

Monadnock Paper Mills, Inc.
Attn: Brian Maloy, Environmental Services Manager
117 Antrim Road
Bennington, NH 03442-4205

WATER QUALITY CERTIFICATION

In Fulfillment of

Section 401 of the United States Clean Water Act (33 U.S.C 1341)

WQC # 2013-FERC-001.1

Project Name:	Monadnock Hydroelectric Project
Project Location:	Bennington, Greenfield, Peterborough, and Hancock, New Hampshire
Affected Waterbody:	Contoocook River
Owner/Applicant:	Monadnock Paper Mills, Inc. 117 Antrim Road Bennington, NH 03442-4205
Appurtenant License:	Federal Energy Regulatory Commission No. P-6597
Date of Approval:	March 11, 2016 (subject to Conditions below)

A. INTRODUCTION

Monadnock Paper Mills, Inc. (the Applicant) owns and operates the Monadnock Hydroelectric Project (i.e., the Activity or Project) and proposes the continued operation of the Activity for hydropower generation.

The Activity consists of a series of four existing concrete gravity dams: Powder Mill Pond, Monadnock, Pierce, and Paper Mill, the latter three having existing power stations with a total installed capacity of 1,889 kW. The project works also include four impoundments and appurtenant facilities, including transmission lines. The Activity is located in Hillsborough County, New Hampshire, with impoundments of facilities sited in the towns of Bennington, Greenfield, Peterborough, and Hancock. According to the Applicant, the Activity boundary follows the normal full pond elevation around each of the project impoundments. The upstream extent of the Activity boundary extends approximately 3.6 miles upstream of the Powder Mill Pond headwaters on the Contoocook River. The downstream extent of the Activity boundary is the Antrim Road Bridge over the Contoocook River.

This 401 Water Quality Certification (Certification) documents laws, regulations, determinations and conditions related to the Activity for the attainment and maintenance of NH surface water quality standards, including the provisions of NH

RSA 485-A:8 and NH Code of Administrative Rules Env-Wq 1700, for the support of designated uses identified in the standards.

B. WATER QUALITY CERTIFICATION APPROVALS

Based on the facts, findings and conditions noted below, the New Hampshire Department of Environmental Services (DES) has determined that there is reasonable assurance that construction and operation of the Activity will not violate surface water quality standards. DES hereby issues this Water Quality Certification (Certification), subject to the conditions in Section E, in accordance with Section 401 of the United States Clean Water Act (33 U.S.C. 1341) and RSA 485-A:12,III. This Certification replaces WQC # 2013-FERC-001 issued on January 31, 2014.

C. STATEMENT OF FACTS AND LAW

- C-1. Section 23 of the United States Federal Power Act (Title 16 U.S. Code, Chapter 12, Subchapter I, Section 817(1)) states

"[i]t shall be unlawful for any person, State, or municipality, for the purpose of developing electric power, to construct, operate, or maintain any dam, water conduit, reservoir, power house, or other works incidental thereto across, along, or in any of the navigable waters of the United States, or upon any part of the public lands or reservations of the United States (including the Territories), or utilize the surplus water or water power from any Government dam, except under and in accordance with the terms of a permit or valid existing right-of-way granted prior to June 10, 1920, or a license granted pursuant to this chapter."

- C-2. Section 4 of the United States Federal Power Act (Title 16, U.S. Code, Chapter 12, Subchapter I, Section 797(e)) authorizes FERC

"[t]o issue licenses to citizens of the United States, or to any association of such citizens, or to any corporation organized under the laws of the United States or any State thereof, or to any State or municipality for the purpose of constructing, operating, and maintaining dams, water conduits, reservoirs, power houses, transmission lines, or other Project works necessary or convenient for the development and improvement of navigation and for the development, transmission, and utilization of power across, along, from, or in any of the streams or other bodies of water over which Congress has jurisdiction..."

- C-3. Section 401 of the United States Clean Water Act (Title 33 U.S. Code, Chapter 26, Subchapter IV, Section 1341) states

"[a]ny applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or

operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate...that any such discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of this title."

C-4. Clean Water Act Section 401(a) states "[n]o license or permit shall be granted until the certification required by this section has been obtained or has been waived...No license or permit shall be granted if certification has been denied by the State..."

C-5. Clean Water Act Section 401(a) and NH RSA 485-A:12,III authorizes DES to verify that the Project maintains compliance with NH surface water quality standards. RSA 485-A:12, III states:

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

C-6. Env-Wq 1700, Surface Water Quality Regulations, effective May 21, 2008, fulfills the requirements of Section 303 that the State of New Hampshire adopt water quality standards consistent with the provisions of the Clean Water Act.

C-7. Env-Wq 1701.02 provides that the surface water quality regulations shall apply to all surface waters and to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters.

C-8. Env-Wq 1702.46 defines surface waters as "perennial and seasonal streams, lakes, ponds and tidal waters within the jurisdiction of the state, including all

streams, lakes, or ponds bordering on the state, marshes, water courses and other bodies of water, natural or artificial," and waters of the United States as defined in 40 CFR 122.2.

- C-9. Env-Wq 1703.01 (c) states that "[a]ll surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters."
- C-10. Env-Wq 1703.01 (d) states that "[u]nless the flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses."
- C-11. Env-Wq 1703.19 states that:
- "(a) The surface waters shall support and maintain a balanced, integrated and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region; and
 - (b) Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function."
- C-12. FERC issued a license for the Project on August 27, 1984; the license expired on August 1, 2014. The Applicant applied for a new FERC license on July 31, 2012 (i.e., the final license application). FERC completed an Environmental Assessment of the final license application on July 16, 2013.
- C-13. The US Fish and Wildlife Service (USFWS) has provided recommended conditions for the FERC license for the Monadnock Hydroelectric Project to protect, mitigate damages to, and enhance fish and wildlife resources pursuant to Section 10(j) of the Federal Power Act [16 U.S.C. 803(j)(1)]. The recommended conditions and supporting information were presented in letters from USFWS to FERC dated March 14, 2013, August 13, 2013, and September 18, 2013.
- C-14. In 2007, DES issued a 401 Certification for a National Pollutant Discharge Elimination System permit issued to the Applicant by the U.S. Environmental Protection Agency (Permit No. NH0000230). This permit and certification were relevant to a discharge of treated effluent from paper manufacturing processes, not operation of the Monadnock Hydroelectric Project.
- C-15. On February 1, 2013, the Applicant submitted an application and associated supplemental information for Water Quality Certification to DES. On July 19, 2013, DES requested additional information from the Applicant because the information submitted in the application was insufficient to determine whether water quality standards would be met in all areas affected by the Activity. On August 16, 2013, 28 days after the DES request, the Applicant provided the information that was requested.

- C-16. DES issued a draft Certification for public comment from December 19, 2013 to January 20, 2014. Comments were received from the U.S. Fish and Wildlife Service (USFWS) and the Applicant.
- C-17. On January 31, 2014, DES issued a final Certification and Response to Public Comments and posted both documents on the DES website at <http://des.nh.gov/organization/divisions/water/wmb/section401/ferc.htm>.
- C-18. On February 28, 2014, the Applicant filed an appeal of the final Certification with the N.H. Water Council. After consultation with the Applicant additional information was received and revisions were made to the Certification. Since substantive changes were made, the revised Certification was made available for public comment prior to finalizing.
- C-19. On May 23, 2014, FERC issued a new license for the Project based, in part, on the DES Certification issued on January 31, 2014.
- C-20. RSA 485-A:18,I Investigation and Inspection; Records states the following: "Any authorized member or agent of the department may enter any land or establishment for the purpose of collecting information that may be necessary to the purposes of this chapter and no owner of such establishment shall refuse to admit any such member or employee."
- C-21. DES issued a draft of the proposed revised Certification for public comment from January 29, 2016 to February 29, 2016. No comments were received.

D. FINDINGS

- D-1. The Applicant owns and operates the Monadnock Hydroelectric Project, which requires a federal license under Section 23 of the Federal Power Act. The Applicant filed an application for a New Major Project Less than 5 MW to FERC on July 31, 2012. According to the Applicant, commercial and industrial dams have operated at this location for over 100 years.
- D-2. The project requires a Certification under RSA 485-A:12, III and Section 401 of the Clean Water Act.
- D-3. Monitoring requirements are appropriate for this Project during operational and non-operational periods to achieve the goals stated in Section E of this Certification, pursuant to Section 401 of the United States Clean Water Act (Title 33 U.S. Code, Chapter 26, Subchapter IV, Section 1341(d)), which provides that

"[a]ny certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations...and shall become a condition on any Federal license or permit subject to the provisions of this section."

- D-4. The Monadnock Hydroelectric Project consists of a series of four existing concrete gravity dams: Powder Mill Pond, Monadnock, Pierce, and Paper Mill, the latter three having existing power stations with an approximate total installed capacity of 1,889 kW. The project works also include four impoundments and appurtenant facilities, including transmission lines.
- a. The Powder Mill Pond Dam is a concrete gravity structure consisting of earthen embankments, with concrete core walls at river mile (RM)¹ 46.08. It is 366 feet long and 18.6 feet high, with a 228-foot-long spillway section that has a crest elevation of 675.44 feet based on 1929 National Geodetic Vertical Datum (NGVD) without flashboards and an elevation of 677.44 feet NGVD at the top of 2-foot-high flashboards. At the normal pond elevation (677.44 feet NGVD), the dam impoundment has a volume of approximately 1,940 acre-feet, a surface area of approximately 435 acres, and extends upstream approximately 3.6 miles. The total contributing drainage area at the Powder Mill Dam is 184 square miles. The Powder Mill Pond development also includes a 15-foot-wide, 35-foot-long regulating gatehouse structure with four 2.5-foot-wide, 2.5-foot-high wooden vertical slide gates (with 2 foot wide by 2 foot high openings); a 4 foot by 4 foot flood gate; and a 21-foot-long, 4-foot diameter outlet pipe at the base of the dam.
 - b. The Monadnock Dam is a concrete gravity dam located 4,200 feet downstream of the Powder Mill Dam at RM 45.28. It has a total length of 515 feet, a maximum height of 22 feet, and a 165-foot-long spillway section (15.67 feet high) with a crest elevation of 663.80 feet NGVD without flashboards and an elevation of 665.80 feet NGVD at the top of 2-foot-high flashboards. To pass minimum flow, the Applicant installed a 10-foot-wide by seven-inch-high notch in the flashboards in the October, 2015. The dam has a total impoundment area of approximately 5 acres at the normal pool level (665.80 feet NGVD when flashboards are installed), which extends upstream to the toe of the Powder Mill Dam. Water from the impoundment is diverted through a 32-foot-wide, 14-foot-high intake structure equipped with four 5.5-foot-wide, 8-foot-high headgates with 5-foot by 7.5-foot openings to a 75-foot-long, 20-foot-wide powerhouse at the west end of the dam. The powerhouse contains one 125-kilowatt (kW) turbine-generating unit and one 298-kW turbine-generating unit for a total installed capacity of 423 kW. The individual flow capacity range of each turbine is 65 to 90 cfs and 120 to 240 cfs for a total combined turbine flow capacity range of 65 to 330 cfs. After passing through the turbines, the water is discharged back to the river approximately 100 feet downstream of the dam. The dam also has a 5-foot by 5-foot floodgate that opens into the tailrace. The bypass channel at this development is approximately 50 feet long.

