Brookfield
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October 8, 2021 **Cascade Project – FERC No. 2327**

Ms. Shannon Ames, Executive Director
Low Impact Hydropower Institute
329 Massachusetts Avenue, Suite 2
Lexington, MA 02420

Subject: Low Impact Hydropower Institute Application for the Cascade Project.

Dear Ms. Ames:

On behalf of the Licensee, Great Lakes Hydro America, LLC (GLHA), please find attached the Application for the Cascade Project on the Androscoggin River in New Hampshire. GLHA is requesting certification of the Project and is submitting an Initial certification application to the Low Impact Hydropower Institute (LIHI) herein.

The current application includes the following required submittals:

- Introduction
- LIHI Table B-1 Project Descriptions for each project
- List of hyperlinks to pertinent FERC and regulatory documents for the Project
- Zones of Effect delineated into the Cascade impoundment, Cascade bypass reach, the Cascade tailrace and the Downstream Regulated River.
- Matrix of Alternative Standards for each Zone of Effect identified evaluating the LIHI certification standards for each requisite criterion including water quality, fish passage and recreation
- Sworn Statement and Waiver Form
- Facility Contacts Form including pertinent NGOs, as appropriate.

Please call me at (207) 755-5606 or email me at Kelly.Maloney@brookfieldrenewable.com if you have any questions or need additional information regarding this submittal.

Sincerely,

Kelly Maloney

Kelly Maloney
Manager, Compliance - Northeast

Cc: P. McDonough, N. Stevens, S. Michaud, S. Gregg, J. Seyfried, K. Murphy, A. Frechette

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LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

CASCADE PROJECT (FERC NO. 2327)

Brookfield

10/8/2021

LOW IMPACT HYDROPOWER INSTITUTE

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Certification Application for the

Cascade Project (FERC No. 2327)

1.0 PROJECT DESCRIPTION

1.1 PROJECT FACILITY AND HISTORY

The Cascade Project for which this application is submitted is licensed to Great Lakes Hydro America, LLC (GLHA NH) and is in northern New Hampshire, Coos County at approximately river mile 135.6 of the Androscoggin River in the City of Berlin and the Town of Gorham (Figure 1-5).

The Cascade dam and powerhouse was originally constructed in 1903 by the Berlin Mills Company as a hydromechanical project for paper making activities. The existing dam is in the same configuration as it had in 1903. The forebay originally ended at six penstocks that led to a grinder room where the flow from Cascade Falls was converted to hydromechanical power for use by the Berlin Mills Company. It was converted to a hydroelectric generating project between 1913 and 1918, as the hydromechanical units were replaced one by one with hydroelectric turbine/generators. The first hydroelectric energy was produced in 1914.The three hydroelectric units used the same flow as the six hydromechanical units, so the three easterly penstocks were phased out of service.

The Cascade Project dam is a 583-foot-long concrete gravity dam, consisting of two sections: the ogee spillway section located to the east and the forebay gate structure located to the west. There is a non-overflow abutment section located between the sections and on each side of the dam. On the east bank of the river, adjacent to the spillway, is a 15-foot-wide concrete abutment with a top elevation of approximately 908.6 feet. The abutment extends for about 20 feet upstream and about 30 feet downstream perpendicular to the west end of the spillway. The spillway section has a crest length of approximately 313 feet and extends across approximately 290 feet of the river. Three-foot flashboards on the crest establish a normal impoundment elevation of 901.4 feet. The forebay gate structure controls river flows into the forebay. The structure is approximately 168-feet-long by 15-feet-wide and extends from the west abutment of the spillway to the west river bank. The gate structure consists of 15 three-foot-wide concrete piers and a concrete deck with a top elevation of 908.5 feet. The forebay gates are wooden, each about 9-feet-wide and 11-feet-high. The western dam abutment consists of two parallel 3-foot-wide concrete retaining walls with earth fill. The retaining walls extend westward for approximately 88 feet, including 77 feet located inland of the river bank.

The forebay is approximately 300-feet-long, and the average width is approximately 240 feet. The normal water surface elevation within the forebay is 901.2 feet and the maximum forebay depth is 24 feet. The forebay wall is a concrete gravity structure that extends approximately 326 feet downstream from the north abutment. The wall is approximately 41-feet-high at the maximum height, with a 4 foot, 11-inch-wide crest at an elevation of 901.5 feet. A deep gate is located in the forebay wall approximately 90 feet from the downstream face of the north abutment. A 4-foot-wide by 2 foot, 6-inch-high sluiceway is located about 193 feet from the north abutment. A concrete platform is located on top of the

southerly end of the forebay wall. This platform, which is roughly 19 feet by 24 feet, holds the electrical tower that supports the Cascade Mill transmission lines, which are not part of this Project.

The powerhouse is located adjacent to, and south of the gatehouse. The powerhouse is a steel framed brick and block structure approximately 135 feet long, 43 feet wide and 67 feet high, with a concrete substructure and 16 foot by 41-foot addition. Three penstocks lead from the head gates to three Francis turbines. Units 1 and 2 each have a hydraulic capacity of 950 cfs and unit 3 has a capacity of 1050 cfs. The electrical control panel is located on a landing at the north side of the station and is approximately 8.6 feet above the main floor level.

PHOTO 1-1 VIEW OF THE CASCADE PROJECT SPILLWAY AND BYPASSED REACH.

PHOTO 1-2 VIEW OF THE CASCADE PROJECT FOREBAY AND POWERHOUSE.

The Project is operated as a run of the river facility with agency required minimum flows. There are no diadromous fish species in the upper Androscoggin River, therefore, fish passage facilities are not necessary nor have been requested or prescribed. Lands within the project boundary are limited to those required for project operations and structures. The Project has a FERC approved Shoreland Management Plan in place. There are no documented endangered or threatened aquatic species in this reach of the Androscoggin River.

FIGURE 1-1. CASCADE PROJECT FACILITY

1.2 PROJECT OPERATIONS

Inflow to the GLHA NH Project, including the Cascade Project, is regulated by five large storage reservoirs at the headwaters of the Androscoggin River system: Lake Umbagog, Rangeley Lake, Mooselookmeguntic Lake, Richardson Lakes (Upper and Lower), and Aziscohos Lake (Figure 1-5). The Errol Hydroelectric Project (FERC No. 3133) impounds Lake Umbagog and serves as the release point for the upper storage reservoir system.

The Errol Project is operated in accordance with the terms of a 1909 agreement between Union Water Power Company (UWPC) and downstream paper and power companies (1909 Agreement). The 1909 Agreement requires Errol, in combination with the other upstream reservoirs, to target providing at least 1,550 cfs for downstream Berlin while storage is available. The 1909 Agreement was refreshed by the 1983 Androscoggin River Headwaters Agreement (Headwaters Agreement). The primary purpose of the Headwaters Agreement is to ensure that the 1909 Agreement is met and to require hydroelectric generators who benefit from the flow regulation to reimburse the water storage reservoir owner's annual operations and maintenance costs.

The available river flow for downstream energy production is determined through close coordination of the upstream storage reservoirs and GLHA dispatchers.

The Cascade Project operates as a run-of-river facility to maintain the headpond as close to the normal surface elevation of elevation 901.4 feet as possible through operation of the units and gates. GLHA provides a minimum flow into the approximately 350-foot-long bypassed reach of 6 cfs or inflow, whichever is less, through a rectangular orifice in the spillway flashboards plus leakage (see Section 7.0).

1.3 PROJECT LOCATION

The Project is licensed to Great Lakes Hydro America, LLC (GLHA NH) and is in northern New Hampshire, Coos County and along a 3,350 ft reach of the Androscoggin River in the City of Berlin and the Town of Gorham (Figure 1-5). The Cascade Project is located at approximate river mile (RM) 135.6 on the Androscoggin River.

