massachusetts Surface Water Quality Standards classifies the Deerfield River in the vicinity of the Project as Class B waters with a Cold Water qualifier. *See* 314 CMR 4.06(5), Figure 5 and Table 5. Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, including their reproduction, migration, growth, and other critical functions, and for primary and secondary contact recreation. They can be suitable as a source of public water supply after appropriate treatment. Class B waters are also suitable for irrigation and other agricultural uses, and for compatible industrial cooling and process uses. Class B waters must consistently exhibit good aesthetic quality. The minimum criteria applicable to Class B waters are listed within 314 CMR 4.05(3)(b). Additional minimum criteria applicable to all surface waters are listed within 314 CMR 4.05(5).

Water quality in the Deerfield River has been affected by the construction and operation of hydroelectric facilities, and their impoundments for more than 100 years. The Project is located on a segment of the Deerfield River, MA33-01, that is listed as a Category 4c impaired waterbody in *Massachusetts Year 2016 Integrated List of Waters, Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act*, dated December 2019.<sup>5</sup> The impairment is identified as “flow regime modification.” The phrase “flow regime modification” refers to the modification of this segment’s flow characteristics relative to natural conditions. The Department’s goal in issuing this 401 WQC is water quality standards attainment. Fife Brook Dam is one of several activities that contribute to the modification of the Deerfield River’s flow regime.

## CERTIFICATION PROVISIONS

MassDEP’s authority to issue this certification is conferred by M.G.L. c. 21, § 27(3). Based on a review of the WQC request, the information included in the administrative record for the FERC licensing proceeding for the Project, the information provided by BSPC and provided by the public during the comment period, and other publicly available information on file with MassDEP, MassDEP finds that BSPC has provided reasonable assurance that the activity will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, Massachusetts Surface Water Quality Standards at 314 CMR 4.00 and other appropriate requirements of state law, as set forth herein. Therefore, MassDEP hereby grants certification for the Project subject to the conditions set forth below. This certification shall take effect on the date that FERC issues a new license for the Bear Swamp Project (FERC No. 2669).

Pursuant to M.G.L. c. 21, §§ 27, 42 and 44, BSPC shall comply with the following § 401 Certification conditions which MassDEP finds are necessary to assure compliance with the applicable provisions of the Federal Clean Water Act Sections 208(e), 301, 302, 303, 306, and 307 and other appropriate requirements of State law:

1. BSPC shall operate the Project in accordance with the conditions contained in this certification, and the proposal included in Bear Swamp Power Company’s Final License Application (FLA) filed with FERC on March 30, 2018, as it may be modified by FERC’s new license (the FERC license). Any modifications made by BSPC to its proposal in the FLA after the issuance of this certification but prior to FERC’s new license that would have a significant or material effect on the conclusions or conditions contained in this certification shall be submitted to MassDEP promptly for review and approval prior to licensing.
2. **Project Operations.** The PSD shall be operated as a pumped storage facility in accordance with this certification and the provisions included in the FLA with a normal allowable usable storage capacity of 4,600 acre-feet, and an allowable drawdown of 40 feet in the Fife Brook impoundment from normal maximum full elevation of 870 feet NGVD to elevation of 830 feet NGVD .

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<sup>5</sup> This report is available at: <https://www.mass.gov/files/documents/2020/01/07/16ilwplist.pdf>.

The FBD shall be operated in a run-of-release mode in accordance with this certification and the provisions of the FLA. Run-of-release mode requires BSPC to contemporaneously pass through minimum flows mandated to be released to the lower reservoir from Station No. 5. As necessary, BSPC will carry a positive balance in the Fife Brook impoundment of up to 150 acre-ft to support provision of the seasonal minimum flows (the “positive balance” or “safety volume” as described in the FLA). Use and replenishment of the positive balance shall be contingent upon and taken from inflow as received from the Station No. 5 (“Inflow”). PSD storage shall not be used to replenish the positive balance, and BSPC shall not be required to carry or use more than 150 acre-ft positive balance for seasonal minimum flows.