¹ River mile is defined as the distance in miles along the Contoocook River, starting from its confluence with the Merrimack River.

- c. The Pierce Dam is a concrete gravity dam located approximately 900 feet downstream from the Monadnock Dam at RM 45.11. It has a total length of 420 feet, a maximum height of 28 feet and a 290-foot-long spillway with a crest elevation of 651.40 feet NGVD without flashboards and 653.40 feet NGVD at the top of 2-foot-high flashboards. To pass minimum flow the Applicant, in November 2015, increased the size of the notch in the flashboards from 10-foot-wide by six-inches-high to 10-foot-wide by seven-inches-high. The dam has a total impoundment area of approximately 7 acres at the normal full pool (653.40 feet NGVD when flashboards are installed) which extends upstream to the toe of a portion of the Monadnock dam however it does not inundate a small section of the bypass reach on the east side of the dam. Water from the impoundment is diverted through a 32-foot-wide, 21-foot-high intake structure equipped with three 9-foot-wide, 12-foot-high wooden slide gates to a 25-foot-long, 35-foot-wide powerhouse at the east end of the dam. A new spillgate (anticipated to be 3-foot-wide by 2-foot-high) is proposed to be constructed in 2016 to pass minimum bypass reach flows when the impoundment must be lowered below the concrete dam crest for maintenance such as flashboard repair. The powerhouse contains one 500-kW turbine-generating unit and one 220-kW turbine-generating unit for a total installed capacity of 720 kW. The individual flow capacity range of each turbine is 55 to 139 cfs and 134 to 309 cfs for a total combined turbine flow capacity range of 55 to 448 cfs. After passing through the turbines, the water is discharged through a tailrace. The tailrace partially encircles an island and re-enters the main channel of the river approximately 600 feet downstream of the main dam. The bypass channel at this development is approximately 750 feet long.
- d. The Paper Mill Dam is a concrete gravity dam located 1,140 feet downstream of the Pierce Dam at RM 44.9. It has a total length of 280 feet, a maximum height of 19 feet and a 142-foot-long gravity spillway with a crest elevation of 627.64 feet NGVD (the dam does not currently have any flashboards). The dam has a 6-foot-wide, 8-foot-high timber waste gate with a 16-inch-wide, 16-inch-high cut-out with the bottom of the cut-out at elevation 625.31 feet NGVD. The Applicant proposes to increase the size of the cut-out to 20-inches-wide by 20-inches-high to pass the minimum bypass flow. The dam has a total impoundment area of approximately 5 acres which extends upstream approximately 1,140 feet at full pool elevation (627.64 feet NGVD). Water from the impoundment is diverted through and a 300-foot-long, 24-foot-wide power canal and headgate structure with three 6-foot-wide, 8-foot-high wooden slide gates and a 24-foot-wide, 10-foot-long forebay. The diverted water is then passed through a 30.0-foot-wide, 7.5-foot-high intake structure and a 10-foot-diameter, 200-foot-long steel penstock that leads to a 22-foot-wide, 27-foot-long generating room (powerhouse) located on the lower level of Monadnock Paper's production facility. The generating room contains one 746-kW turbine generating unit with a flow capacity range of 193 to 378 cfs. After passing through the turbine, the water is discharged through a tailrace and re-enters the river

approximately 800 feet downstream of the dam. The bypass channel at this development is approximately 1300 feet long.

- e. Minimum flows are required at the Project as per Article 26 of the 1984 FERC project license. The Project has a required continuous minimum flow through the Project of 70 cfs or inflow (whichever is less) as measured immediately downstream of the Powder Mill development and at the confluence of the tailrace and bypass reach of the Paper Mill development. At each of the three downstream developments (Monadnock, Pierce, and Paper Mill), the 1984 license also requires the Applicant to release a year-round minimum flow of 13 cfs, or inflow (whichever is less), in the bypass reach.
- f. According to the Applicant's final FERC license application (FERC application), the Project has been operated in a seasonal run-of-river mode. The Powder Mill Pond Dam is operated to regulate the flow of the river to the three lower dams for the maintenance of minimum flows and the generation of power at these sites. The downstream dams, Monadnock, Pierce, and Paper Mill, have generating facilities and are operated in a run-of-river mode, taking advantage of flows released by the Powder Mill Pond Dam. When inflow equals or exceeds required minimum flows plus minimum flows needed for generation, the optimum generating flow (300 cfs) for the three hydroelectric developments downstream is released from the Powder Mill Pond Dam. According to the FERC application, storage ponding and releasing is typically implemented only occasionally at Powder Mill Pond for maintenance activities at the other downstream developments, to maintain minimum flows to downstream developments, and to accommodate flood flows, and rarely for meeting short-term energy demands.

While the 1984 FERC license allowed for daily or weekly storage and release, the FERC application indicated that the Applicant operated on a seasonal store and release mode for 6 months of the year. According to the FERC application, this operational regime is primarily associated with maintenance, minimum flows, and flood storage. During the summer season, the Applicant maintains Powder Mill Pond at normal full pond elevation in support of NH Fish and Game Department (NHFGD) fishery management objectives (i.e., to promote largemouth bass spawning). The Applicant does not manipulate pond levels for power generation in the winter months which allows for ice-over conditions to be maintained for public fishing.

As discussed in Fact C-18, the Applicant appealed the final Certification issued for this Project in January, 2014. As a result of subsequent consultation, it is understood that the Applicant will operate the Project year-round in a run-of-river mode by maintaining impounded water levels at normal full pool (except for maintenance activities and during emergency conditions).

According to flow calculations submitted by the Applicant in 2015, if inflow was equal to the maximum combined turbine capacity plus minimum bypass flow, and the wicket gates were then opened for full power generation, the water level in the Monadnock, Pierce, and Paper Mill impoundments would drop a maximum of approximately 8, 7 and 11 inches respectively.

The Applicant typically conducts a drawdown once per year for annual maintenance on the hydro facilities. This drawdown usually lasts approximately one to two weeks (and sometimes longer) depending on the issues that arise. The Applicant has historically refilled the impoundments for the Project by retaining the excess flow above the amount needed for maintenance of minimum outflow requirements. In a letter dated August 16, 2013 to FERC, the Applicant stated that according to the current license, the Applicant must provide State and federal agencies with notification at least 60 days prior to temporary maintenance drawdowns. The notification identifies the level of drawdown necessary, timing and duration, method for ensuring minimum flow requirements are met during drawdown, and the opportunity for agencies to respond to notification. The Applicant proposes to continue this notification procedure under the new license.

- g. In 2014 and 2015, the Applicant installed Automated Pond Level Control Systems (APLCSs) at each of the four developments to minimize fluctuations in the impoundments. All are now in operation. The level controls are accurate to +/- 0.01 feet. In response to elevation changes, and to control water leaving the ponds, the pond level transmitter sends a signal to the level controller that controls the four vertical slide gates at the Powder Mill Pond development and the turbine wicket gates at the three hydropower developments.

D-5. The Contoocook River, Powder Mill Pond, other impoundments, and unnamed wetlands in the Project area are surface waters of the state under Env-Wq 1702.46. Surface waters that could be potentially affected by this Activity and their associated AU numbers (where available*) include the following:

Assessment Unit (AU)	Water body Name
NHRIV700030104-23	Contoocook River – Boglie Brook Dam to Otter Brook
NHRIV700030106-08	Contoocook River – Otter Brook to Powder Mill Pond
NHLAK700030107-03	Powder Mill Pond
NHRIV700030108-03	Contoocook River – Powder Mill Dam to Monadnock Dam
NHIMP700030108-01	Monadnock Dam

Assessment Unit (AU)	Water body Name
NHIMP700030108-02	Pierce Dam
NHIMP700030108-03	Paper Mill Dam
NHRIV700030108-05	Contoocook River – Paper Mill Dam to upstream of Monadnock Paper Mill NPDES
* DES has assigned Assessment Unit (AU) identification numbers to surface waters that appear on 1:24,000 scale hydrography. Consequently, not all surface waters currently have an AU number. Surface waters that do not have an AU number are still considered surface waters of the State in accordance with Env-Wq 1702.46.	

- D-6. The surface waters that may be potentially affected by the Activity are all Class B water bodies. Therefore, Class B New Hampshire surface water quality standards apply to the water bodies affected by the Activity. Class B water bodies are considered suitable for fishing, swimming, and, after adequate treatment, as a water supply.
- D-7. According to the 2012 Section 303(d) list of impaired waters, the following surface waters in the vicinity of the proposed Activity, which have assigned AU numbers, are listed as impaired. All impairments, with the exception of those highlighted in bold (which have approved Total Maximum Daily Load studies), are on the Section 303(d) List.

Assessment Unit (AU)	Water body Name	Cause of Impairment (Designated Use Impaired)
NHRIV700030104-23	Contoocook River – Boglie Brook Dam to Otter Brook	Dissolved Oxygen (AL) Mercury (FC)
NHRIV700030106-08	Contoocook River – Otter Brook to Powder Mill Pond	E.coli (PCR) Aluminum (AL) pH (AL) Mercury (FC)
NHLAK700030107-03	Powder Mill Pond	Chlorophyll-a (PCR) Aluminum (AL) Dissolved Oxygen (AL) Dissolved Oxygen Saturation (AL) Non-Native Plants (AL)
Notes: AL = Aquatic Life, PCR = Primary Recreation, SCR = Secondary Recreation, FC = Fish Consumption, SFC = Shellfish Consumption Impairments highlighted in bold have approved Total Maximum Daily Load studies. All other impairments are on the Section 303(d) List.		