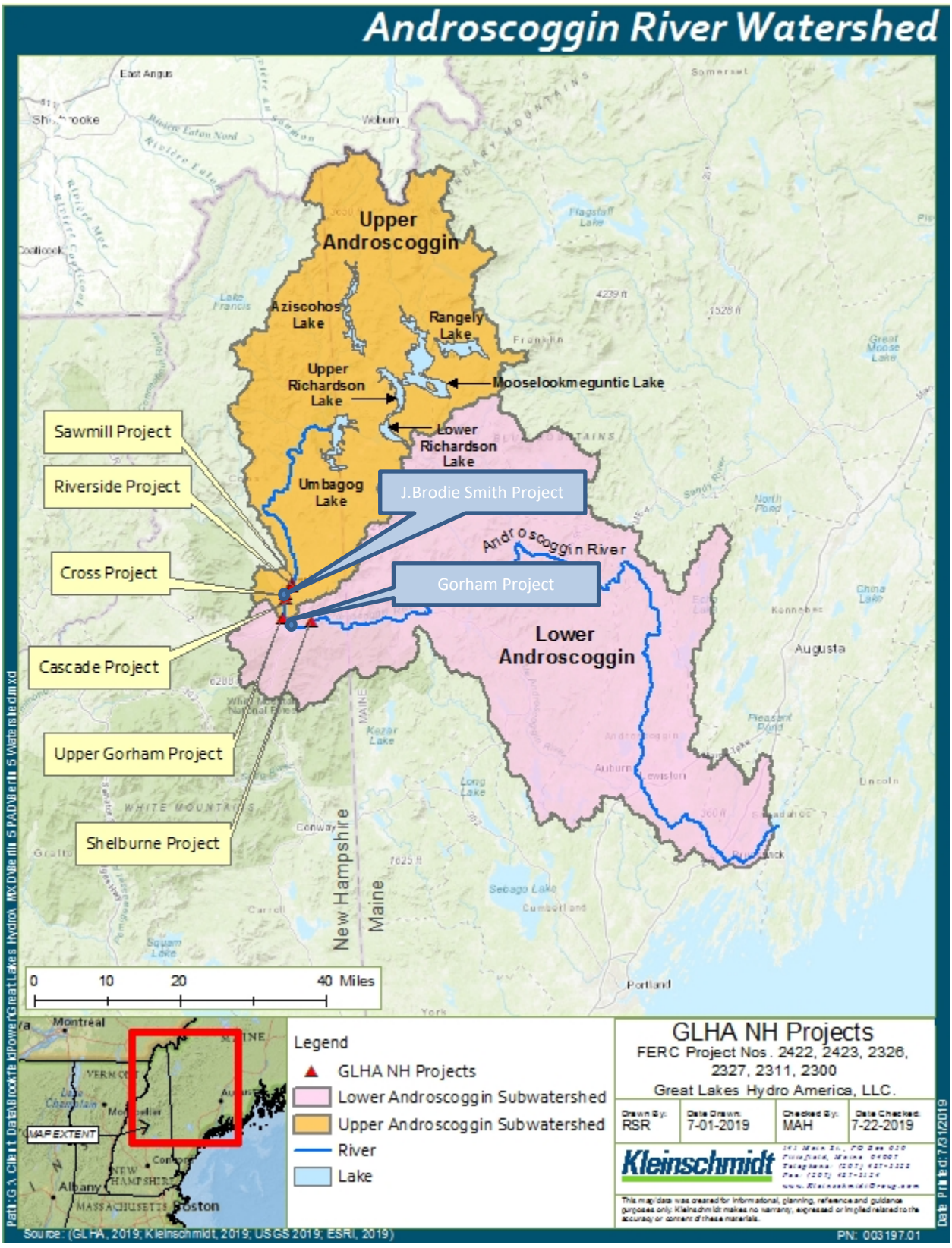
The Androscoggin River begins in northwestern Maine at Umbagog Lake, journeys through New Hampshire, then re-enters Maine near Bethel, eventually joining the Kennebec at Merrymeeting Bay. The Androscoggin River has over a 1,200-foot drop from its headwaters to the sea, with an average descent of 8-feet per mile. The swift flowing, large volume river provides an excellent power source[1].

The watershed has a total drainage area of 3,450 square miles (720-square-miles in New Hampshire)[2]. The Androscoggin River watershed can be broken down into two sections, the upper and lower Androscoggin River Watersheds.

[1] Maine Rivers. 2018. Androscoggin Watershed. [Online] https://mainerivers.org/androscoggin.htm. Accessed July 14, 2019.

[2] Maine Rivers. 2018. Androscoggin Watershed. [Online] https://mainerivers.org/androscoggin.htm. Accessed July 14, 2019.

FIGURE 1-2. OVERVIEW MAP OF THE WATERSHED



1.4 REGULATORY AND OTHER REQUIREMENTS

1.4.1 FERC LICENSE AND WATER QUALITY CERTIFICATION REQUIREMENTS

FERC issued a license for the Cascade Project on August 1, 1994.

Article 401 requires GLHA to operate the Project in run-of-river mode for the protection of fish and wildlife resources and water quality.

Article 402 requires that GLHA to release from the Cascade dam into the Androscoggin River a minimum flow of 6 cfs, or inflow to the project reservoir, whichever is less, for the protection and enhancement of fish and wildlife resources and water quality in the bypassed reach of the Androscoggin River.

Article 403 requires that within six months from the effective date of the license, GLHA shall file with FERC for approval, a plan to monitor run-of-river operation and minimum flow of the Project, as stipulated by Articles 401 and 402, respectively, and to describe how flows will be maintained below the project when the impoundment is refilled after any maintenance and/or repairs.

Article 404 gives FERC the authority to require GLHA to construct, operate, and maintain, or provide for the construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the Interior.

Article 405 requires GLHA to file with FERC for approval, a plan to monitor dissolved oxygen (DO) levels and temperature of the Androscoggin River upstream and downstream of the Project.

Article 406 requires GLHA to implement the provisions of the Programmatic Agreement.

Article 407 requires GLHA to develop and file, for FERC approval, a shore land protection plan.

Article 408 provides GLHA authority to grant permission for certain types of use and occupancy of the project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior FERC approval.

With a couple of exceptions, the modifications to run-of-river and minimum flows that have occurred at the Cascade Project have been permitted by the Project's FERC license, i.e., they were either operating emergencies beyond the control of GLHA, or they were planned in consultation with resource agencies (see Section 6.0). The following excursions from run of river and minimum flows or headpond elevation requirements were reported to the FERC within the last five years, none of which resulted in a determination of violation of FERC license:

- December 13, 2019 (see Section 6.0)

1.4.1 LIHI CERTIFICATION REQUIREMENTS

As this is an initial application for LIHI Certification, the Cascade Project is not currently subject to LIHI Certification Conditions.

TABLE 1-1. FACILITY INFORMATION – CASCADE PROJECT

Item	*Information Requested*	*Response (include references to further details)*
Name of the Facility	Facility name (use FERC project name or other legal name)	Cascade Project (FERC No. 2327)
Location	River name (USGS proper name)	Androscoggin River
	Watershed name (select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html)	Androscoggin HUC: 01030003
	Nearest town(s), county(ies), and state(s) to dam	Berlin and Gorham, Coos County, New Hampshire
	River mile of dam	135.6
	Geographic latitude of dam	Latitude 44.448852 N
	Geographic longitude of dam	Longitude -71.187116 W
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Kelly Maloney Manager, Compliance Northeast
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Brookfield Renewable Kelly Maloney
	FERC licensee company name (if different from owner)	Great Lakes Hydro America LLC
Regulatory Status	FERC Project Number (e.g., P-xxxx), issuance and expiration dates, or date of exemption	FERC P-2327, Issued Aug. 1, 1994 Expire July 31, 2024
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	Hydroelectric Operating License, Federal Power Act
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	Issued July 6, 1989; State of New Hampshire, Dept. of Environmental Services Water Supply & Pollutions Control Division
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	See hyperlink list in Section 6.0 for relevant records including FERC License Orders; Section 401 Water Quality Certification; FERC and regulatory filings; and other key documents.
Powerhouse	Date of initial operation (past or future for pre-operational applications)	1903

Item	*Information Requested*	*Response (include references to further details)*
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	Provide the total nameplate capacity for each development and for application as a whole 7.92 MW
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	Provide average annual generation values for each development and for the application as a whole 39,190.5 MWh (2014-2018)
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	Run-of-river
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	3 vertical Francis Turbines Units 1 and 2: 950 cfs; 3,400 hp; 2.5 MW each Unit 3: 1,050 cfs; 4,420 hp; 2.92 MW
	Trashrack clear spacing (inches), for each trashrack	
	Dates and types of major equipment upgrades	None
	Dates, purpose, and type of any recent operational changes	None
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	None

Item	*Information Requested*	*Response (include references to further details)*
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1903; The Cascade dam and powerhouse was originally constructed in 1903 by the Berlin Mills Company as a hydromechanical project for paper making activities. The existing dam is in the same configuration as it had in 1903. The forebay originally ended at six penstocks that led to a grinder room where the flow from Cascade Falls was converted to hydromechanical power for use by the Berlin Mills Company. It was converted to a hydroelectric generating project between 1913 and 1918, as the hydromechanical units were replaced one by one with hydroelectric turbine/generators. The first hydroelectric energy was produced in 1914.The three hydroelectric units used the same flow as the six hydromechanical units, so the three easterly penstocks were phased out of service.
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	Max: 53 feet
	Spillway elevation and hydraulic capacity	Crest elevation 898.4 ft 40,000 cfs
	Tailwater elevation (provide normal range if available)	854.4 feet
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	None; powerhouse is integral
	Dates and types of major infrastructure changes	None
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power
	Source water	Androscoggin River
	Receiving water and location of discharge	Androscoggin River
Conduit	Date of conduit construction and primary purpose of conduit	N/A