3. **Year-Round Minimum Flow.** Upon the Commission’s issuance of a new license for the Project, BSPC shall maintain a year-round continuous minimum flow of 125 cfs for the protection of aquatic resources in the Deerfield River, from and as measured at, the FBD. If the Inflow regime from the DRP Station No. 5 is changed from the regime in existence as of the date of the Commission’s issuance of a new License for the Bear Swamp Project so as to reduce continuous minimum flows requirements from the DRP, BSPC shall release 125 cfs through use of the Inflow and positive balance so long as the Inflow allows.
4. **Seasonal Minimum Flow.** From November 1 of each year through April 15 of the following year, BSPC shall maintain a minimum flow of 225 cfs, from and as measured at the FBD, for the overwintering protection of trout redds in Long Pool and Beaver Island. The provision of 225 cfs shall not compromise BSPC’s ability to provide 125 cfs.

Notwithstanding the foregoing, under certain unusual circumstances, reductions in seasonal minimum flows from 225 cfs to 125 cfs, are anticipated herein and, therefore, are not considered a reportable planned or unplanned deviation. BSPC is not required to increase the available Inflow or its timing into the Project boundary, utilize more than the combination of Inflow into the Project boundary and up to 150 acre-feet of safety volume to provide the 225 cfs seasonal minimum flow from the FBD, or compromise the ability of BSPC to provide 125 cfs continuous minimum flow. Implementation of the foregoing shall be consistent with the following, inclusive of Tables 1 and 2 below:

- BSPC shall achieve a 150 acre-feet positive balance at the end of the first FBD generation cycle on November 1<sup>st</sup> of each year, and at the end of each Fife Brook generation cycle thereafter until April 15<sup>th</sup> of the following year. Scheduling of 225 cfs for each day will be determined by the midnight-to-midnight Station No. 5 flow forecast schedule (“Release Schedule”) for the current and next day releases pursuant to Tables 1 and 2 below, with a Station No. 5 generation cycle defined as a Station No. 5 main unit generation or equivalent spill event capable of replenishing at least the entire 150 acre-foot positive balance and simultaneously allowing provision of at least 125 cfs during the event.
- Beginning on November 1<sup>st</sup> BSPC shall determine the minimum flow from the FBD for the balance of the current day pursuant to the criteria in Table 1.

| <b>Table 1. Minimum Flow Criteria and Requirements Following Fife Brook Generation</b>                                                  |                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Criteria</b>                                                                                                                         | <b>Fife Brook Minimum Flow Release Requirement</b>                                                                                                                                                                                              |
| Release Schedule forecasts a Station No. 5 generation cycle within 18 hours of the end of the last Fife Brook generation cycle.         | BSPC shall release 225 cfs using up to 100 acre-feet of the 150 acre-feet of positive balance. When 50 acre-feet or less of positive balance is remaining, BSPC shall release 125 cfs until the end of the next Station No. 5 generation cycle. |
| Release Schedule does not forecast a Station No. 5 generation cycle within 18 hours of the end of the last Fife Brook generation cycle. | BSPC shall release 125 cfs until the end of the next Station No. 5 generation cycle.                                                                                                                                                            |

- When the next day's Station No. 5 release schedule is made available to BSPC, BSPC shall adjust the FBD minimum flow pursuant to the criteria in Table 2 and release the adjusted minimum flow until the end of the next Station No. 5 generation cycle.