- D-8. The Contoocook River within the Activity boundary is impacted by the Activity’s four impoundments, three bypass reaches, and three tailraces. In addition, the regulated river flows from the Project influence the river flows downstream.

The impoundments, bypass reaches, and tailraces are created by the presence of the Powder Mill Dam, Monadnock Dam, Pierce Dam, and Paper Mill Dam. The diversion of water through powerhouses during hydroelectric power generation reduces the quantity of water available to bypass reaches. The presence of dams and the subsequent creation of impoundments at each development reduces water velocity and increases river residence time beyond that which occurs under unimpounded conditions. Store and release operations manipulate water levels in Powder Mill Pond. These conditions may promote variable water quality conditions, particularly water temperature and dissolved oxygen, and can foster the development of aquatic plant communities, including phytoplankton that can influence other water quality parameters such as pH and water clarity.

D-9. Water Quality Study. The Applicant studied the water quality of the Contoocook River from upstream of Powder Mill Pond to below the Paper Mill Dam tailrace during 2010 to address the water quality concerns raised by DES and other resource agencies during the pre-filing consultation period. The study consisted of continuous (every 30 minutes for approximately 2 to 3 weeks) measurements of dissolved oxygen and temperature using datasondes as well as monthly grab samples for nutrients, chlorophyll-a, bacteria, pH, alkalinity, and specific conductance. The study was conducted in June, July, August, and September 2010. During this time, the river flow ranged from approximately 30 to 50 cfs, which is approximately half the normal level for this period based on historical observations from 1945-2008. No hydropower was generated during the study because of the low flows.

- a. Dissolved oxygen was compliant with state water quality standards in all areas except Powder Mill Pond. In Powder Mill Pond, dissolved oxygen fell below state standards (no less than 5 mg/L or a daily average of 75% saturation) on one day during the two to three week monitoring period in 2010 (4.92 mg/L and 71% daily average percent saturation on July 26, 2013). Powder Mill Pond is listed as impaired for dissolved oxygen on the 2012 NH 303(d) List. The minimum dissolved oxygen in the Monadnock impoundment was just above the dissolved oxygen standards (5.20 mg/L and daily average of 77.1% saturation). The minimum dissolved oxygen in the Pierce and Paper Mill impoundments were substantially above the dissolved oxygen standards (6.43 and daily average of 84.5% saturation in the Pierce impoundment and 6.56 mg/L and daily average of 85.1% saturation in the Paper Mill impoundment). Minimum impoundment temperature ranged from 72.2 °F (22.3°C) to 75.3°F (24.1°C). Maximum impoundment water temperatures ranged from 81.8°F (27.7°C) to 84.2°F (29.1°C).
- b. Temperature measurements from deployed loggers showed a relatively small increase in average temperature from upstream of the project (71 °F) to below the project (73 °F)².

2. From Table 4-4, in the July 2012 Final Study Report (p.14 of the 2010 Water Quality Study Report (Revised)).

- c. Nutrient concentrations were highest at the station approximately one mile upstream of the Activity, indicating upstream sources of nutrients to Powder Mill Pond. Total phosphorus concentrations ranged from 46 to 106 ug/L upstream of the Activity and 30-48 ug/L downstream. Nitrate and total Kjeldahl nitrogen were only detected upstream of the Activity at 0.1 and 1.59 mg/L, respectively. Ammonia concentrations did not change appreciably from upstream (0.305 mg/L) to downstream of the Activity (0.227-0.26 mg/L).
- d. Chlorophyll-a concentrations were generally low during the study. The highest concentration of 4.76 ug/L was measured in Powder Mill Pond, however, this water body is listed as impaired for chlorophyll-a on the 2012 NH 303(d) List based on measurements from other studies that exceeded the threshold of 15 ug/L.
- e. Instantaneous (i.e., grab) measurements of dissolved oxygen and water temperature were taken in the Powder Mill Pond reach and in the bypass channels for the Monadnock and Pierce developments in July, August and September of 2010. Estimated flows ranged from 31 to 56 cfs. The Paper Mill bypass reach was sampled in June and July of 2012. Estimated flows ranged from 31 to 47 cfs. All flow was spilling into the bypass reaches during the sampling events because river flows were too low to generate power. Dissolved oxygen ranged from 6.62 to 8.00 mg/L and temperature ranged from 66.6 °F (19.4 °C) to 75.2 °F (24.0 °C). Monitoring to determine compliance with the 75 percent daily average percent saturation standard [Env-Wq 1703.07 (b)] at flows equal to the current minimum allowable bypass flow of 13 cfs, and when power was being generated, was not conducted in the Pierce and Paper Mill bypass reaches (the longest bypass reaches).
- f. Compliance with the 75 percent saturation dissolved oxygen standard was not directly measured in the Powder Mill Pond reach where the current minimum required flow is 70 cfs or inflow, whichever is less. However, since 1) flows during the study were well less than 70 cfs (i.e., approximately 30 to 50 cfs), and 2) average daily dissolved oxygen percent saturation met standards in the downstream Monadnock impoundment, which extends up to the Powder Mill Pond dam, it is expected that average daily percent saturation standard for dissolved oxygen is also met in the Powder Mill Pond reach.
- g. Dissolved oxygen and temperature monitoring was not conducted downstream of the Paper Mill development (where the river transitions to low gradient) to determine if state dissolved oxygen standards were met at the current minimum flow of 70 cfs or inflow (whichever is less). However, since the project is going to be operated in run-of-river mode and since dissolved oxygen was substantially above standards in the upstream Paper Mill impoundment at relatively low flows (30 to 50 cfs), it is expected that dissolved oxygen standards will also be met in the reach downstream of the Paper Mill development.

- h. Based on previous studies, Powder Mill Pond is categorized as eutrophic and listed as impaired for dissolved oxygen and chlorophyll-a on the New Hampshire 303(d) List of Impaired Waters.
- i. Infrequent occurrences of non-attainment with established dissolved oxygen criteria were observed in Powder Mill Pond in 2010, which is consistent with the impairment for dissolved oxygen in Powder Mill Pond on the 2012 NH 303(d) List. Pollutant loadings from upstream point and nonpoint sources can impact the concentrations of DO and chlorophyll a. Since 2009, phosphorus loadings from two upstream wastewater treatment plants have been reduced (Jaffrey in 2009 and Peterborough in 2012). The effects of this change in pollutant loading on dissolved oxygen and chlorophyll-a in Powder Mill Pond is unknown. Conceptually, however, DES expects that reductions in pollutant loading, combined with operating the project in a run-of-river mode by maintaining the pond at normal full pool (except for maintenance or emergencies), will ultimately improve dissolved oxygen and chlorophyll levels.
- j. Based on the above, additional water quality monitoring may be warranted to confirm compliance with dissolved oxygen standards when minimum allowable flows are passed downstream in the Pierce and Paper Mill bypass reaches. Based on the annual flow duration curve in Appendix E of the FERC application, inflows of 13 cfs or less occur less than one percent of the time. Consequently, minimum bypass flows of 13 cfs are expected to occur most often when inflow is within the operating range of the turbines and flow is passed through the turbines (which is only done when power is generated).

D-10. Freshwater Mussel Study. The Applicant completed a study of freshwater mussels to address concerns raised by DES and other resource agencies during the pre-filing consultation period. The study was conducted in 2010 and consisted of field surveys of the perimeter of each impoundment to a depth of approximately 6 feet and the river reaches below each dam. Ten sites within Powder Mill Pond ranging in size from 0.2 acres up to 3.8 acres were surveyed. Eastern elliptio (*Elliptio complanata*) were found in all sites and were the most dominant species. The eastern floater (*Pyganodon cataracta*) was also found at 3 of the sites in Powder Mill Pond. A single remnant triangle floater shell (*Alasmidont a undulata*) was found in the Pierce reach. Eastern elliptio and eastern floaters are generalists that use pond, lakes and small rivers as preferred habitat. Brook floaters (a state-protected species) were not found during the survey.

The Applicant concluded that, although somewhat lacking in species diversity, the survey results indicate that Activity waters contain healthy mussel populations and also provide a wide range of reproductive hosts for many of the freshwater mussel species found in New Hampshire.

In a letter dated August 13, 2013 to FERC, the USFWS stated that the mussel survey results showed lower densities in beds found at shallower elevations

(i.e., in beds more frequently exposed to routine project operations).

In a letter dated May 22, 2011, DES commented that the mussel populations described by the Applicant (i.e., mainly one tolerant species with some indication of the presence of two other species) do not necessarily represent a healthy condition.

Operating the project year-round as a run-of-river operation by maintaining impounded water levels at normal full pool (except for maintenance activities or emergency conditions) as committed to by the Applicant may benefit mussel abundance and diversity.

- D-11. Baseline Fish Survey and Instream Flow Study. The Applicant completed a baseline fish survey and instream flow study to address fisheries concerns raised by DES and other resource agencies during the pre-filing consultation period. The baseline fish survey took place on October 2011 and consisted of electroshocking at four locations in the study area. Aquatic habitat suitability in relation to instream flow was evaluated using the Instream Flow Incremental Methodology (IFIM) modeling approach and a Physical Habitat Simulation Model (PHABSIM). Field data to calibrate the model was collected in July 2011 for the following river flows:

Site/Reach	Low	Mid	High
Powder Mill	23 cfs	63 cfs	117 cfs
Pierce	23 cfs	63 cfs	117 cfs
Paper Mill	15 cfs	63 cfs	109 cfs
Downstream Antrim	26 cfs	62 cfs	105 cfs

The calibration data were used to populate a PHABSIM model to predict habitat over a range of incremental flows from 10 to 120 cfs. In addition, a habitat duration and time-series analysis was completed so that the frequency and duration of various levels of suitable habitat could be evaluated. The results of the studies have been evaluated by fisheries experts at USFWS and the New Hampshire Fish and Game Department (NHFGD). It should be noted that the NHFGD manages Powder Mill Pond as a warmwater fishery. Several bass fishing tournaments are held annually on the pond. NHFGD manages the bypass and riverine reaches of the Contoocook River near Bennington, including the project waters of the Monadnock, Pierce and Paper Mill developments as a put and take trout fishery. Annual stocking of brown and rainbow trout is conducted below the Powder Mill and Monadnock dams.