Item	*Information Requested*	*Response (include references to further details)*
Impoundment and Watershed	Authorized maximum and minimum water surface elevations **For recertifications: Indicate if these values have changed since last certification**	Max 901.4 feet (USGS) Min 900.9 feet (USGS)
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	Within 6 inches of 901.4 feet (USGS)
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	200 acre-ft, 28 acres
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	Negligible
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	Run of river operations which includes stable headpond (within approximately 6 inches of normal full pond)
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	<u>Androscoggin River</u> Errol Project (FERC #3133), Errol Hydroelectric LP & Great Lakes Hydro America LLC, River Mile 170.1; Pontook Project (FERC #2861), Pontook Operating LP, River Mile 152.4 Sawmill Project (FERC #2422), Great Lakes Hydro America LLC, River Mile 138.2; Riverside Project (FERC #2423), Great Lakes Hydro America LLC, River Mile 138.8; J. Brodie Smith Project (FERC #2287), Central Rivers Power, River Mile 138.2; Cross Project (FERC #2326), Great Lakes Hydro America LLC, River Mile 136.9

Item	*Information Requested*	*Response (include references to further details)*
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Upper Gorham Project (FERC #2311), Great Lakes Hydro America LLC, River Mile 133.2; Gorham Project, Central Rivers Power, River Mile130.4; Shelburne Project (FERC #2300), Great Lakes Hydro America LLC, River Mile 127.6 Upper & Middle Dam (FERC No.2333), Rumford Falls Power Company, River mile 90.9 and 90.7; Riley Project (FERC # 8277), Eagle Creek Renewable Energy LLC, River Mile 69.3; Jay (River Mile 66.6), Otis (River Mile 63.8), Livermore Falls (FERC # 2375) Eagle Creek Renewable Energy LLC, River Mile 61.2; Gulf Island Project (FERC #2283), Great Lakes Hydro America LLC, River Mile 35.0; Lewiston Falls Project (FERC # 2302), Great Lakes Hydro America LLC, River Mile 30.8 Worumbo Project (FERC # 3428), Brown Bear II Hydro, Inc., River Mile 15.7; Pejepscot Project (FERC # 4784), Topsham Hydro Partners LP, River Mile 12.5; Brunswick Project (FERC # 2284), Great Lakes Hydro America LLC, River Mile 8.0
	Operating agreements with upstream or downstream facility that affect water availability and facility operation	1983 Androscoggin River Headwater Benefits Agreement
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	Land: Undetermined; limited to lands encompassing project structures Water: approximately 28 acres
Hydrologic Setting	Average annual flow at the dam, and period of record used	1989-2018: 2,792cfs

Item	*Information Requested*	*Response (include references to further details)*
	Average monthly flows and period of record used	January 2,562 February 2,679 March 3,020 April 4,597 May 4,026 June 2,911 July 2,270 August 2,018 September 1,895 October 2,382 November 2,632 December 2,532
	Location and name of closest stream gauging stations above and below the facility	Above - USGS 01053600 Androscoggin River at Cambridge NH Below - USGS 01054000 Androscoggin River near Gorham, NH
	Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.	1,359 Square miles
Designated Zones of Effect	Number of zones of effect	3
	Upstream and downstream locations by river miles	Zone 1 Impoundment: RM 136.2 – 135.6 Zone 2 Bypass Reach: RM 135.6 – 135.5 Zone 3 Tailrace and Downstream Regulated River Reach 135.5 – 133.5
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Zone 1 Impoundment Zone 2 Bypass Reach Zone 3 Tailrace and Downstream Regulated River Reach
	Delimiting structures or features	Zone 1 Impoundment: Cascade Dam and Powerhouse Zone 2 Bypass Reach: Cascade Dam Spillway. Zone 3 Tailrace: Cascade Powerhouse
	Designated uses by state water quality agency	Drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation; navigation; and as a habitat for fish and other aquatic life.
Pre-Operational Facility		
Expected operational date	Date generation is expected to begin	N/A

Item	*Information Requested*	*Response (include references to further details)*
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	N/A
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	N/A

2.0 ZONES OF EFFECT

The Cascade Project contains three Zones of Effect: Impoundment, Bypass Reach and Tailrace, as described in greater detail below. The river upstream of the impoundment is not influenced hydrologically by the Cascade Project as the project boundary represents the upstream extent of the Project's backwater effect and backwaters generally to the base of the upstream Cross Project (FERC No. 2326). The river reach downstream of the dam, beyond the Bypass Reach and Tailrace zones of effect, is the impoundment for the next downstream Project, Upper Gorham (FERC No. 2311).

2.1 ZONE 1 – IMPOUNDMENT

The Cascade Project impoundment extends 3,000 ft upstream from Cascade Dam and has a surface area of 28 acres at normal full pond elevation of 901.4 ft. The Cascade Project operates as a run-of-river facility to maintain the headpond as close to the normal surface elevation of 901.4 ftas possible through operation of the units and gates. The impoundment provides 200 acre-feet of gross storage but, as a run of river facility, provides negligible net storage.

Water depth in the Cascade impoundment ranges up to 15 feet with an average depth of 7 ft. The width of the impoundment ranges from 200 to 800 ft. The impoundment is bordered by industrial and urban development, forested lands and wetland habitats.

FIGURE 2-1 CASCADE PROJECT – ZONE 1 - IMPOUNDMENT

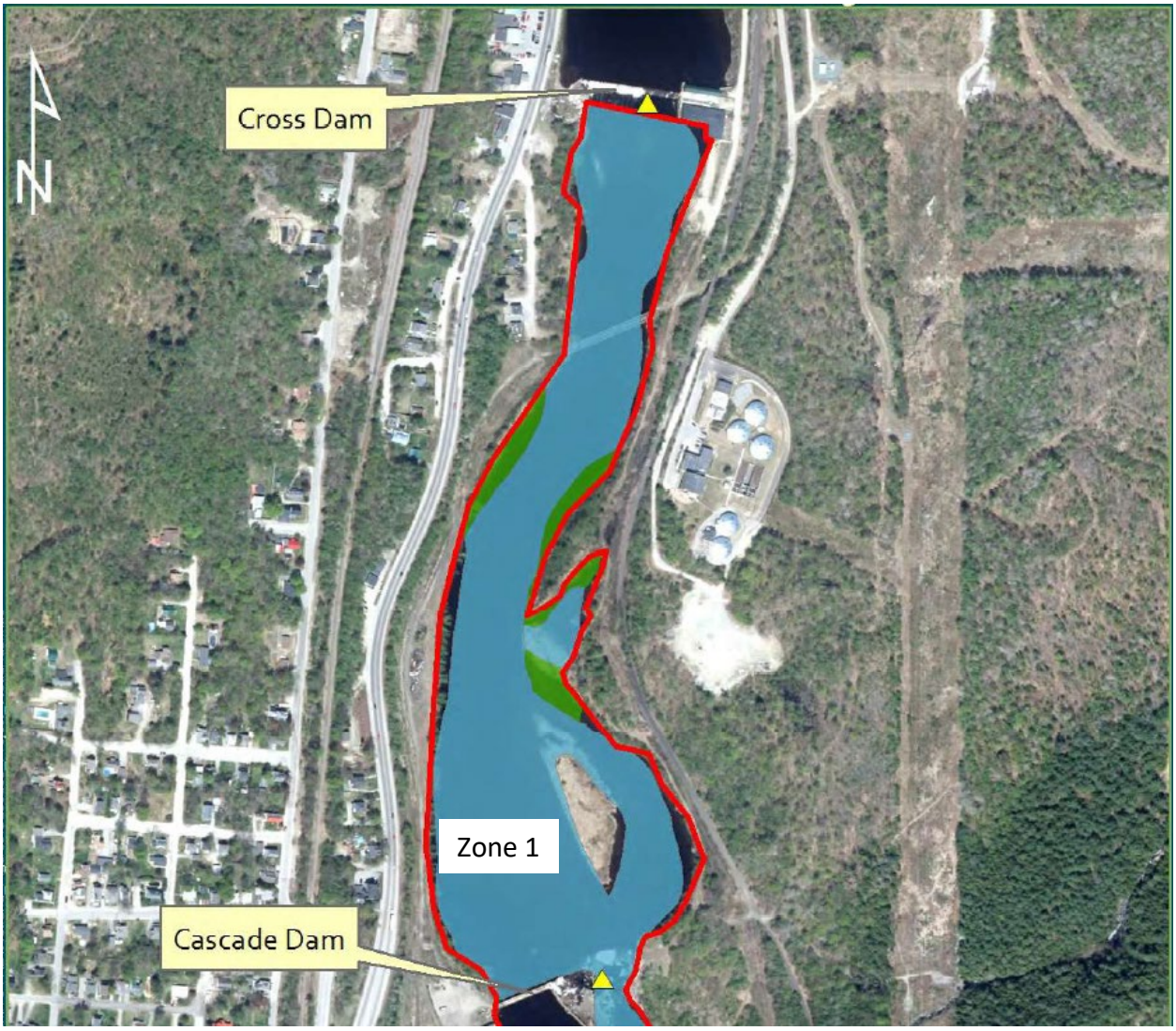


TABLE 2-1. CASCADE PROJECT - ZONE 1 – IMPOUNDMENT MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cascade Project **Zone of Effect: 1 – Impoundment**

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	**Ecological Flow Regimes**	*X*				
B	**Water Quality**		*X*			
C	**Upstream Fish Passage**	*X*				
D	**Downstream Fish Passage**	*X*				
E	**Watershed and Shoreline Protection**		*X*			
F	**Threatened and Endangered Species Protection**		*X*			
G	**Cultural and Historic Resources Protection**	*X*				
H	**Recreational Resources**	*X*				

The Cascade Project operates as a run-of-river facility to maintain the headpond as close to the normal surface elevation of 901.4 feet as possible through operation of the units and gates. Lands adjacent to this Zone of Effect are generally unaffected by project operations. No threatened species are affected by routine project operations. Limited vegetation removal may occur within project lands for maintenance purposes and vegetation management of the dam and the Project has a Shoreline Management Plan. There are no recreation facilities at the Project having a very short impoundment and restricted access into the downstream reaches due to public safety concerns.