| <b>Table 2. Minimum Flow Criteria and Requirements Following Receipt of the DRP Station No. 5's Next Day Release Schedule</b>                          |                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Criteria</b>                                                                                                                                        | <b>Fife Brook Minimum Flow Release Requirement</b>                                                                                                                                                                                   |
| The next day's Release Schedule forecasts a Station No. 5 generation cycle within 18 hours of the end of the last Fife Brook generation cycle.         | BSPC shall release 225 cfs using the remaining positive balance above 50 acre-feet. When 50 acre-feet or less of positive balance is remaining, BSPC shall release 125 cfs until the end of the next Station No. 5 generation cycle. |
| The next day's Release Schedule does not forecast a Station No. 5 generation cycle within 18 hours of the end of the last Fife Brook generation cycle. | BSPC shall release 125 cfs until the end of the next Station No. 5 generation cycle.                                                                                                                                                 |

A. Compliance schedule.

1. Seasonal Minimum Flow Release Plan. Within one (1) year of the Commission's issuance of a new license for the Project, BSPC shall develop a Seasonal Minimum Flow Release Plan (SMFRP). The SMFRP shall include, at a minimum, (1) functional design drawings and calculations showing the proposed modifications to the Project to allow for a seasonal minimum flow release from the FBD of 225 cfs from November 1 through April 15; (2) a construction schedule; (3) a description of the measures BSPC will take to provide a continuous 125 cfs minimum flow release from the FBD during construction of the new seasonal minimum flow system; and (4) provisions for providing minimum flows by other means in the event of failure of the minimum flow system ("Backup Plan"). BSPC will submit the draft SMFRP to MassDEP, the USFWS, and MassWildlife for a 60-day review and comment period prior to submittal to the Commission. BSPC shall address the comments received, if any, in its submittal to the Commission.

2. BSPC shall initiate and complete construction of a new minimum flow system to provide the seasonal 225 cfs minimum flow in accordance with the schedule approved by the Commission in the SMFRP and/or in any order issued by the Commission. Excepting any Commission or third-party delays in the Commission's approval process, BSPC shall begin providing the 225 cfs seasonal minimum flow on the November 1st following completion of the construction or on the November 1<sup>st</sup> occurring three (3) years after the Commission's issuance of a new license for the Project, whichever occurs earlier.
3. Operation Compliance Monitoring Plan. Prior to completing construction of the new minimum flow system, BSPC shall revise the Operation Compliance and Monitoring Plan (OCMP) required by BSPC's license to describe how BSPC will document compliance with the seasonal 225 cfs minimum flow requirement. At a minimum, the revised OCMP shall include (1) a detailed description of how BSPC will document compliance with the 225 cfs seasonal minimum flow release, including a plan and schedule for conducting a field verification of the 225 cfs seasonal minimum flow across all reservoir levels; (2) a description of any mechanisms or structures that will be used, including any periodic maintenance and/or calibration necessary to ensure the devices work properly; (3) the level of manual and automatic operations, (4) the methods used for recording data, including mechanisms for recording data on Project operations to verify proper timing and minimum flow releases (5), the methods and frequency for reporting monitoring data to the Commission, MassDEP, USFWS, and MassWildlife. BSPC will submit the revised Operation Compliance Monitoring Plan to MassDEP, the USFWS, and MassWildlife for a 30-day review and comment period prior to submittal to the Commission. BSPC shall address the comments received, if any, in its submittal to the Commission.

## 5. Odonate Protective Flow Regime

**A. Whitewater Flow Releases.** Beginning in the calendar year following the Commission's issuance of the license, BSPC shall provide 106 annual whitewater flow releases of 800 cfs from the FBD on 50 weekend days and 56 weekdays from April 1 through October 31 for a minimum duration of 3 hours. The 106 scheduled whitewater flow releases include 74 days of releases from the FBD only (Fife Brook Only Release Days) and 32 days that Station No. 5 is scheduled to release whitewater flows from into the Station No. 5 bypass reach (Station No. 5 Bypass Reach Release Days), (*See New England Power Co., 79 FERC ¶ 61,006 (1997)*). The timing of scheduled whitewater releases shall be in accordance with Table 3.