- a. The range of flows modeled for the study was from 10 cfs to 120 cfs. The median monthly flows in the study area exceed 120 cfs (the upper end of the study) during all months other than July through October. Therefore,

findings from the study are most applicable to the summer and early fall seasons.

- b. Calibration data was collected at 9 transects: two downstream of Antrim, 4 below the Paper Mill dam, 1 below the Pierce dam, and 2 below the Powder Mill dam.
- c. Weighted useable area (WUA) represents the aquatic habitats available to aquatic biota. WUA is calculated using the parameters (depth, velocity and substrate) forecast for each cell³ as they relate to the Habitat Suitability Indices (HSI) criteria established for the target species and lifestage of interest. Selected target species for use as indicators of habitat suitability were brown trout (adult and juvenile), longnose dace (adult and juvenile) and benthic macroinvertebrates. For each cell the PHABSIM model rates each parameter based on the HSI criteria from 0.0 to 1.0. These values are then multiplied by the known area of the cell. All the areas are then summed to arrive at a total WUA for each transect. The WUA for each transect is then summed to arrive at the total available habitat for each study site, flow increment and target species. One unit of WUA represents 1 square foot of usable habitat.

Results are often expressed as a percent of maximum WUA which is the WUA at a certain flow divided by the highest WUA modeled for the range of flows studied. Since the range of flows studied only represents summer and early fall conditions, the maximum WUA metric represents the percent of WUA available under summer and early fall conditions, not during the entire year.

- d. Due to the short length of the Monadnock Dam bypass reach (50 feet), the Applicant and consulting agencies did not include this reach in the instream flow study. The Applicant requested that the existing bypass reach minimum flow requirement (13 cfs) in the 1984 FERC license be used for the new FERC license. The USFWS agrees and has recommended that the bypass reach minimum flow for the Monadnock Dam continue to be 13 cfs.
- e. The Pierce bypass channel is the second longest bypass reach (750 feet) and is dominated by high gradient falls, fast flowing pool and riffle complexes strewn with large boulders, and large deep pools. The composite WUA / discharge relationship curve for the target fish species for the Pierce dam bypass reach is shown in Figure 9⁴ below. Results of the study indicate that the Pierce Dam bypass reach minimum flow requirement in the 1984 FERC license (13 cfs) provides approximately 40% of maximum WUA for adult brown trout, 50% of maximum WUA for juvenile brown trout, 65% of maximum WUA for adult longnose dace, 95% of maximum WUA for juvenile longnose dace, and approximately

3. In PHABSIM, a "cell" is an increment of width of a stream channel multiplied by its length to give an area.

4. Figure 9 is from the July 2012 Final License Application.

10% of maximum WUA for benthic macroinvertebrates. In the FERC application, the Applicant requested that the minimum flow requirement in the 1984 FERC license be used for the new FERC license. The USFWS recommended that the bypass reach minimum flow requirement be increased to 40 cfs in order to increase WUA.

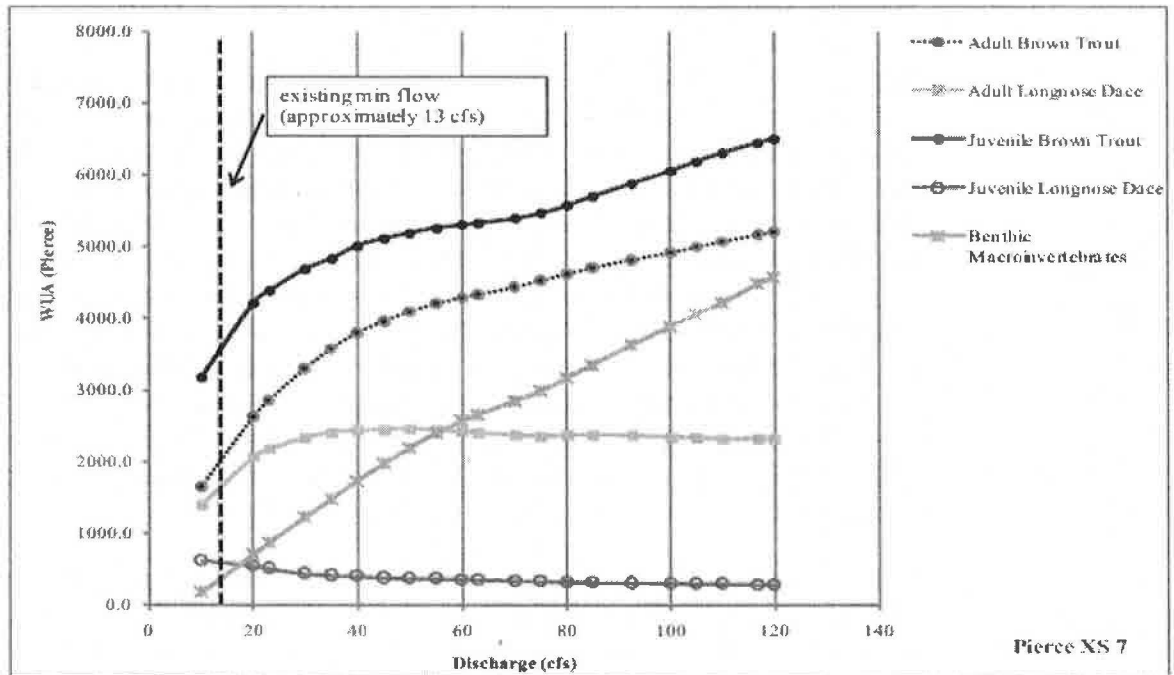


FIGURE 9. COMPOSITE WUA/DISCHARGE RELATIONSHIP FOR THE PIERCE BYPASSED REACH.

Percent of Maximum Weighted Usable Area for Target Fish Species in the Pierce Dam Bypass Reach at Different Flows		
Species	Flow=13 cfs	Flow=40 cfs
Adult Brown Trout	40%	73%
Juvenile Brown Trout	50%	77%
Adult Long Nose Dace	65%	99%
Juvenile Long Nose Dace	95%	65%
Benthic Macroinvertebrates	10%	38%

- f. The Paper Mill dam bypass reach is the longest bypass (1300 feet) and consists primarily of a high gradient bedrock dominated reach below the dam and a low gradient riffle-run-pool habitat complex located immediately upstream of the tailrace. The composite WUA / discharge relationship curve for the target fish species for the Paper Mill dam bypass reach is shown in Figure 8⁵ below. Results of the study indicate that the Paper Mill bypass reach minimum flow requirement in the 1984

5. Figure 8 is from the July 2012 Final License Application.

FERC license (13 cfs) provides approximately 50% of maximum WUA for adult brown trout, 64% of maximum WUA for juvenile brown trout, 48% of maximum WUA for adult longnose dace, 71% of maximum WUA for juvenile longnose dace, and approximately 25% of maximum WUA for benthic macroinvertebrates. In the FERC application, the Applicant requested that the minimum flow requirement in the 1984 FERC license be used for the new FERC license. The USFWS recommended that the bypass reach minimum flow requirement be increased to 60 cfs in order to increase the WUA.

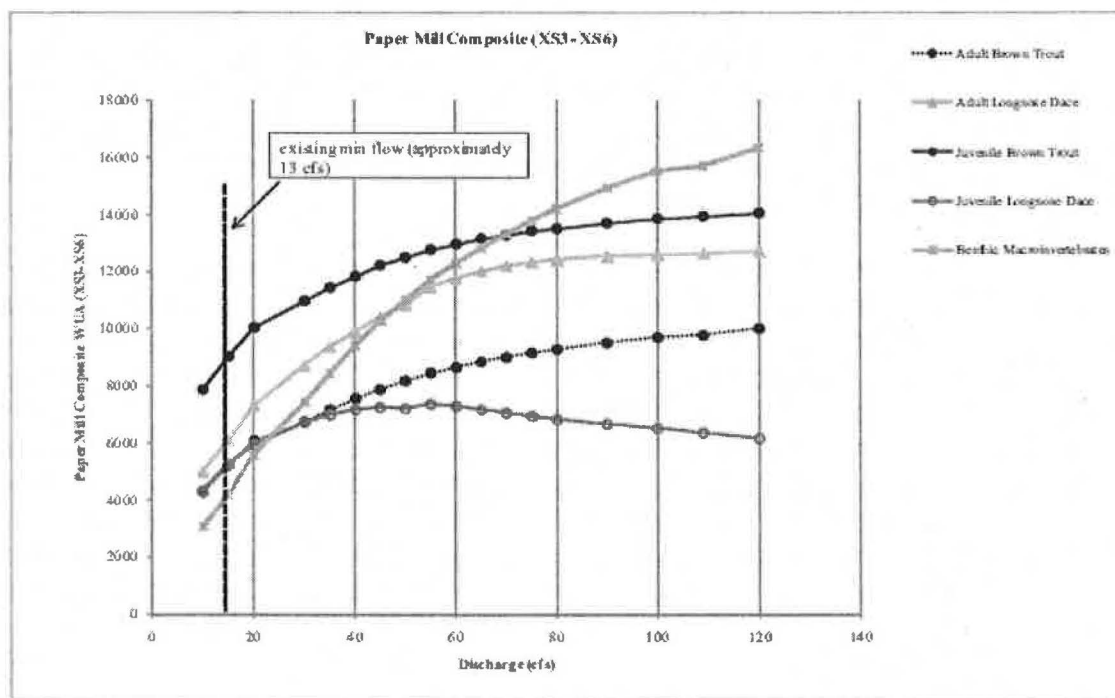


FIGURE 8. COMPOSITE WUA/DISCHARGE RELATIONSHIP FOR THE PAPER MILL BYPASSED REACH.