2.2 ZONE 2 – BYPASS REACH

The Cascade Project bypass reach extends directly below the spillway section of the dam to the convergence of water from the tailrace. The bypass reach is separated from the powerhouse forebay by an approximately 350-foot-long section of retaining wall. GLHA provides a minimum flow into the approximately 350-foot-long bypassed reach of 6 cfs or inflow, whichever is less, through a rectangular orifice in the spillway flashboards plus leakage.

The approximately 400-foot-long, high-gradient reach between the spillway section of the dam and the powerhouse consists of a small series of pools, riffles, and a backwatered area from the tailwater. The eastern side of the channel is a vertical ledge outcrop with areas of boulder, cobble, and rubble, which restricts public access due to the hazardous access. The western side of the reach is bordered by the dam superstructure. The river left and river right side of the channel near the dam contain large, deep pools that drain through a short ledge, boulder, cobble, and rocky reach to the tailwater pool. Substrates in the 400-foot-long reach are rock, ledge, cobble, and sand. There is limited or no gravel in the reach to support fish spawning.

FIGURE 2-2 CASCADE PROJECT – ZONE 2 – BYPASS REACH

FIGURE 2-3. CASCADE PROJECT BYPASS REACH

TABLE 2-2. CASCADE PROJECT - ZONE 2 – BYPASS REACH MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cascade Project **Zone of Effect:** 2 – Bypass Reach

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		*X*			
B	Water Quality		*X*			
C	Upstream Fish Passage	*X*				
D	Downstream Fish Passage	*X*				
E	Watershed and Shoreline Protection		*X*			
F	Threatened and Endangered Species Protection		*X*			
G	Cultural and Historic Resources Protection	*X*				
H	Recreational Resources	*X*				

2.3 ZONE 3 - TAILRACE AND DOWNSTREAM REGULATED RIVER REACH

The powerhouse tailrace extends approximately 50 feet directly into the confluence of the bypass reach to the regulated reach of the river downstream of the Project. An unimpounded, approximately 2 mile

long section of the Upper Androscoggin River from the upstream extent of the downstream Upper Gorham Project impoundment to the confluence of the tailrace and bypass reach is also captured within this zone of effect.

FIGURE 2-4 CASCADE PROJECT – ZONE 3 - TAILRACE AND DOWNSTREAM REGULATED RIVER REACH

FIGURE 2-5 CASCADE PROJECT – ZONE 3 - DOWNSTREAM REGULATED RIVER REACH

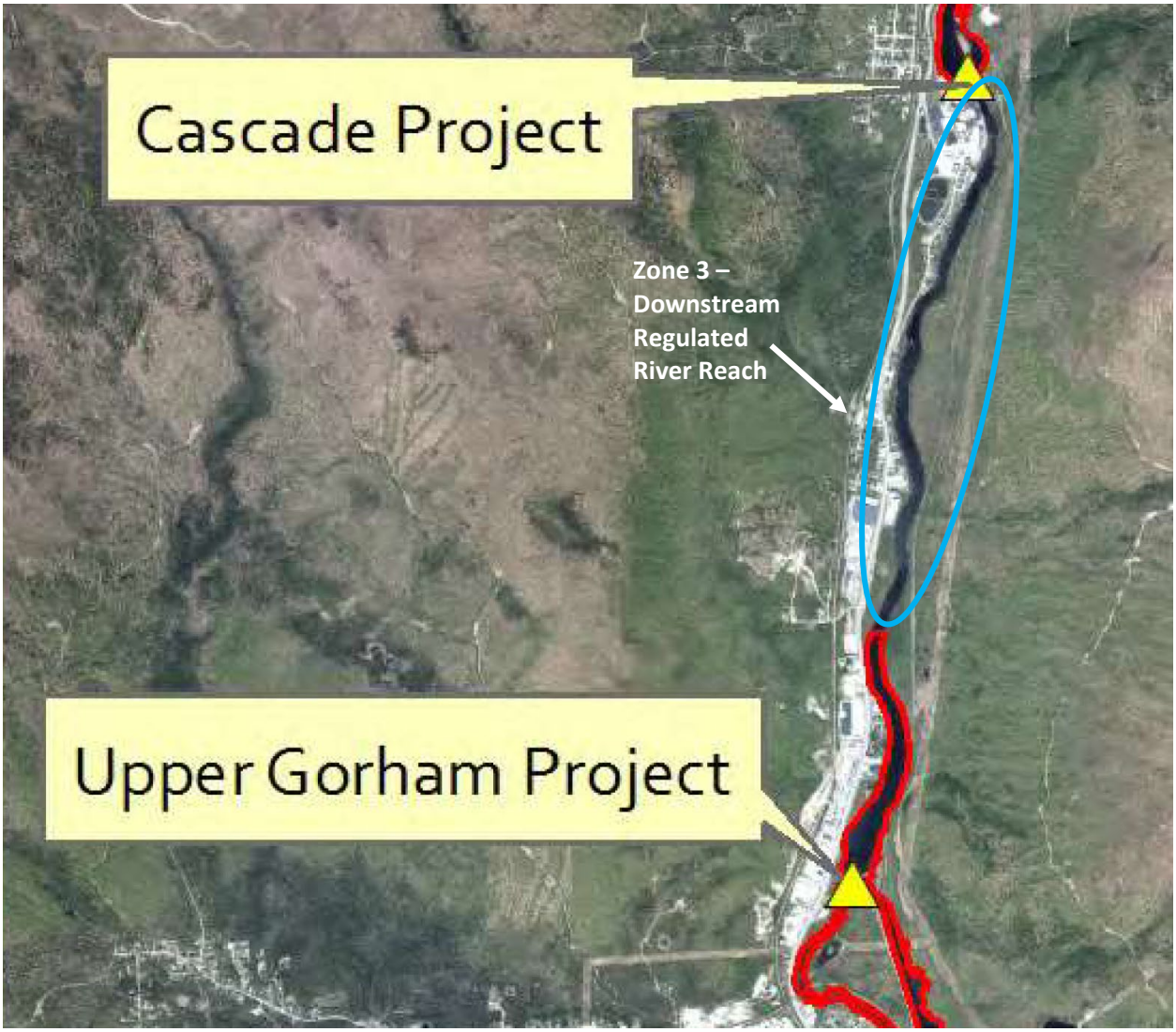


TABLE 2-3. CASCADE PROJECT - ZONE 3 - TAILRACE AND DOWNSTREAM REGULATED RIVER REACH MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cascade Project Zone of Effect: 3 – Tailrace and Downstream Regulated River Reach

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		*X*			
B	Water Quality		*X*			
C	Upstream Fish Passage	*X*				
D	Downstream Fish Passage	*X*				
E	Watershed and Shoreline Protection		*X*			
F	Threatened and Endangered Species Protection		*X*			
G	Cultural and Historic Resources Protection	*X*				
H	Recreational Resources	*X*				

3.0 PROJECT LIHI CERTIFICATION CRITERION

The Project is operated as a run of the river facility with agency required minimum bypass reach flows. There are no diadromous fish species in the upper Androscoggin River, therefore, fish passage facilities are not necessary nor have been requested or prescribed. Lands within the project boundary are limited to those required for project operations and project facilities and the Project has a FERC-approved Shoreline Management Plan. There are no documented endangered or threatened aquatic species in this reach of the Androscoggin River. The Canada Lynx and the Northern Long Eared Bat are identified as having the potential to be present or occupy habitats in the vicinity of the Project, however, the Project has no effect on the species as there are generally no tree-clearing activities or corridor maintenance activities. No features within the Project Areas are listed on the National Register of Historic Places, the state of New Hampshire's division of Historical Resources has not listed any of the sites in the State Register of Historic Places and there are no known archeological sites within the project boundary. There are no recreation facilities nor access to the Androscoggin River at the Cascade impoundment (Zone of Effect 1) nor bypass reach (Zone of Effect 2) and tailrace (Zone of Effect 3). There is access to the Androscoggin River is available from a gravel hand carry boat access site approximately 2 river miles upstream of the Upper Gorham Project within Zone 3 Downstream Regulated River Reach.

3.1 ECOLOGICAL FLOWS

The stated Low Impact Hydropower Institute goal for Criterion A – Ecological Flow Regimes is "The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources." A discussion of the applicable standards by Zone of Effect is provided in the Sections below.