| <b>Table 3. Scheduled Whitewater Release Times</b> |                                                |                                                           |
|----------------------------------------------------|------------------------------------------------|-----------------------------------------------------------|
| <b>Dates</b>                                       | <b>Scheduled Release Times</b>                 |                                                           |
|                                                    | <i>Fife Brook Only Release Days<br/>(N=74)</i> | <i>Station No. 5 Bypass Reach Release Days<br/>(N=32)</i> |
| April 1 – October 31                               | 11:30 a.m.                                     | Releases shall begin between 11:30 a.m. and 12:00 p.m.    |

B. On May 15 of the calendar year following the Commission's issuance of a new license for the Project, BSPC will implement the flow regimes in Table 4 for the periods of May 15 – June 15 and July 8 – August 31, for the protection of odonates. These flows will thereafter be applied annually for the duration of the license.

| <b>Table 4. Odonate Flow Regime</b> |                                                                                                                                                 |                                                                                                                                                        |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dates</b>                        | <b>Odonate Flow Regime</b>                                                                                                                      |                                                                                                                                                        |
|                                     | <i>Scheduled Whitewater Release Days</i>                                                                                                        | <i>Non-scheduled Whitewater Release Days</i>                                                                                                           |
| May 15 – June 15                    | BSPC shall provide stable or diminishing flows from the FBD from 7:00 a.m. through the scheduled whitewater release time identified in Table 3. | BSPC shall provide stable or diminishing flows from the FBD from 7:00 a.m. through a start time of generation flows that averages 11:30 a.m. or later. |
| July 8 – August 31                  | BSPC shall provide stable or diminishing flows from the FBD from 7:00 a.m. through the scheduled whitewater release time identified in Table 3. | BSPC shall provide stable or diminishing flows from the FBD from 7:00 a.m. through a start time of generation flows that averages 11:30 a.m. or later. |

C. Notwithstanding the schedule above, circumstances may arise where Inflows to the Project exceed the capacity of Fife Brook impoundment and the above schedule would cause it to rise above permitted levels. In such circumstances, BSPC may deviate from the above schedule on non-scheduled whitewater release days, provided that:

**From May 15 – June 15:**

- Generation flows may not start earlier than 10:00 a.m. on any days during this period.
- Generator ramping (up to no more than 3 MW) may begin no more than 15 minutes prior to the designated start time of any release.
- Releases earlier than 11:30 a.m. may occur on no more than 5 days during this time period.

- Two emergencies (as described in Condition 16 of this certification) which result in early releases will count towards the total cap of 5 early releases (before 11:30 a.m.) until the cap has been met. Weather, meteorological, or rainfall/runoff events will not count towards the cap.
- If an early release occurs, BSPC will delay the next consecutive release to compensate, and the times of the releases will be averaged to meet the prescribed times. Averaging shall be subject to the following calculations:
  - Any release after 2:00 p.m. will equate to 2:00 p.m. for averaging purposes.
  - Averaging must be done in groups of no more than two days; for example, one 12:30 p.m. start time can be paired with one 10:30 a.m. start time to average 11:30 a.m., but one 2:00 p.m. start time cannot be paired with two 10:15 a.m. start times.

#### **From July 8 – August 31:**

- Generation flows shall not start earlier than 9:00 a.m. on any days during this period.
- Generator ramping (up to no more than 3 MW) shall begin no more than 15 minutes prior to the designated start time of any release.
- Releases earlier than 11:30 a.m. may occur on no more than 10 days during this time period.
  - Five emergencies (as described in Condition 16 of this certification) which result in early releases will count towards the total cap of 10 early releases (before 11:30 a.m.) until the cap has been met. Weather, meteorological, or rainfall/runoff events will not count towards the cap.
- If an early release occurs, BSPC will delay the next consecutive release to compensate and the times of the releases will be averaged to meet the prescribed times. Averaging shall be subject to the following calculations:
  - Any release after 1:00 p.m. will equate to 1:00 p.m. for averaging purposes.
  - Averaging must be done in groups of no more than two days; for example, one 1:00 p.m. start time can be paired with one 10:00 a.m. start time to average 11:30 a.m., but one 1:00 p.m. start time cannot be paired with two 10:45 a.m. start times.