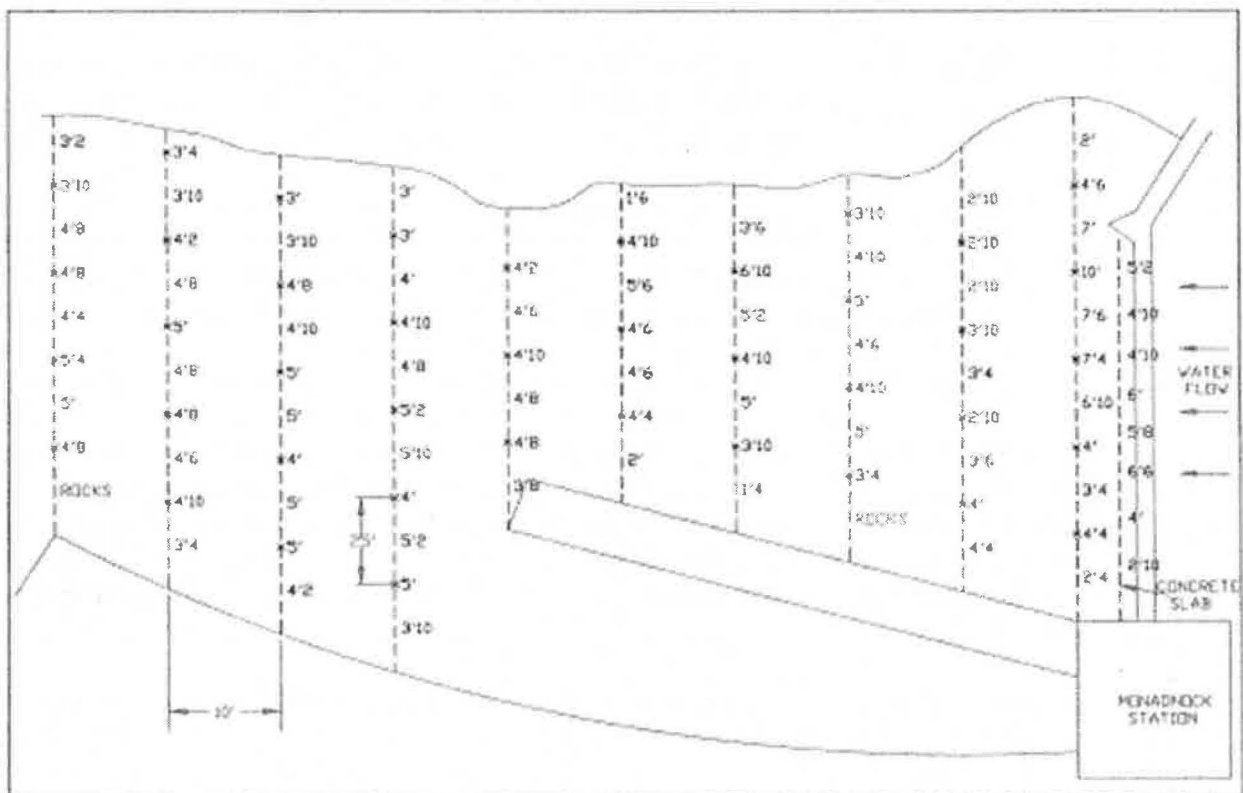
Percent of Maximum Weighted Usable Area for Target Fish Species in the Paper Mill Dam Bypass Reach at Different Flows		
Species	Flow=13 cfs	Flow=60 cfs
Adult Brown Trout	50%	86%
Juvenile Brown Trout	64%	92%
Adult Long Nose Dace	48%	93%
Juvenile Long Nose Dace	71%	99%
Benthic Macroinvertebrates	25%	75%

- g. The results of this study also indicate that the existing downstream minimum flow requirement (70 cfs or inflow if less) downstream of the Activity provides approximately 84% of maximum WUA for adult brown trout, 92% of maximum WUA for juvenile brown trout, 99% of maximum WUA for adult longnose dace, 74% of maximum WUA for juvenile longnose dace, and approximately 86% of maximum WUA for benthic macroinvertebrates. In the FERC application, the Applicant requested

that the minimum flow requirement in the 1984 FERC license be used for the new FERC license. The USFWS agreed and recommended that the minimum flow through the project continue to be 70 cfs (or inflow if less). Since the Applicant clarified that it proposes to operate the project year-round in a run-of-river mode by maintaining impounded water levels at normal full pool (except for maintenance activities or emergency conditions), the minimum flow requirement of 70 cfs or inflow (whichever is less) would only apply when the pond is drawn down and refilled for scheduled maintenance or emergencies.

- h. The applicant discharges treated effluent to the Contoocook River below the project. Dilution calculations for the discharge permit are based on a 7Q10 low flow in the river of 16.5 cfs. The minimum flow through the project recommended by the applicant and USFWS (70 cfs or inflow) is higher than the 7Q10 and, therefore, should not affect dilution of the treated effluent.
- i. The NHFGD has advised DES (personal communication with Carol Henderson and Executive Director Glenn Normandeau in December 2013), that although the NHFGD recognizes the relationship between bypass flows on aquatic habitat and the fish and benthic community in the bypass reaches, their primary concern is the fishery within Powder Mill Pond. Increasing bypass flows could result in the need for the Applicant to frequently fluctuate the water level in Powder Mill Pond below the top of flashboards to meet the short-term energy demand, which could, in turn, negatively impact the fishery in Powder Mill Pond. With this in mind, the existing minimum bypass flow of 13 cfs at the three developments is considered not ideal but acceptable, in this case, by the NHFGD.
- j. DES concurs with the USFWS recommendations for minimum flow through the project of 70 cfs or inflow (whichever is less) and with the NHFGD recommendation to continue requiring a minimum flow of 13 cfs or inflow (whichever is less) in the bypass reaches for the Monadnock, Pierce and Paper Mill developments in order to meet state water quality standards (Env Wq 1703.19). This concurrence is caveated in section D-9.j regarding the potential need for monitoring to confirm that dissolved oxygen standards in the Pierce and/or Paper Mill bypass reaches are being attained at a minimum bypass flow of 13 cfs.
- k. In November 2014, the Applicant advised DES that there are no low level outlets that discharge to the bypass channels at the Pierce and Monadnock developments. Consequently, when the water level in these impoundments fall below the elevation necessary to pass the minimum flows over the concrete spillway when the flashboards are not in place, minimum flows cannot currently be met unless other means are implemented.

In May 2015 at the Monadnock development, the Applicant took soundings every 25 feet along 11 cross-sections spaced at approximate 10 foot intervals. The sections extended from the toe of the dam downstream approximately 100 feet along the main river channel and included the main (widest part) of the bypass channel below the main spillway but did not include the relatively small (approximately 50-foot-long) bypass reach located just below the right (east) abutment of the dam that is oriented at an angle to the river and main spillway axis. On the day of the soundings, no water was flowing over the Monadnock spillway and the water level at the Pierce dam was reported to be at the top of the flashboards. As shown in the figure below, the soundings indicated that with the Pierce impoundment at the top of flashboards, there would be at least two feet of water in the majority of the main bypass channel below the main spillway.



As a majority of the main bypass channel below the dam would be sufficiently inundated, and since maintenance generally occurs relatively infrequently, DES (after consultation with the NHFGD), agreed that as long as maintenance drawdowns at Monadnock are conducted when the Pierce impoundment was at or above the top of flashboards, additional measures (such as construction of a spill gate, installation of siphons, etc.) would not be necessary to pass minimum flows in the small section of bypass channel on the east side of the Monadnock dam.

At the Pierce development, the Applicant advised DES in August, 2015 that they

would construct a new spill gate in 2016 to pass the minimum bypass channel flow when the impoundment needs to be lowered below the concrete crest elevation of the dam for maintenance of flashboards, etc. The new spill gate is anticipated to be 3-feet-wide and 2-feet-high.

- D-12. Run-of-River Operations. According to the FERC application (p. 2-21), "... storage ponding and releasing is typically implemented only occasionally at Powder Mill Pond for maintenance activities at the other downstream developments, to maintain minimum flows to downstream developments, to accommodate flood flows, and rarely for meeting short-term energy demands." The three downstream dams are operated in run-of-river mode. During the summer season (May 1 to August 31), the Applicant maintains Powder Mill Pond at normal full pond in support of fishery management objectives (i.e. to promote largemouth bass spawning). Further, the FERC application (p. 2-24) states that the Applicant "...does not typically manipulate pond levels in the winter months, so that ice-over conditions are maintained for public fishing."
- a. The Applicant's proposal in the FERC license application is consistent with USFWS' recommendation to maintain Powder Mill Pond at normal full pool from January 1 through February 28 and from May 1 through August 31.
 - b. Except for maintenance activities or emergency conditions, the Applicant now proposes to operate Powder Mill Pond in a year-round run-of-river mode by maintaining Powder Mill Pond at normal full pool. DES concurs with the Applicant's proposal as it could potentially benefit water quality.

- D-13. Powder Mill Pond Water Level Study. The Applicant completed a Drawdown Modeling and Shoreline Habitat Assessment in Powder Mill Pond in 2010. For this study, the Applicant created a bathymetric map of the Powder Mill Pond and maps of abutting wetland communities. The Applicant also reviewed historical records of water surface elevation in the pond between October 1, 2006 and April 30, 2012. This information was used to assess the potential effects of Powder Mill Pond water level management on existing wetland and littoral habitat.
- a. The frequency analysis of average daily Powder Mill Pond water surface elevation showed that the water level was drawn down by 2 feet or less approximately 97.8% of the time. Drawdowns greater than 2 feet occurred 2.2% of the time (approximately 8 days / year on average) and drawdowns greater than 3 feet occurred only 0.2% of the time (approximately 1 day per year on average) over an approximate 5.5 year period. In the last 14 years, the water surface elevation has not been drawn down the full 4-feet authorized in the 1984 FERC license for the Activity.

The information from the study is summarized in the table below. The percent of time shown in the table are based on the period October 1, 2006 to April 30, 2012 and include drawdowns for purposes other than power generation, such as flood storage, maintenance, and satisfying minimum flow requirements. According to the FERC application (p. 2-23)

“Because MPM draws the Powder Mill Pond for purposes other than to enhance power generation, such as for flood storage, maintenance, and to satisfy minimum flow requirements, it is impossible to discern from reservoir elevation data presented in Figure 3-1 the frequency of drawdown for generation purposes only.” The maximum number of days per year that the water surface elevation was drawn down more than 2 feet was approximately 18 days in 2011 (from July to November)⁶. According to the Applicant, maintenance drawdowns are conducted once per year and usually last one to two weeks depending on the issues that arise. Historically, it appears that drawdowns greater than 2 feet for power generation occurred infrequently.