3.1.1 ZONE 1 – PROJECT IMPOUNDMENT

Criterion	Standard	Supporting Information
A	**1** The facility operates in a true run-of-river operational mode and there are no bypassed reaches or water diversions associated with the facility; or the facility is located within an existing water conduit that does not discharge into natural waterways	Not Applicable / De Minimis Effect: • For run-of-river facility, provide details on operations and demonstrate that flows, water levels, and operation are monitored to ensure such an operational mode is maintained. If deviations from required flows have occurred, discuss them and the measures taken to minimize reoccurrence.

The Project is operated in run-of-river mode with minimal impoundment fluctuations. The low headwater level limit is 6 inches below the normal full pond elevation of 901.4 ft. Brookfield's NSCC monitors operations including impoundment elevations and flows through both the Powerhouse and as discharged through dam structures continuously to maintain compliance with requirements for run-of-river operations and minimum flows. Maintenance of stable headpond elevations assures compliance with run-of-river obligations. Any deviations from run-of-river operations or minimum flow requirements at the Project are reported to FERC as described above in Section 1.2.

For resident fish in the impoundment, the six-inch fluctuation target for run of river habitat enhances any bass spawning and nursery habitat that may be present in the impoundment and enhances aquatic invertebrate habitat.

3.1.2 ZONE 2 – PROJECT BYPASS REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a, science-based agency recommendation	Agency Recommendation (see Appendix A for definitions): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

The bypass reach comprises a very short portion of the overall project and is bedrock ledge. This reach receives water during times of high flow in excess of the capacity of the powerhouse or when units are down. In addition, there is an agency recommended minimum flow of 6 cfs specific to the bypass reach. An instream flow study in the Cascade bypassed reach in consultation with the resource agencies was conducted as part of the licensing proceeding in the late 1980s. Researchers employed transect-based methods to compare physical habitat in the reach at leakage flows to a release of 100 cfs over the dam. Two transects were established in the reach; one in a riffle and one in a large pool. Researchers noted limited changes in wetted stream width or depth at the two flow scenarios; water velocities increased in the main channel. Based on the limited changes in aquatic habitat noted during the study, the licensee is required to provide a minimum flow of 6 cfs to the 400-foot-long bypassed reach. GLHA provides the minimum flow through a portion of the flashboards as weir flow.

VARIABLE MEASURED	FLOW CONDITION 1	FLOW CONDITION 2
Flow (cfs)	6 cfs (leakage)	100 cfs (spill)
Wetted Width – Transect 1	69 feet	69 feet
Wetted Width – Transect 2	104 feet	108 feet
Maximum Depth – Transect 1	2.4 feet	2.9 feet
Maximum Depth – Transect 2	8 feet	8.2 feet
Water Velocity – Transect 1	0.0 to 0.6 feet per second (fps)	1.1 to 3.5 fps
Water Velocity – Transect 2	Negligible	0.0 to 0.4 fps

According to the November 1993 Final Environmental Impact Statement for the Upper Androscoggin River (FERC, 1993), the minimum flows were established by evaluating the Cascade Project fishery resources and habitat in the bypassed reach via a fish survey and a minimum flow study, which evaluated the effects of alternative flows on fishery habitat. The conclusions were:

- Some wild rainbow trout and an occasional hatchery origin landlocked salmon (all less than 12 inches) were found in the bypassed reach, primarily the result of immigration from upstream areas.
- Fish and Game stocking of large (8-15 inches) rainbows upstream do not seem to be contributing significantly to the fish population in the reach.
- Rainbow trout spawning habitat was virtually non-existent and brown trout spawning habitat was very limited at all modeled flows due to the lack of suitable spawning gravel.
- Juvenile brown trout habitat was the least abundant life stage habitat.

Given the overall lack of salmonid habitat in the immediate project area and the backwater effect of the existing tailrace into the project bypass reach, New Hampshire Fish and Game concurred with and US Fish and Wildlife recommended the 6 cfs minimum flow.

3.1.3 ZONE 3 - TAILRACE AND DOWNSTREAM REGULATED RIVER REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a, science-based agency recommendation	Agency Recommendation (see Appendix A for definitions): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

Downstream of the Cascade Project, the Androscoggin River consists of a 2-mile-long set of deep rapids/riffle and deep run habitat with a gradient of approximately 0.5 percent. The reach ends at the upper extent of the Upper Gorham Project impoundment and is not within the FERC boundary for the Cascade Project or Upper Gorham Project. A few small brooks enter the Androscoggin River in the reach, including Alpine and Tinker brooks. The shoreline and river substrates consist primarily of rock, boulder, and cobble.

This reach receives run of river flows from the powerhouse during times of generation. In addition, flows to the bypass reach will backwater to the tailrace during times of unit shut down. Brookfield's NSCC monitors operations including impoundment elevations and flows through the powerhouse and as discharged through dam structures continuously to maintain compliance with requirements for run-of-river operations and minimum flows. Maintenance of stable headpond elevations assures compliance with run-of-river obligations.

Any deviations from run-of-river operations or minimum flow requirements at the Development are reported to FERC as described above in Section 1.2.

3.2 WATER QUALITY

The stated Low Impact Hydropower Institute goal for Criterion B – Water Quality is "Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed

reaches, and impoundments above dams and diversions." The applicable standard applies to all Zones of Effect and is discussed collectively for all reaches of the Project.

The Androscoggin River in the Cascade Project Area is classified by the state of New Hampshire as Class B. Class B waters are considered acceptable for fishing, swimming and other recreational purposes, and, after adequate treatment, for use as water supplies. Regulations for Class B waters include:

- no disposal of sewage or waste unless it has received adequate treatment to prevent the lowering of the physical, chemical, biological, or bacteriological characteristics;
- no disposal of sewage or waste that is harmful to aquatic life; and
- All surface waters shall be free from substances that: settle to form harmful benthic deposits; float as foam, debris, scum or other visible substances; produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses; result in the dominance of nuisance species; or interfere with recreational activities.

Water quality criteria for Class B waters in New Hampshire are as follows:

- Dissolved Oxygen - At least 75% saturation, based on a daily average; instantaneous minimum of 5mg/L
- Color - No concentrations that would impair any existing or designated use, unless naturally occurring
- Turbidity - Shall not exceed naturally occurring conditions by more than 10 NTU
- Nutrients - Shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.
- pH - 6.5 to 8.0 (unless naturally occurring)
- Temperature - Any stream temperature increase associated with the discharge of treated sewage, waste or cooling water, water diversions, or releases shall not be such as to appreciably interfere with the uses assigned to this class.
- Conductivity - 835 µSiem (indicates exceedance of the chronic chlorine standard >230 mg/L)

The Project is operated as a run of river facility with minimal fluctuation under a FERC and agency approved Operations Monitoring Plan. (See FERC and Regulatory Information) The Project meets all water quality standards for Class B waters pursuant to the Project's Water Quality Certification.

3.2.1 ZONE 1 – PROJECT IMPOUNDMENT

Criterion	Standard	Supporting Information
B	**2** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility. Such recommendations, whether based on a generally applicable water quality standard or one that was developed on a site-specific basis, must include consideration of all water quality components necessary to preserve healthy fish and wildlife populations, human uses and recreation.	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, provide a link to the state's most recent impaired waters list and indicate the page(s) therein that apply to facility waters. If possible, provide an agency letter stating that the facility is not a cause of such limitation. • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The project impoundment is a 3,000 ft long section of the Upper Androscoggin River impounded by Cascade Dam, operated as run of river. The City of Berlin Pollution Control Facility discharges into the Cascade Project impoundment.

Water quality monitoring conducted in 2020 as part of the relicensing effort in the Project impoundment is summarized below.

DO concentration was above the standard throughout the study and ranged from 7.9 mg/L on August 12, 13, 22, 24, and 25 to 10.8 mg/L on September 21. The DO percent saturation ranged between 92.8 percent on August 24 and 109.0 percent on July 28. The daily average DO percent saturation exceeded the 75 percent standard and ranged from 96.6 percent on August 24 to 105.1 percent on September 23. The water temperature ranged from 13.3ºC on September 22 to 25.3ºC on August 14. pH varied within a narrow range between 6.5 on July 31 and 7.0 on September 14 and 16 and was within the standard limits for Class B waters.

TABLE 3-1 CASCADE IMPOUNDMENT WATER QUALITY MONITORING DATA SUMMARY (2020)

	Site 16 Cascade Impoundment				
	DO (mg/L)	DO % saturation	Daily Average DO % Saturation	Temperature (ºC)	pH
Avg	8.6	100.9	101.0	21.2	6.7
Min	7.9	92.8	96.6	13.3	6.5
Max	10.8	109.0	105.1	25.3	7.0

The water temperature, DO concentration, and DO percent saturation vertical profiles demonstrated that the water column was uniform and well mixed. The water column average water temperature ranged from 19.1ºC on September 3 to 24.9ºC on August 13. The water temperature varied by 0.1ºC or less in each profile. The water column average DO concentration ranged from 8.0 mg/L on August 13 to 9.0 mg/L on September 3; DO varied by 0.1 mg/L or less. The average DO percent saturation ranged from 95.9 percent on September 10 to 101.3 percent on September 3 and varied by 2.5 percent or less in each profile.