**6. Temporary Modifications & Operating Emergencies.** Requirements of this certification are subject to temporary modification for operating emergencies, or if required by any of the following circumstances which are beyond the reasonable control of BSPC:

- Drought or ice conditions;
- Equipment emergencies that render the minimum flow system incapable of providing the required minimum flows. In such case and when sufficient water is available, BSPC shall implement the Backup Plan;
- Other Force Majeure events<sup>6</sup>;

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<sup>6</sup> “Force Majeure” is defined as any event arising from causes beyond the reasonable control of BSPC or of any entity controlled by BSPC, including its engineers, consultants, contractors and subcontractors,

- Any Project operations needed relative to avoidance of, or response and follow-up to ISO New England Emergency or Abnormal System Conditions and related Emergency Operations and Preparedness, and Reliability concerns as defined by ISO New England, including:
  - Emergency - Abnormal condition of an electric power system requiring manual or automatic action to maintain system frequency or to prevent the involuntary loss of load, equipment damage, or tripping of system elements that could adversely affect the reliability of the system or the safety of people or property. Emergency could also be a fuel shortage requiring departure from normal operating procedures to minimize the use of such scarce fuel or any condition that requires the implementation of emergency procedures by the ISO.
  - Abnormal System Conditions - When ISO New England or a local control center determines that the reliability of the New England power system is compromised. Typical indicators are described in Master/LCC Procedure No. 2—Abnormal Conditions Alert, and include a variety of circumstances, such as deficiencies of operating reserve, low transmission voltages, and geomagnetic disturbance.
  - Emergency Operations and Preparedness - Steps the ISO takes in times of extreme, abnormal system conditions to prevent loss of load, equipment damage, or tripping of system elements that could adversely affect system reliability and safety.
  - Reliability - The assurance that electric power is available even under adverse conditions, such as storms or outages of generation or transmission lines.
- Any temporary deviation in Project operations needed to support public or employee safety or as directed by authorized fire, law enforcement, first responders, or public safety officials;
- A temporary deviation in operation is requested by MassDEP or MassWildlife to protect fish and wildlife or public safety; and
- A change in Project operations is necessary for purposes of dam safety.

Under such conditions, BSPC will not be deemed to be in violation of this certification, provided that, if Project operations are so modified, the Project owner shall notify MassDEP, MassWildlife and the USFWS in advance, if knowable, or as soon as possible otherwise, but no later than 48 hours after each such incident and shall provide the reason for the modification. Further, flows may be modified for short periods upon mutual agreement between the Project owner and MassDEP.

7. **Odonate Mitigation Fund.** Following the Commission's issuance of a new license for the Project, BSPC shall, after consulting with the NHESP of MassWildlife as to the mechanism of deposit, provide \$33,250 annually to MassWildlife, unless MassWildlife provides other instructions to BSPC (subject to annual inflation adjustments in accordance with the U.S.

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which delays or prevents the timely performance of any obligation under this certification notwithstanding BSPC's reasonable efforts to fulfill the obligation. The requirement that BSPC exercise "reasonable efforts" includes using reasonable efforts to anticipate any potential Force Majeure event and reasonable efforts to address the effects of any such event (a) as it is occurring, and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible.

Consumer Price Index (“CPI”) as calculated from the date the Commission issues a new license) for the term of the license and any extensions, provided however that upon request by BSPC, and no sooner than 2 years after the implementation by GRH of any revised flow regime for Station No. 5, MassDEP will entertain a good-faith consideration of downward adjustment to the annual payments for reduced impacts downstream of the FBD from flow regimes imposed on the DRP Station No. 5 in 2037.