Drawdown Depth from Full Pool in feet	Water Surface Elevation (WSEL) in feet NGVD29	Percent of time* WSEL is at or above this level
0	677.44	58.5%
1	676.44	82.4%
2	675.44	97.8%
3	674.44	99.8%
4	673.44	100%

* Based on records from October 1, 2006 through April 30, 2012. Values include drawdowns for power generation, maintenance, flood storage and minimum flow.

The study also demonstrated the impact of water level fluctuations in Powder Mill Pond on its surface area, volume, and littoral area. As shown in the table below, a drawdown of 2 feet would reduce the lake area by 24%, lake volume by 46%, and littoral area by 28%. Operating in a year-round run-of-river mode should result in more aquatic habitat being available for longer periods of time which should benefit aquatic life.

Draw-down Depth from Full Pool in feet	Lake Surface Area		Lake Volume		Lake Littoral Area*	
	Acres	% of full pool	Acre-feet	% of full pool	Acres	% of littoral area
0	508	100%	1932	100%	449	100%
1	438	86%	1460	76%	378	84%
2	384	76%	1051	54%	325	72%
3	337	66%	691	36%	278	62%
4	291	57%	377	19%	232	52%
5	139	27%	157	8%	79	18%
6	60	12%	66	3%	0	0%
7	35	7%	19	1%		
8	6	1%	1	0%		
9	0	0%	0	0%		

6. From Table 3-1 in the July 2012 Final License Application.

* Littoral area is defined as the lake surface area between 0 and 6 feet in depth (449 acres, which is 508 acres at 0 feet minus 60 acres at 6 feet). Changes in littoral area were estimated from changes in lake surface area.

- b. Studies of the riparian wetlands around the edge of Powder Mill Pond found that existing and historic operations have resulted in a productive system with a diverse array of wetland and aquatic habitats. Given that the conditions in this Certification should reduce the magnitude and frequency of pond fluctuations, operating the Activity in accordance with this Certification is not expected to adversely impact existing wetland and plant communities.
- c. The 1984 FERC license allowed a maximum drawdown depth of 4 feet. In the FERC license application, the Applicant proposed to change the maximum drawdown at the Powder Mill Pond Development to 3 feet below the permanent crest elevation of the dam (maximum drawdown elevation of 672.44 feet NGVD) except in cases of maintenance or emergency preparedness.
- d. Based on the FERC license application, the USFWS recommended that the maximum drawdown depth for power generation be 2 feet (maximum draw down elevation of 675.44 feet NGVD) as limiting the drawdown range could benefit the distribution and/or abundance of the mussel population and could help to limit the occurrence of variable leaf milfoil.
- e. The NHFGD (personal communication with Carol Henderson in December 2013) recommends that fall drawdowns for lakes be made no later than November 1 (and preferably before October 15) in order to protect hibernating wildlife from exposure. To ensure that drawdowns below 2 feet are not conducted during critical periods (such as fish spawning), the NHFGD has also requested that the Applicant be required to contact them at least 14 days in advance, and receive their approval, prior to drawing Powder Mill Pond down. This will help ensure protection of the fishery.
- f. During the spring season (March 1 through April 30), river flows are typically higher than the hydraulic capacity of the turbines in the development. The mean of the daily average flows at the project in March and April are 616 and 948 cfs, respectively. The maximum hydraulic capacity for power generation by the project is 448 cfs (at the Pierce development). During the fall season (September 1 through December 31), river flows are lower. The mean of the daily average flows at the project in September, October, November, and December are 130, 204, 313, and 377 cfs, respectively. However, these flows fall within the operating range of 55 to 448 cfs for the turbines in the downstream developments.
- g. When the Applicant was originally proposing to store and release water at Powder Mill Pond, the USFWS recommended that Powder Mill Pond be drawn down and refilled gradually during the spring and fall on a weekly

or seasonal basis.

- h. As discussed in Finding D-9, water quality impairments (dissolved oxygen and chlorophyll-a) have been documented in Powder Mill Pond. As a minimum, to prevent conditions from becoming worse, restrictions should be in place to prevent the magnitude and frequency of drawdowns (especially those below 2 feet) from exceeding historical levels.
- i. Subsequent to filing the FERC license application and issuance of Certification on January 31, 2014, the Applicant advised DES that, except for maintenance activities and emergency conditions, they propose to operate Powder Mill Pond in a year-round run-of-river mode by maintaining Powder Mill Pond at normal full pool. Because this will reduce the magnitude and frequency of fluctuations in the pond, which should benefit aquatic life, DES concurs with the Applicant's proposal.
- j. To ensure that maintenance drawdowns (excluding emergency drawdowns) comply with minimum flow requirements and are not conducted during critical fishery periods (January through February and May through August) unless absolutely necessary, the Applicant should be required to notify and, in some cases, obtain DES and/or NHFGD approval prior to conducting the drawdown.

D-14. Ramping Rate Study (Drawdown and Refill). The Applicant completed a Drawdown Modeling and Shoreline Habitat Assessment to address concerns raised by DES and other resource agencies during the pre-filing consultation period. The drawdown modeling consisted of predicting the rate of change for water levels and shoreline exposure during typical drawdowns.

- a. The drawdown study assumed that 300 cfs would be released from Powder Mill Pond during a typical drawdown. According to the Applicant, this release rate is equivalent to the minimum hydraulic capacity of the three downstream developments (i.e., 300 cfs at Paper Mill). This is not the minimum flow needed to generate power. The minimum flows needed to generate power and maintain minimum bypass flows at each development are 78 cfs at the Monadnock, 68 cfs at the Pierce, and 206 cfs at the Paper Mill development. The model showed that, for inflows of 100 and 200 cfs, the drawdown would expose littoral area in Powder Mill Pond at rates between 3.5 and 2 acres per hour, respectively. These rates would amount to exposing 19% and 11% of the littoral area in the first 24 hours of the drawdown, respectively.
- b. For a drawdown that lowers the water level by 2 feet while releasing 300 cfs, the maximum rate that the water level would change would be approximately 0.7 inches per hour (or approximately 16 inches per day) over 1.5 days. This calculation assumes no inflow so it is an over-estimate of the typical rate of water level drawdown. For a drawdown that lowers the water level by 2 feet while releasing 300 cfs, and assuming an inflow of 100 cfs, the maximum rate that the water level would change would be approximately 0.5 inches per hour (or

approximately 11 inches per day) over 2.2 days.

- c. The drawdown study also modeled how long it would typically take to refill Powder Mill Pond after a drawdown. For the range of daily average flows in September and October, the pond would refill within 1.3 to 6.4 days from a 2-foot drawdown, assuming the minimum flow of 70 cfs continued to be released. The rate of water level change during the refill for this scenario would be between 0.1 and 0.7 inches per hour.
- d. The NHFGD (personal communication with Carol Henderson in December 2013) recommends a maximum drawdown rate of 6 inches per day to allow adequate time for aquatic organisms, such as mussels, to move and stay sufficiently submerged as the water level gradually recedes. This could improve the health and density of the mussel population, especially in the top 2 feet of Powder Mill Pond (elevation 675.44 to 677.44 NGVD) that is most prone to fluctuations. According to the 2010 mussel survey (see Finding D-10), mussel densities were lower in the top 2 feet as compared to deeper waters. For a drawdown that lowers the water level by 2 feet at a rate of 6 inches per day, and assuming no inflow (which is conservative) the maximum release is estimated to be approximately 110 cfs which still exceeds the minimum flow needed to generate power and maintain minimum bypass flows at the Monadnock (78 cfs) and Pierce (68 cfs) facilities. With increasing inflow, the ability to generate power will also increase.

The Applicant has expressed concern that although they can strive to achieve gradual drawdown rates, flexibility is needed as it could prolong the time the pond is drawn down below normal pool which may be a concern to abutters and anglers.

- e. After flashboard replacement, dam maintenance or emergency drawdown, USFWS recommends the project be operated such that 50 percent of the inflow is passed downstream and refilling of the impoundments with the remaining 50 percent of inflow. USFWS notes that this deviates from the standard agency ratio of 90/10 (pass 90 percent of inflow and refill on the remaining 10 percent) but is warranted in this case due to the wetland resources in Powder Mill Pond. They further recommend that if more than one headpond is drawn down at the same time, the 50/50 protocol should be adjusted on prior consultation with the resource agencies. As stated in Finding D-4.f, the Applicant has historically refilled the impoundments for the Project by maintaining minimum flow requirements and retaining the remainder of inflow.
- f. Subsequent to filing the FERC license application, the Applicant advised DES that they propose to operate Powder Mill Pond in a year-round run-of-river mode (with the exception of maintenance activities or emergency conditions) by maintaining Powder Mill Pond at normal full pool (top of flashboards). Lowering the pond below normal pool would only be done on an infrequent basis for scheduled maintenance or emergencies. This

operation minimizes pond fluctuations below normal pool which could potentially benefit aquatic life in Powder Mill Pond.

- g. Based on the information presented above, the Applicant should strive, where practicable, to limit the ramping rate during maintenance drawdowns to a gradual rate of no more than approximately 6 inches per day. Further to balance the refilling of the impoundments as quickly as possible with downstream flow, refilling of the impoundments after dam maintenance or emergency drawdown should be conducted such that when inflow equals or exceeds twice the minimum required flow downstream of the Paper Mill tailrace and bypass channel (minimum required flow), a flow at least equal to the minimum required flow should be released and the remainder should be used for refill. When inflow is less than twice the minimum required flow downstream of the Paper Mill development, 50% of the inflow should be passed downstream and 50% should be used for refill. If more than one headpond is drawn down at the same time, the 50/50 protocol should be adjusted after consultation with the resource agencies.

D-15. Wetlands, Noxious Weeds, and Rare, Threatened and Endangered (RTE)

Species. The Applicant completed a study of wetlands, noxious weeds, and RTE species to address concerns raised by DES and other resource agencies during the pre-filing consultation period. The study was completed in 2010 and consisted of field surveys and delineation of jurisdictional wetlands.