TABLE 3-2 CASCADE IMPOUNDMENT WATER QUALITY MONITORING DATA (2020)

Temperature (°C)									
Depth (m)	7/16/20 15:15	7/23/20 15:45	7/30/20 17:15	8/6/20 15:45	8/13/20 15:35	8/20/20 15:45	8/27/20 16:45	9/3/20 16:15	9/10/20 16:00
0.1	21.5	23.3	24.5	23	24.9	22.9	19.7	19.2	20.9
1	21.5	23.3	24.5	23	24.9	22.9	19.7	19.1	20.9
2	21.5	23.3	24.5	23	24.9	22.9	19.7	19.1	20.9
3	21.5	23.2	24.5	23	24.9	22.9	19.7	19.1	20.9
4	21.5	23.2	24.5	23	24.9	22.9	19.7	19.1	20.9
Avg	*21.5*	*23.3*	*24.5*	*23.0*	*24.9*	*22.9*	*19.7*	*19.1*	*20.9*
Min	*21.5*	*23.2*	*24.5*	*23.0*	*24.9*	*22.9*	*19.7*	*19.1*	*20.9*
Max	*21.5*	*23.3*	*24.5*	*23.0*	*24.9*	*22.9*	*19.7*	*19.2*	*20.9*
DO Concentration (mg/L)									
Depth (m)	7/16/20 15:15	7/23/20 15:45	7/30/20 17:15	8/6/20 15:45	8/13/20 15:35	8/20/20 15:45	8/27/20 16:45	9/3/20 16:15	9/10/20 16:00
0.1	8.9	8.5	8.4	8.7	8.0	8.3	8.7	9.0	8.5
1	8.9	8.5	8.4	8.7	8.0	8.4	8.7	9.0	8.5
2	8.9	8.5	8.4	8.7	8.0	8.3	8.7	9.0	8.5
3	8.9	8.5	8.4	8.6	8.0	8.3	8.7	9.0	8.5
4	8.9	8.5	8.4	8.6	8.0	8.3	8.7	9.0	8.6
Avg	*8.9*	*8.5*	*8.4*	*8.6*	*8.0*	*8.3*	*8.7*	*9.0*	*8.5*
Min	*8.9*	*8.5*	*8.4*	*8.6*	*8.0*	*8.3*	*8.7*	*9.0*	*8.5*
Max	*8.9*	*8.5*	*8.4*	*8.7*	*8.0*	*8.4*	*8.7*	*9.0*	*8.6*
DO Percent Saturation (%)									
Depth (m)	7/16/20 15:15	7/23/20 15:45	7/30/20 17:15	8/6/20 15:45	8/13/20 15:35	8/20/20 15:45	8/27/20 16:45	9/3/20 16:15	9/10/20 16:00
0.1	100.9	99.8	100.6	100.9	96.3	97.2	99.2	101.3	97.8
1	100.8	99.9	100.6	100.8	96.3	97.4	99.3	101.3	95.4
2	100.7	99.7	100.4	100.6	96.4	96.9	99.3	101.4	95.3
3	100.6	99.5	100.4	100.5	96.4	96.6	99.2	101.3	95.4
4	100.5	99.4	100.2	100.3	96.2	96.4	99.0	101.2	95.7
Avg	*100.7*	*99.7*	*100.4*	*100.6*	*96.3*	*96.9*	*99.2*	*101.3*	*95.9*
Min	*100.5*	*99.4*	*100.2*	*100.3*	*96.2*	*96.4*	*99.0*	*101.2*	*95.3*
Max	*100.9*	*99.9*	*100.6*	*100.9*	*96.4*	*97.4*	*99.3*	*101.4*	*97.8*

Chlorophyll-a was below the detection limit in one sample. In the remaining samples, chlorophyll-a ranged from 1.1 µg/L to 8.0 µg/L with an average of 2.7 µg/L and median of 2.0 µg/L. The median concentration was below the thresholds for the protection of recreational uses and aquatic life in oligotrophic waters. Total phosphorus was below the detection limit in one sample. In the remaining samples, total phosphorus ranged from 5.2 µg/L to 47 µg/L with an average of 21 µg/L and median of

9.8 µg/L. The median total phosphorus concentration was below the threshold for the protection of aquatic life in mesotrophic waters. Nitrite+nitrate N was below the detection limit in two samples and ranged from 0.06 mg/L to 0.15 mg/L in the remaining samples with an average of 0.09 mg/L. TKN was below the detection limit in two samples. In the other samples, TKN ranged from 0.22 mg/L to 0.39 mg/L with an average of 0.32 mg/L. The Secchi disk readings ranged from 2.9 m to 4.7 m. The Secchi disk was visible to the bottom of the impoundment in the readings taken on August 6 through the end of the study demonstrating good water clarity.

3.2.2 ZONE 2 – BYPASS REACH AND ZONE 3 – TAILRACE AND DOWNSTREAM REGULATED RIVER REACH

Criterion	Standard	Supporting Information
B	**2** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility. Such recommendations, whether based on a generally applicable water quality standard or one that was developed on a site-specific basis, must include consideration of all water quality components necessary to preserve healthy fish and wildlife populations, human uses and recreation.	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, provide a link to the state's most recent impaired waters list and indicate the page(s) therein that apply to facility waters. If possible, provide an agency letter stating that the facility is not a cause of such limitation. • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The DO concentration, DO percent saturation, and pH met the Class B water quality standards throughout the study. DO ranged from 7.8 mg/L on August 25 to 10.6 mg/L on September 21. The DO percent saturation ranged from 92.7 percent on September 11 to 106.7 percent on July 15. The daily average DO percent saturation ranged from 95.2 percent on September 10 to 106.1 percent on July 15. The water temperature ranged from 13.3ºC on September 22 to 25.3ºC on August 12. pH varied between 6.6 on July 14, 15, and September 8, 9 to 7.0 on several days (July 29-31, August 1-3, 7- 10, 12-13, and September 14, 16-17). The DO percent saturation was within a narrow range from the start of monitoring through August 13 (102.1 percent through 106.7 percent) and was also within a narrow range from September 11 to the end of monitoring. The DO percent saturation decreased but exhibited a larger daily variation from August 13 to 21 and then decreased further from August 21 through September 11. pH was also a bit lower (decreased from 6.8-7.0 to 6.6-6.9) from August 13 to September

11. On September 11, the increase in the DO concentration, DO percent saturation, and pH coincided with the stop in generation, increase in headpond, and increase in spill.

TABLE 3-3 CASCADE DOWNSTREAM WATER QUALITY MONITORING DATA SUMMARY (2020)

	Site 20 Cascade Downstream Confluence				
	DO (mg/L)	DO % saturation	Daily Average DO % Saturation	Temperature (°C)	pH
Avg	8.7	101.2	101.3	21.1	6.8
Min	7.8	92.7	95.2	13.3	6.6
Max	10.6	106.7	106.1	25.3	7.0

The average, minimum, and maximum DO, water temperature, and pH levels were similar at Site 16 Cascade Impoundment and Site 17 Cascade Downstream Confluence which indicates consistent water quality in the bypass reach of the Project.

3.3 UPSTREAM FISH PASSAGE

The stated Low Impact Hydropower Institute goal for Criterion C – Upstream Fish Passage is "The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy, sustainable fish and wildlife resources in areas affected by the facility."

The Project does not have, and is not required to have, fish passage facility, as anadromous fish are not present in the reaches occupied by the Project. As such, all Zones of Effect meet Standard C-1 and are discussed collectively below.

Criterion	Standard	Supporting Information
C	**1** The facility does not create a barrier to upstream passage, or there are no migratory fish in the vicinity of the facility and the facility is not the cause of extirpation of species that were present historically.	Agency Recommendation: • Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There is no upstream fish passage in this reach of the Androscoggin River occupied by the Project as migratory species such as alewife, blueback herring, striped bass, sea lamprey, and American shad are

diadromous fish species are known not to be present in this river reach given the downstream Lewiston Falls in the state of Maine are impassable to these species and Rumford Falls in the state of Maine are impassable to Atlantic salmon. This is in accordance with the 2013 opinion of the National Marine Fisheries Service which states "The current GOM DPS includes all anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, and wherever these fish occur in the estuarine and marine environment. The following impassable falls delimit the upstream extent of the freshwater range: Rumford Falls in the town of Rumford on the Androscoggin River. In the Androscoggin watershed, Rumford Falls was the upper extent of Atlantic salmon migration, while Lewiston Falls was believed to be the upper extent of alewife and shad migrations" (NMFS, 2009).

American eel, a catadromous fish species, are present in the lower Androscoggin River (i.e., downstream of Lewiston Falls) in relatively low numbers as compared to other watersheds in Maine (Yoder et al. 2006a). No American eels were collected in the upper Androscoggin River during fish sampling studies historically conducted in the Project areas (Yoder et al. 2006a).