8. **Aquatic Resource Protection Fund.** Within three (3) years of the Commission’s issuance of a new license for the Project, BSPC shall provide \$125,000 to MassDEP or its designee which can be used as MassDEP deems appropriate for the protection of aquatic resources in the Deerfield River. BSPC may provide either (a) a one-time payment of funds, or (b) allocation of funds over the 3-year period (payment made in year one will not be subject to inflation; payments made in years two and/or three will be subject to annual inflation adjustments in accordance with the CPI, as calculated from the date of the Commission’s issuance of a new license).
9. **Invasive Plant Species Monitoring and Control Plan.** BSPC shall implement the conditions in the new license issued by the Commission, including development and implementation of an Invasive Plant Species Monitoring and Management Plan. No later than 30 days following the Commission’s issuance of a new license for the Project, BSPC will provide a one-time payment in the amount of \$5,000, and annual payments of \$2,000 thereafter, over the term of the new license (subject to annual inflation adjustments in accordance with the CPI as calculated from the date the Commission issues a new license), for use by NHESP or its designee(s) to conduct invasive plant surveys, mapping, control, management or eradication and planning necessary to accomplish those tasks.
10. **CPI.** The initial annual amounts specified to be paid in each of paragraphs 7, 8 and 9 (each, a “Base Payment”) shall represent payment for the first full calendar year following license issuance. Subsequent year payments shall be changed by the percentage change in the Consumer Price Index from the preceding calendar year. “Consumer Price Index” shall mean the United States Department of Labor's Bureau of Labor Statistics' annual Consumer Price Index, All Urban Consumers (CPI-U), All-Items, U.S. City Average, not seasonally adjusted, and Index Base Period 1982-84=100, or successor index reasonably acceptable to BSPC and MassDEP. Payment shall be made on or before June 30 of each calendar year during the term of the license.
11. **Invasive Aquatic Wildlife Species Monitoring and Management Plan.** BSPC shall implement the conditions in the new license issued by the Commission, including development and implementation of an Invasive Aquatic Wildlife Species Monitoring and Management Plan. During the term of the new license, upon the request of MassWildlife, BSPC will update the Invasive Aquatic Wildlife Species Monitoring and Management Plan upon the addition of invasive aquatic wildlife species to the Commonwealth’s Aquatic Invaders List or successor list.
12. **Land Protection and Public Access.** BSPC shall operate the Project consistent with the Commission’s Terms and Conditions of License for Constructed Major Project Affecting

Navigable Waters of the United States (Form L-3) included in the license issued by the Commission (as may be amended) (“the FERC license”). In accordance with Article 18 of the FERC license, and so far as is consistent with proper operation of the Project as specified in the FERC license, BSPC shall allow the public free access, to a reasonable extent, to Project waters and adjacent Project lands owned by BSPC (as shown in the April 30, 2018 revisions to Exhibit G of the FLA) as it may be modified by the FERC license), for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting. BSPC shall continue to maintain the Project recreation facilities described in the 2018 FLA as it may be modified by the FERC license, including the:

- Bear Swamp Visitor Center;
- Fife Brook Fishing and Boating Access Area;
- Zoar Whitewater Access Area;
- Zoar Picnic Area;
- Bear Swamp Public Hunting Area; and
- Bear Swamp Trail.

Provided, that BSPC may reserve from public access such portions of the Project waters, adjacent lands, and Project facilities as may be necessary for the protection of life, health, and property. BSPC may limit or restrict public access to Project lands or waters to comply with the Commission’s public safety and security guidance and public safety and security plans filed with the Commission.

Provided further, that any modifications made by BSPC to its proposal in the FLA after the issuance of this certification but prior to FERC’s new license that would have a significant or material effect on the conclusions or conditions contained in this certification shall be submitted to MassDEP promptly for review and approval prior to licensing.