- a. Wetlands and submerged aquatic vegetation beds are prevalent throughout the Project, especially within Powder Mill Pond. Powder Mill Pond can be characterized as a typical freshwater pond that provides suitable habitat for a variety of common wildlife species and aquatic wetland plants. Specifically, the most significant wetlands in terms of their habitat value occurred in the sheltered backwater coves along the pond especially those associated with Moose Brook. The surrounding uplands and wetlands in the study area are forested and largely undisturbed, thus invasive plant species were not prevalent.
- b. Variable leaf milfoil was the dominant invasive submerged aquatic vegetation in the study area. Milfoil was concentrated and prevalent in Powder Mill Pond, occurring in dense mats almost uninterrupted along the shoreline. Public boating access to Powder Mill Pond has likely contributed to the introduction and spread of variable leaf milfoil throughout the pond.
- c. There were no direct observations of RTE plants or wildlife in the study area during the 2010 surveys. However, suitable habitat for some RTE wildlife species such as bald eagle and Blanding's turtle was documented in the study area. Some RTE species are known to occur in the study area.
- d. Based on the diversity of aquatic habitats and prevalence of wetlands found at Powder Mill Pond, seasonal drawdowns (less than 2 feet 98% of

the time) do not appear to have a significant adverse effect on existing wetlands and aquatic habitats.

- e. In a letter to FERC dated March 14, 2013, the USFWS recommended that the Applicant be required to develop an invasive species plan. Absent sufficient monitoring and control, it is likely that noxious weeds (such as Variable Leaf Milfoil) will become more abundant in Powder Mill Pond. Given the abundance and diversity of native wetlands within the project area, long-term monitoring and control of invasive species should be a high priority.
- f. Relative to potential Project operational requirements, the Applicant has agreed to cooperate with DES and others in the development of the Long Term Management Plan (LTMP) to control invasive species in Powder Mill Pond and will operate the Powder Mill Pond dam to temporarily control flow and /or water level in the pond in a manner not inconsistent with the LTMP when the state is conducting remediation efforts provided it does not conflict with the conditions of this Certification or FERC license. Further, the Applicant will not be required to pay for or conduct remediation.
- g. Based on the information presented above, DES believes that invasive species such as variable leaf milfoil present a significant threat to native habitats and wildlife in Powder Mill Pond and that monitoring should be conducted to track the spread of invasive species and that the Activity should be operated in a manner consistent with control efforts.

D-16. Diadromous Fish. The four dams in the Project do not have fishways for upstream fish passage currently. USFWS and NHFGD manage American shad and other diadromous fish in rivers of New Hampshire. There are currently no diadromous fish within the project area, nor are there currently any plans to restore diadromous fish to portions of the Contoocook River upstream of Paper Mill Dam. In a letter on March 14, 2013, the USFWS made the following fishways recommendation under Section 18 of the Federal Power Act: "Authority is hereby reserved to the Federal Energy Regulatory Commission to require the licensee to construct, operate, and maintain such fishways as may be prescribed during the term of this license by the Secretary of the Interior pursuant to Section 18 of the Federal Power Act."

E. WATER QUALITY CERTIFICATION CONDITIONS

Unless otherwise authorized by DES, the following conditions shall apply:

- E-1. **Compliance with Certification Conditions.** The Applicant shall operate and maintain the Activity to comply with the conditions of this Certification.
- E-2. **Compliance with Water Quality Standards.** The Activity shall not cause or contribute to a violation of New Hampshire surface water quality standards. Should DES determine that the Activity is causing or contributing to violations of surface water quality standards, DES may modify this Certification in

accordance with condition E-4 of this Certification. Any modifications shall be subject to notice and opportunity for a hearing.

- E-3. **Approval of Project Changes.** The Applicant shall consult with and receive prior written approval from DES regarding any proposed modifications to the Activity that could have a significant or material effect on the conditions of this Certification, including any changes to project operation or approved plans required by this Certification.
- E-4. **Modification of Certification.** The conditions of this Certification may be amended and additional terms and conditions added as necessary to ensure compliance with New Hampshire surface water quality standards, when authorized by law, and after notice and opportunity for hearing pursuant to RSA 21-O:14.
- E-5. **Reopening FERC License.** DES may, at any time, request that FERC reopen the license for the Activity to consider modifications to the license if necessary to ensure compliance with New Hampshire surface water quality standards.
- E-6. **Compliance Inspections.** The Applicant shall allow DES to inspect the Activity and its impacts on affected surface waters as allowed by law to monitor compliance with the conditions of this Certification.
- E-7. **Posting of Certification and Operation and Compliance Monitoring Plan.** A copy of this Certification and the approved Operation and Compliance Monitoring Plan (condition E-10) shall be posted within each of the Project powerhouses within seven days of receiving written approval of the Operations and Compliance Monitoring Plan from DES.
- E-8. **Transfer of Certification.** Within 15 days after filing an application with FERC for transfer of ownership of the FERC license, the Applicant shall provide a copy of the application to DES. Within 15 days following a transfer of ownership for the FERC license and/or this Certification, the Applicant shall notify DES in writing of the date of the transfer and provide contact information (legal name, mailing address, email (if available) and phone number) for the new owner.
- E-9. **Project Operation:** Unless otherwise allowed in the DES approved Operations and Compliance Monitoring Plan⁷ (OCMP - see condition E-10 below), the Project shall be operated as follows:
- a. The Project shall be operated in a year-round run-of-river mode.
 - b. When inflow is equal to or greater than the minimum flow specified in condition E-9.i, the Powder Mill Pond water surface elevation shall be maintained at least 2.52 inches above the top of flashboards (i.e. 677.65 feet NGVD) when flashboards are in place (i.e., the normal full pool) and at least 3.0 inches above the dam crest (i.e. 675.69 feet NGVD) when flashboards have been temporarily removed due to failure or other reasons. At all other times all inflow shall be passed over the spillway (with or without flashboards). From January through February and May

⁷ The OCMP will be used for determining compliance with the Project Operation criteria specified in condition E-9 of this Certification and allows for exceptions to these criteria for reasons including, but not limited to, scheduled maintenance, actions taken to prevent or respond to emergencies (such as flashboard failure, flood control, etc.), and the accuracy and response time of systems designed to maintain run-of-river conditions.

through August, fluctuations in the water surface elevation of Powder Mill Pond shall be minimized in accordance with condition E-9.f.

- c. When inflow is equal to or greater than the minimum flow specified in condition E-9.j, the Monadnock impoundment water surface elevation shall be maintained at or above the top of the flashboards that have a 10 foot wide by 0.58 foot (7 inch) high notch (i.e. 665.80 feet NGVD) when flashboards are in place (i.e., the normal full pool) or at least 1.08 inches above the dam crest (i.e. 663.89 feet NGVD) when the flashboards have been temporarily removed due to failure or other reasons. At all other times all inflow shall be passed over the spillway (with or without flashboards).
- d. When inflow is equal to or greater than the minimum flow specified in condition E-9.j, the Pierce impoundment water surface elevation shall be maintained at or above the top of the flashboards that have a 10 foot wide by 0.58 foot (7-inch) high notch (653.40 feet NGVD) when flashboards are in place (i.e., the normal full pool) or at least 0.84 inches above the dam crest (651.47 feet NGVD) when the flashboards have been temporarily removed due to failure or other reasons. At all other times all inflow shall be passed over the spillway (with or without flashboards).
- e. When inflow is equal to or greater than the minimum flow specified in condition E-9.j, and with a 20-inch by 20-inch cutout in the wastegate open, the water surface elevation in the Paper Mill impoundment shall be maintained at or above the crest of the dam (i.e., the normal full pool) as there are currently no flashboards at this development (i.e. 627.64 feet NGVD). By November 1, 2016, the Applicant shall construct (and operate) the 20-inch- high by 20-inch-wde cutout in the wastegate. Prior to constructing the cutout, the Applicant shall submit calculations to DES demonstrating how the minimum flows specified in condition E-9.j will be maintained in the interim. If, after consultation with DES, NHFGD and USFWS, and if approved by DES, the Applicant elects to install flashboards at the Paper Mill impoundment, the 20-inch by 20-inch cutout shall remain open and the water surface elevation shall be maintained at or above the top of the flashboards (i.e. 629.64 feet NGVD) when flashboards are in place. At all other times, inflow shall be passed through the 20-inch by 20-inch cutout.
- f. From January through February and May through August in Powder Mill Pond, and when power is generated at the Monadnock, Pierce and and/or Paper Mill facilities, the Applicant shall strive to minimize the fluctuations in the water surface elevation in each of the four impoundments to the extent practicable. The Applicant shall not operate any of the four facilities in a store and release mode to generate power. To minimize fluctuations, the Automated Pond Level Control Systems (APLCS) at each facility shall be operated. Fluctuations shall not exceed one foot prior to testing of the APLCS as described below. Once the APLCS system is installed and operable at the Powder Mill Pond development, the Applicant shall evaluate the ability of the Activity, including unit start up and shutdown, to reduce fluctuations to no more than 0.25 feet (3 inches) from January through February and May through August in

Powder Mill Pond. Unless otherwise approved by DES, the evaluation shall be completed by December 31, 2016. Prior to conducting the evaluation, the Applicant shall consult with and obtain DES approval of the scope of work for the evaluation. The Applicant shall then implement the approved scope of work. A report containing the results of the evaluation shall be submitted to DES by April 1, 2017. DES, after consultation with Applicant, NHFGD and USFWS, may then require corresponding adjustments to the allowable fluctuation band of surface water levels in the OCMP that are no less than 0.25 feet (3 inches). If DES requires adjustments, the Applicant shall then submit a revised OCMP to DES for approval within 90 days of receiving notification that revisions are necessary. The Applicant shall then implement the revised OCMP.⁸

- g. When drawing the water level down more than one foot in any of the four impoundments, the Applicant shall strive to achieve, to the extent practicable, a gradual drawdown of approximately one foot or less per day, with the understanding that there may be times when such gradual drawdowns are not practicable.
- h. Flashboards shall be reinstalled as soon as reasonably practicable after failure or temporary removal for other reasons.
- i. The Applicant shall provide a year-round continuous minimum flow of 70 cfs, or inflow (whichever is less), immediately downstream of the Powder Mill Pond development and downstream of the confluence of the tailrace and bypass reach at the Monadnock, Pierce and Paper Mill developments.
- j. The Applicant shall provide the following year-round, continuous minimum flow to the Monadnock, Pierce and Paper Mill bypass reaches:
 1. 13 cfs, or inflow (whichever is less), at the Monadnock development;
 2. 13 cfs, or inflow (whichever is less), at the Pierce development; and
 3. 13 cfs, or inflow (whichever is less), at the Paper Mill development
- k. The Applicant shall construct a new spillgate by October 1, 2016 at the Pierce development to provide the minimum flow specified in condition E-9.j when the water level in the impoundment is no higher than 650.40 feet NGVD (i.e., one foot below the concrete crest elevation of the dam). Flow calculations supporting the design shall be submitted to and approved by DES prior to construction.
- l. If requested by DES before December 31, 2020, the Applicant shall assist DES with a low-flow dissolved oxygen study to confirm that dissolved