The upper Androscoggin River in the Project area supports approximately 30 species of resident fish, a quarter of which are non-native (AMC 2003). The upper Androscoggin River throughout Maine and New Hampshire supports a well-known, popular coldwater trout and landlocked salmon fishery (JRNHE 1991). Angling for salmonids is bolstered by trout stocking and wild reproduction in the upper watershed and within tributaries. Cold water inflow from tributaries and regulated water releases from upper storage reservoirs (e.g., Umbagog and Aziscohos, and Richardson [Upper and Middle dams]) enhances coldwater fisheries habitat in the main stem of the Androscoggin River.

Fish sampling studies conducted on the upper Androscoggin River in the vicinity of the Project indicated that the overall catch was dominated by common fish species from the northeastern United States, including fallfish (30.6 percent), smallmouth bass (26.3 percent), white sucker (14.9 percent), and longnose dace (10.7 percent); common shiner (6.4 percent) and spottail shiner (4.2 percent) were also relatively abundant. Other species, such as rainbow trout, bullhead, and yellow perch were less common (i.e., less than or equal to 2 percent of the total catch). Smallmouth bass and white sucker were most common in riverine segments; smallmouth bass and fallfish were most common in the impounded segments (Yoder et al. 2006a). New Hampshire Fish and Game does not have a formal, published fisheries management plan for the upper Androscoggin River; however, they stock the river annually with brook trout, rainbow trout, and brown trout to support a put and take fishery approximately 15 miles upstream from the Cascade Project.

3.4 DOWNSTREAM FISH PASSAGE

The stated Low Impact Hydropower Institute goal for Criterion D – Downstream Fish Passage is "The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by facility operations. All migratory species can successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the facility." None of the Project have fish passage facility, and anadromous fish are not present in the reaches occupied by the Project. As such, all Zones of Effect meet Standard D-1 and are discussed collectively.

Criterion	Standard	Supporting Information
D	**1** The facility does not create a barrier to downstream passage, or there are no migratory fish in the vicinity of the facility; if migratory fish were present historically, the facility did not contribute to the extirpation of such species; the facility does not contribute adversely to the sustainability of riverine fish populations or to their access to habitat necessary for the completion of their life cycles.	Agency Recommendation: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There is no downstream fish passage in this reach of the upper Androscoggin River occupied by the Project; diadromous fish species are not known to be present. This is in accordance with the 2013 opinion of the National Marine Fisheries Service statement above in criterion C.

There are no anadromous or catadromous fish species in this section of the Androscoggin River, as there are no upstream nor downstream fish passage facilities for migratory species upstream of the Lewiston Dam. Resident species discussed above may make their way into the Project impoundment in times of spill. The Project is operated with limited drawdowns which is protective of aquatic resources and agency recommended minimum bypass reach flows are in place to safeguard resident fish species. Maintenance work on the dams are planned in consultation with the local resource agencies. The Project does not adversely impact the successful completion of resident fish lifecycles.

3.5 SHORELINE AND WATERSHED PROTECTION

The stated Low Impact Hydropower Institute goal for Criterion E – Shoreline and Watershed Protection is "The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility."

The Shoreline Management Plan for the Project was filed on August 1, 1995 and supplemented by letter on May 12, 2000. The management plan adopted the provisions in the NH Comprehensive Shoreland Protection Act. The Act lists uses of the shoreland within a 250-foot buffer that are permitted, prohibited, or restricted. The Act established planting and vegetation removal standards within any existing woodland buffers.

A discussion of the applicable standards by Zone of Effect is provided in the Sections below.

3.5.1 ZONE 1 – PROJECT IMPOUNDMENT

Criterion	Standard	Supporting Information
E	**2** The facility is in compliance with all government agency recommendations in a license or certificate, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the project.	Agency Recommendation: • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans). • Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.

The Cascade Project is located south of the City of Berlin. To the west of this Project is a large industrial mill area, occupied primarily by Gorham Paper and Tissue Co, while the east is forested. Lands within the Project boundary are limited to those required for Project operations. Approximately 1.9 acres of forested shrub wetlands occur in the project impoundment, on both shorelines in generally the middle of this reach.

The Project's run-of- river operation and license requirements for minimal impoundment fluctuation provide protection for the Project's shoreline areas including wetlands within the impoundment.

3.5.2 ZONE 2 – PROJECT BYPASS REACH

Criterion	Standard	Supporting Information
E	**2** The facility is in compliance with all government agency recommendations in a license or certificate, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the project.	Agency Recommendation: • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans). • Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.

Lands within the Project boundary within the bypass reach of the Cascade Project are limited to those required for Project operations; consisting primarily of the project structures.

The Cascade bypass reach has a minimum flow requirement of 6 cfs, provided by a minimum flow rectangular orifice in the boards and provides this flow during non-spill conditions. This flow was determined during the past relicensing to protect fishery resources by augmenting the tailrace backwater effect and maintaining deep, pool habitat for transient fish species

3.5.3 ZONE 3 - TAILRACE AND DOWNSTREAM REGULATED RIVER REACH

Criterion	Standard	Supporting Information
E	**2** The facility is in compliance with all government agency recommendations in a license or certificate, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the project.	Agency Recommendation: • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility (e.g., Shoreline Management Plans). • Provide documentation that indicates the facility is in full compliance with any agency recommendations or management plans that are in effect.

Lands within the Project boundary along the tailrace of the Cascade Project are limited to those required for Project operations; consisting primarily of the project powerhouse. The Project's run-of- river operation provides protection for the Project's shoreline areas in the tailrace and regulated river reach downstream.

3.6 THREATENED AND ENDANGERED SPECIES

The stated Low Impact Hydropower Institute goal for Criterion F – Threatened and Endangered Species Protection is "The facility does not negatively impact federal or state listed species".

3.6.1 FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES

The USFWS has identified two mammals listed on the federally threatened species list that may occur in the Project Areas or may be affected by the Project (USFWS 2019). The July 1, 2019 USFWS Species Lists obtained using the Information for Planning and Consultation (IPaC) project planning tool identified the Canada lynx (Lynx canadensis) and the northern long-eared bat (USFWS 2019). There are no federally documented endangered or threatened aquatic species in this reach of the Androscoggin River including mussels (USFWS 2019; NHB 2019).

Federally listed species, as they have the potential to occur within all reaches of the upper Androscoggin River for all Project, are discussed collectively as such in this section.

Criterion	Standard	Supporting Information
F	**2** There are listed species in the area, but the facility has been found by an appropriate resource management agency to have no negative effect on them, or habitat for the species does not exist within the project's affected area or is not impacted by facility operations.	Finding of No Negative Effects: • Identify all federal and state listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the ZoE or is not impacted by facility operations.

The Canada Lynx and the Northern Long Eared Bat are identified as having the potential to be present or occupy habitats in the vicinity of the Project, however, the Project has no effect on the species as there are generally no tree-clearing activities or corridor maintenance activities. Minor mowing and brush removal on the canals and dam abutments may occur but typically trees of a basal diameter of less than 4 inches would be expected to be removed and no significant tracts of forested lands occur within the project boundaries. Furthermore, northern New Hampshire is only considered supporting landscape for Canada lynx, so it is unlikely the species would use the Project area for anything other than for transient purposes.

3.6.2 STATE LISTED THREATENED AND ENDANGERED SPECIES

Based on the available habitat and ranges of the state listed species using the New Hampshire Fish and Game species list and fact sheets within the New Hampshire Wildlife Action Plan, four state endangered bat species (the eastern small-footed bat, the little brown bat, the tri-colored bat, and the federally threatened northern long-eared bat) have been identified as having the potential to occur in or near the Project Areas (USFWS 2019; NHB 2019). A species review through the New Hampshire Natural Heritage Bureau (NHB) was requested for the Project; the reports for the Cascade Project stated that there are no recorded occurrences for sensitive species near this project area.

Bald eagles have also been documented in the Project Area. While eagles are no longer listed under the Endangered Species Act, eagles continue to be protected under the federal Bald Eagle and Golden Eagle Protection Act ("Eagle Act") as well as other federal laws and are legally protected in New Hampshire as a species of special concern. Based on the New Hampshire Natural Heritage Bureau, there are five bald eagle nests documented on the upper Androscoggin River within proximity to the Project.

Based on the IPaC review and NHB reviews, no state-listed fish or mussel species were identified occurring in the Project Areas.

Rare plants that have the potential to occur in the vicinity of the Project is listed in Table 3-4 (NH Natural Heritage Bureau 2018).

TABLE 3-4 RARE PLANTS REPORTED IN GORHAM, NEW HAMPSHIRE

COMMON NAME	SCIENTIFIC NAME	STATE LISTED
auricled twayblade	*Neottia auriculata*	E
dwarf blueberry	*Vaccinium cespitosum*	T
fragrant wood fern	*Dryopteris fragrans*	T
heart-leaved twayblade	*Neottia cordata*	T
Hornemann's willow-herb	*Epilobium hornemannii ssp. hornemannii*	T
mountain sweet-cicely	*Osmorhiza berteroi*	E
ovoid spikesedge	*Eleocharis ovata*	E
parasol sedge	*Carex umbellata*	E
pink shinleaf	*Pyrola asarifolia ssp. asarifolia*	E
purple virgin's-bower	*Clematis occidentalis ssp. occidentalis*	E
round-leaved orchid	*Amerorchis rotundifolia*	E
smooth cliff fern	*Woodsia glabella*	E

E= State-listed Endangered
T=State-listed Threatened

State-listed species, as some have the potential to occur within all reaches of the upper Androscoggin River for all Project zones of effect, are discussed collectively as such in this section.