13. Prior to or at the time of filing with the Commission, BSPC shall serve all representatives of the MassDEP and MassWildlife on the service list with a copy of any request BSPC may file for amendment of the license, amendment or appeal of any fish and wildlife-related license conditions, or extension of time requests for project construction or implementation of license article provisions.
14. Any modifications made by BSPC to the proposal in BSPC’s Final License Application (FLA) filed with FERC on March 30, 2018 after the issuance of this certification but prior to issuance by FERC of BSPC’s new license will be served to the service list. If MassDEP determines that such amendment(s) to the FLA before the issuance of the BSPC’s new license would have a significant or material effect on the conclusions or conditions contained in this certification, MassDEP may notify BSPC that the modification is subject to MassDEP review and approval prior to licensing.
15. This certification incorporates specific conservation measures (Paragraphs 5, 7, 8, 9 and 11) to address impacts to state-listed species, which MassWildlife has indicated are consistent with MESA. MassWildlife has also indicated that no further MESA review will be required regarding these matters provided that BSPC adheres to the conditions outlined in: the

Settlement Agreement among BSPC, the Department, and Trout Unlimited; this certification; and FERC's Final License.

16. This certification does not grant or affirm any property rights, license, or privilege in any water or any right of use in any water.
17. BSPC shall obtain and comply with all required federal, state and local licenses, permits, authorizations, conditions, agreements and orders required for the construction and operation of the Project.
18. BSPC shall conduct all activities in conformance with all applicable provisions of federal, state and local laws and regulations.
19. All construction, maintenance and repair activities, including disposal of debris and removal of sediments in impounded areas, shall be conducted in a manner so as not to impair water quality and in compliance with any required approvals.
20. To the extent allowed by federal and state law, MassDEP reserves the right to request modifications of this certification if a court of competent jurisdiction or appropriate state appeals board stays, vacates or remands this certification. BSPC retains any rights to participate in any proceeding or filing at FERC or MassDEP relating to modification of the certification
21. BSPC shall allow any employee, agent, consultant, contractor or authorized representative of MassDEP or MassWildlife to (i) enter the facilities, (ii) inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the certification (iii) have access to and copy, at reasonable times, any records that must be kept under the conditions of the certification and (iv) sample or monitor at reasonable times for the purpose of assessing compliance with the terms and conditions of this certification . Any person must comply with all applicable safety and security standards and requirements established by BSPC or federal and state occupational health or safety regulations for entering the facilities.
22. If any event arising from causes beyond the reasonable control of BSPC or of any entity controlled by BSPC, including its engineers, consultants, contractors and subcontractors, that delays or prevents the timely performance of any obligation under this certification notwithstanding BSPC's reasonable efforts to fulfill the obligation (a "force majeure event") occurs , then the time for performance shall be extended for an appropriate period of time. The requirement that BSPC exercise "reasonable efforts" includes using reasonable efforts to anticipate any potential Force Majeure event and all reasonable efforts to address the effects of any such event (a) as it is occurring, and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. BSPC shall bear the burden of demonstrating that a force majeure event has occurred or will occur, and that the delay was beyond the reasonable control and without the fault of BSPC. Such an extension of time must be in writing to have effect.

23. Submissions under this Certification shall be sent to:

MassDEP: Massachusetts Department of Environmental Protection  
Wetlands and Waterways Program  
1 Winter Street  
Boston, MA 02108

Massachusetts Department of Environmental Protection  
Bureau of Water Resources  
Western Regional Office  
436 Dwight Street  
Springfield, MA 01103

MassWildlife: Massachusetts Division of Fisheries and Wildlife  
Field Headquarters  
Assistant Director of Fisheries  
1 Rabbit Hill Road  
Westborough MA 01581

Massachusetts Division of Fisheries and Wildlife  
Assistant Director of Natural Heritage & Endangered Species  
Attn: Regulatory Review  
1 Rabbit Hill Road  
Westborough MA 01581

USFWS: United States Fish and Wildlife Service  
New England Field Office  
Attention: Supervisor  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087

  
\_\_\_\_\_  
Martin Suuberg, Commissioner  
Massachusetts Department of Environmental Protection

10/14/2022  
\_\_\_\_\_  
Date