⁸ It is understood and recognized that there may be occasional situations where the Applicant will need to maintain water surface elevations that are different than those specified in conditions E-9.b through E-9.e to ensure that minimum flows are met. For example, when flashboards are partially damaged or destroyed, the pond elevation necessary to maintain minimum flows will vary depending on how many flashboards remain in place. A description of how minimum flows will be maintained for situations such as this, as well as other situations, will be provided by the Applicant in the Operations and Compliance Monitoring Plan (see Condition E-10).

oxygen standards (Env-Wq 1703.07) are attained in the Pierce and/or Paper Mill bypass reaches at the minimum flows indicated above. The role of the Applicant will be to regulate flow in the bypass reach during the study, to the extent practicable, to facilitate collection of 10 days (or less as determined by DES) of valid⁹, continuously collected¹⁰, dissolved oxygen and temperature data in the bypass reaches.¹¹ The Applicant will not be required to manipulate minimum flows in the bypass reaches if the project is not generating electricity (i.e. during low river flow periods) or to pass water through the turbines when inflow is below the operational range of the turbines. Data will be assessed for compliance in accordance with the current version of the DES Consolidated and Assessment Listing Methodology¹². If dissolved oxygen standards are determined to be in noncompliance as described above, and operation of the Activity is determined to cause or contribute to the noncompliance, the Applicant shall submit a plan to the DES for review and approval by DES within 120 days of the determination that standards are not being met. The plan shall describe how dissolved oxygen standards in the affected bypass reaches will be attained and confirmed; the Applicant will also develop a schedule for attainment. The Applicant shall then implement the DES approved plan. Once it is confirmed that compliance with dissolved oxygen standards are met in the bypass channel(s), the Applicant shall make appropriate revisions to the OCMP and submit it to DES for approval and the Applicant shall then implement the DES approved OCMP. If it is necessary to revise the minimum bypass flows to meet the dissolved oxygen standards, DES will modify the Certification in accordance with condition E-4.

- m. The Applicant shall notify DES and the Director's office of the NHFGD in writing (which includes email) at least 60 days in advance of drawing any of the four impoundments down for regular maintenance¹³ more than one foot below the normal full pool elevation as defined in Conditions E-9.b through E-9.e above. The Applicant shall obtain prior approval from DES if minimum flows are not anticipated to be met. If DES does not

⁹ "Valid" means the data meets the quality assurance / quality control objectives and criteria for the sampling effort.

¹⁰ "Continuously collected" means readings that are taken regularly (typically every 15 minutes). For dissolved oxygen and temperature, continuous read dataloggers are typically deployed to collect the data.

¹¹ Should sufficient valid data not be collected in the first attempt, the Applicant shall assist DES with an additional study (or studies if needed) until such time that sufficient valid data is collected. The inability of DES to collect sufficient valid data will not be considered a violation of this Certification condition provided the Applicant has regulated flows in the bypass reach during the study to the extent practicable.

¹² The 2012 Consolidated Assessment and Listing Methodology is the most recent version available at the time this Certification was prepared (see <http://des.nh.gov/organization/divisions/water/wmb/swqa/2012/documents/2012-calm.pdf>)

¹³ Regular Maintenance means: "any activities that are necessary to inspect and repair the developments, including, but not limited to: replacement of flashboards, removal of debris, gate repair, concrete repair, and any other structural repair."

- respond within 30 days of being notified, the Applicant may proceed with the proposed maintenance drawdown. The Applicant shall also obtain prior approval from the NHFGD if any of the four impoundments are proposed to be drawn down for regular maintenance during the critical fishery period (i.e., from January through February and May through August). If NHFGD does not respond within 30 days of being notified, the Applicant may proceed with the proposed maintenance drawdown. Whenever the water level in Powder Mill Pond drops more than one foot below the normal full pool elevation defined in Condition E-9.b., the Applicant shall notify the NHFGD within 48 hours of when the Applicant became aware that the pond level had dropped. The notification shall identify the level of drawdown necessary, timing and duration, method for ensuring minimum flow requirements are met during drawdown, and the opportunity for agencies to respond to notification. See Condition E-9.n for additional notification requirements if more than one impoundment is proposed to be refilled at a time.
- n. During refilling of the impoundments the Applicant shall operate the Project such that when inflow equals twice the minimum required flow downstream of the Paper Mill development as specified in Condition E-9.i (i.e., the minimum required flow), the minimum required flow shall be released and the remainder shall be used for refill. When inflow is less than twice the minimum required flow, 50% of the inflow shall be passed downstream and 50% shall be used for refill. If the Applicant anticipates refilling more than one impoundment at a time, prior consultation with the DES, NHFGD, and USFWS shall be required so that an appropriate refill regime may be developed. This refill protocol may be modified on a case-by-case basis after consulting with DES, NHFGD, and USFWS and after receiving written approval from DES.

E-10. Operation and Compliance Monitoring Plan:

- a. By April 1, 2016, the Applicant shall consult with DES, NHFGD and USFWS, and submit an Operation and Compliance Monitoring Plan (OCMP) to DES for approval. The Applicant shall then operate the Activity in accordance with the approved OCMP. The OCMP shall include a detailed description of the following:
1. How the Activity will be operated and maintained to comply with run-of-river, minimum flow and impoundment fluctuation requirements of this Certification (Condition E-9);
 2. Procedures that will be implemented to comply with the conditions of this Certification as quickly as possible should it be found that the Activity is temporarily out of compliance, including notification of appropriate regulatory authorities;
 3. Methods for monitoring, recording and reporting impoundment water surface elevations, inflows, bypass flows, turbine flows and when power is generated, with monitoring and recording of data automated and collected continuously to the extent feasible;¹⁴

¹⁴ Inflow shall include estimates based on prorating USGS measured river flow at the

4. A description of the mechanisms and structures that will be used, including equipment accuracy, frequency of measurement, the level of automation and any periodic maintenance and/or calibration necessary to ensure the devices work properly;
5. How data will be recorded to verify proper operations and how these data will be maintained for inspection by DES and other resource agencies; and
6. A schedule for when the plan will be implemented.

The Applicant shall consult with DES, NHFGD and USFWS and receive DES approval of any proposed modifications to the OCMP. Any DES approved modifications to the OCMP shall be considered a part of this Certification. Proposed modifications shall not be implemented until approved by DES. Exceptions to the approved OCMP may be granted by DES on a case-by-case basis after consultation with the NHFGD and USFWS.

- b. The Applicant shall notify DES not more than five days after any deviations¹⁵ from the OCMP. The notification shall include, to the extent known, an explanation as to why the deviations occurred, a description of corrective actions taken, and how long it will take until the operations will comply with the OCMP. The Applicant shall maintain a log of deviations and shall submit an annual summary of the deviations to DES for each calendar year by January 31 of the following year (i.e., the 2014 annual summary would be due by January 31, 2015). The annual summary shall also include a summary of the of maintenance and emergency drawdowns in each impoundment for the year including the dates, duration, depth, and reason for each drawdown.

E-11. Invasive Species:

- a. By April 1, 2016, the Applicant shall consult with DES, NHFGD and USFWS, and submit an Invasive Species Monitoring Plan (ISMP) to DES for approval to monitor invasive species such as variable leaf milfoil (*Myriophyllum heterophyllum*), yellow iris (*Iris pseudacorus*), and purple loosestrife (*Lythrum salicaria*), at the project. The Applicant shall then implement the approved ISMP. The ISMP shall include: (1) a description of the monitoring method; (2) frequency of monitoring; (3) a schedule

Peterborough USGS gage (# 01082000) by drainage area and of flow based on pond elevation/discharge relationships at the dams. Bypass flows shall be based on pond elevation/discharge relationships at each dam. The Applicant will not be required to provide continuous data regarding turbine flows and power generation. The Applicant shall, however, provide dates and times that water is flowing through the turbines, and when power is generated. The Applicant shall also provide gate dimensions, invert elevations and formulas used to calculate elevation/discharge at all gates that may impact pond levels. The OCMP shall provide sufficient information for dam operators to readily determine appropriate dam settings under different conditions to meet the requirements of this certification. Details regarding the above will be provided in the OCMP.

¹⁵ A "Deviation" is defined as: "non-conformance with the requirements for monitoring (see E-10.a.3.), minimum flows (see E-9.i.-j.), and pond elevation (see E-9.b.-g. and.k.)."

for filing monitoring reports with DES, NHFGD, USFWS, and FERC; and
(4) a description of and implementation schedule for providing public information about species.

- b. The Applicant will cooperate with DES and others in the development a Long Term Management Plan (LTMP) to control invasive species in Powder Mill Pond and shall, after consultation with the DES and NHFGD, operate the Powder Mill Pond dam to temporarily control flow and /or water level in the pond in a manner not inconsistent with the LTMP when the state is conducting remediation efforts provided it does not conflict with the conditions of the Water Quality Certification or FERC license. The Applicant will not be required to pay for or conduct remediation.

E-12. **Fish Passage.** Should the Secretary of the Interior pursuant to Section 18 of the Federal Power Act require the Applicant to construct, operate and maintain any fish passage facilities for the Project, those requirements shall become a condition of this Certification.

F. APPEAL

Any person aggrieved by this decision may appeal to the N.H. Water Council ("Council") by filing an appeal that meets the requirements specified in RSA 21-O:14 and the rules adopted by the Council, Env-WC 100-200. The appeal must be filed directly with the Council within 30 days of the date of this decision and must set forth fully every ground upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at <http://nhec.nh.gov/> (or more directly at <http://nhec.nh.gov/water/index.htm>). Copies of the rules also are available from the DES Public Information Center at (603) 271-2975.

If you have questions regarding this Certification, please contact Owen David at (603) 271-0699.



Eugene J. Forbes, P.E.
Director, DES Water Division

cc:

John Baummer, FERC
Denise P. French, Administrator, Town of Bennington
Rodney Bartlett, Administrator, Town of Peterborough
Aaron Patt, Administrator, Town of Greenfield
Diane Kendall, Administrator, Town of Hancock
Melissa Grader, US Fish and Wildlife Service
Carol Henderson, NH Fish and Game Department