Criterion	Standard	Supporting Information
F	**2** There are listed species in the area, but the facility has been found by an appropriate resource management agency to have no negative effect on them, or habitat for the species does not exist within the project's affected area or is not impacted by facility operations.	Finding of No Negative Effects: • Identify all federal and state listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the ZoE or is not impacted by facility operations.

Routine project operations are not anticipated to affect threatened or endangered bats. There may be periodic vegetation clearing for dam safety, access, and other purposes but these would be conducted in accordance with the Section 4(d) rule using the USFWS streamlined consultation process for NLEB. As such, no negative effects are anticipated by this periodic activity.

Migratory birds, including bald eagle, are likely found in the area during spring and fall migrations. However, there are no known adverse effects as a result of project operations.

The Project is operated in run-of-river mode. Limited impoundment fluctuations would not be expected to produce long-term impacts to shoreline habitats that may potentially support rare plant species. No state-listed botanical species are documented in the Project Areas and lands within the project boundaries for the Project is limited.

3.7 CULTURAL AND HISTORIC RESOURCES

The stated Low Impact Hydropower Institute goal for Criterion G – Cultural and Historic Resource Protection is "The facility does not unnecessarily impact cultural or historic resources that are associated with the facility's lands and waters, including resources important to local indigenous populations, such as Native Americans." This standard is discussed collectively for all Project and Zones of Effect.

There are no known archeological sites within the project boundary. No features within the Project Area are listed on the National Register of Historic Places, and the state of New Hampshire's division of Historical Resources has not listed any of the sites in the State Register of Historic Places.

Criterion	Standard	Supporting Information
G	1 There are no cultural or historic resources present on facility lands that can be potentially threatened by construction or operations of the facility, or facility operations have not adversely affected those that are or were historically present.	Not Applicable / De Minimis Effect: • Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility. • Document that the facility construction and operation have not in the past, nor currently adversely affect any cultural or historic resources that are present on facility lands.

The Cascade Project is required to submit an annual report for managing historic properties, as set forth in the 1993 Programmatic Agreement for Managing Historic Properties and the 1996 Programmatic Agreement Amendment. For GLHA, this agreement specifically applies to the following features: the dam and powerhouse.

This Agreement states that GLHA is required to submit an annual report regarding any alterations, or future planned alterations to the structures listed above.

3.8 RECREATIONAL RESOURCES

The stated Low Impact Hydropower Institute goal for Criterion H – Recreation Resources is "The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge."

There are no licensee-managed recreation facilities at the Cascade Project. However, several recreation facilities are located near the Cascade Project, primarily two municipal parks (Alpine Cascades and Glenside), neither of which provide access to project lands or waters.

3.8.1 ZONE 1 – PROJECT IMPOUNDMENT

Criterion	Standard	Supporting Information
H	**1** The facility does not occupy lands or waters to which the public can be granted safe access and does not otherwise impact recreational opportunities in the vicinity of the facility.	Not Applicable / De Minimis Effect: • Document that the facility does not occupy lands or waters to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

There is no recreational or public access to the Project impoundment. Lands surrounding the bypass reach are forested with no access to the impoundment. NH Snowmobile Trail 16 runs adjacent to the impoundment on the eastern shore.

3.8.2 ZONE 2 – BYPASS REACH

Criterion	Standard	Supporting Information
H	**1** The facility does not occupy lands or waters to which the public can be granted safe access and does not otherwise impact recreational opportunities in the vicinity of the facility.	Not Applicable / De Minimis Effect: • Document that the facility does not occupy lands or waters to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

There is no recreational or public access to the bypass reach. Lands surrounding the bypass reach are entirely for project purposes, being comprised of the dam.

3.8.3 ZONE 3 - TAILRACE AND DOWNSTREAM REGULATED RIVER REACH

Criterion	Standard	Supporting Information
H	**1** The facility does not occupy lands or waters to which the public can be granted safe access and does not otherwise impact recreational opportunities in the vicinity of the facility.	Not Applicable / De Minimis Effect: • Document that the facility does not occupy lands or waters to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

Access within this Zone of Effect is unavailable and there are no recreation facilities, formal or informal, providing opportunities to the immediate tailrace. However, access to the Androscoggin River is available from a gravel hand carry boat access site approximately 2 river miles upstream of the Upper Gorham Project in the reach of the regulated river downstream of the Cascade Dam. This access point is not within the Project boundary, is not a project recreation facility and is not owned or maintained by the Licensee.

4.0 SWORN STATEMENT AND WAIVER FORM

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

SWORN STATEMENT

As an Authorized Representative of Great Lakes Hydro America, LLC, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.

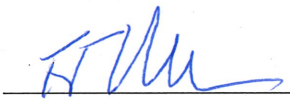
The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: **Great Lakes Hydro America LLC**

Authorized Representative:

Name: **Thomas Uncher**

Title: **Vice President, Operations**

Authorized Signature: 

Date: 10/11/21

5.0 CONTACTS FORM

5.1 APPLICANT RELATED CONTACTS

Project Owner:	
Name and Title	Tom Uncher, Vice President
Company	Great Lakes Hydro America LLC
Phone	518-743-2018
Email Address	Thomas.Uncher@brookfieldrenewable.com
Mailing Address	150 Main St. Lewiston Maine 04240
Project Operator (if different from Owner):	
Name and Title	Pat McDonough, Senior Operations Manager
Company	Brookfield White Pine Hydro, LLC
Phone	207-376-7063
Email Address	Patrick.McDonough@brookfieldrenewable.com
Mailing Address	259 Switzerland Rd, Lewiston, ME 04240
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Kelly Maloney, Manager, Compliance Northeast
Company	Brookfield Renewable
Phone	207-755-5606
Email Address	Kelly.Maloney@brookfieldrenewable.com
Mailing Address	150 Main St. Lewiston, Maine 04240
Party responsible for accounts payable:	
Name and Title	Judith Charette Manager, Accounts Payable, Finance & Accounting
Company	Brookfield Renewable
Phone	819-561-8099
Email Address	Judith.Charette@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC, Canada J8X2A1

5.2 CURRENT AND RELEVANT STATE, FEDERAL, AND TRIBAL RESOURCE AGENCY CONTACTS WITH KNOWLEDGE OF THE FACILITY

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _X_, Recreation __):	
Agency Name	US Bureau of Indian Affairs
Name and Title	Harold Peterson, Natural Resources Officer
Phone	
Email address	
Mailing Address	545 Marriott Drive, Suite 700, Nashville, TN 37214

Agency Contact (Check area of responsibility: Flows__, Water Quality _X_, Fish/Wildlife Resources _X_, Watersheds _X_, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	New Hampshire Department of Environmental Services
Name and Title	Gregg Comstock, Supervisor, Water Quality Planning Section
Phone	
Email address	
Mailing Address	11 Hazen Dr, Concord, NH 03301

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds _X_, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	US Forest Service
Name and Title	Mark Prout, Forest Fish Biologist
Phone	
Email address	
Mailing Address	71 Mountain Drive, Campton, NH 03223

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds _X_, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	New Hampshire Department of Fish and Game
Name and Title	Carol Henderson, Environmental Review Coordinator
Phone	
Email address	
Mailing Address	11 Hazen Drive, Concord, NH 03301

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	New Hampshire Department of Fish and Game
Name and Title	Diane Timmins, Region 1 Fisheries Biologist
Phone	
Email address	
Mailing Address	629B Main Street, Lancaster, NH 03584

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	New Hampshire Department of Fish and Game
Name and Title	Will Staats, Region 1 Wildlife Biologist
Phone	
Email address	
Mailing Address	629B Main Street, Lancaster, NH 03584

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. _X_, Cultural/Historic Resources __, Recreation __):	
Agency Name	New Hampshire Department of Natural and Cultural Resources
Name and Title	Amy Lamb, Ecological Information Specialist, Natural Heritage Bureau
Phone	
Email address	
Mailing Address	172 Pembroke Rd, Concord, NH 03301

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	US Fish and Wildlife Service
Name and Title	Julianne Rosset
Phone	
Email address	
Mailing Address	70 Commercial Street, Suite 300, Concord, NH 03304

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _X_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	NOAA
Name and Title	Sean P McDermott, Fisheries Biologist
Phone	(978) 281-9113
Email address	sean.mcdermott@noaa.gov
Mailing Address	55 Great Republic Drive Gloucester, MASSACHUSETTS 01930-2237

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _X, Recreation __):	
Agency Name	New Hampshire Department of Natural and Cultural Resources, Division of Historic Resources
Name and Title	Elizabeth Muzzey, Director and State Historic Preservation Officer
Phone	
Email address	
Mailing Address	19 Pillsbury Street, 2nd Floor, Concord, NH 03301

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. National Park Service
Name and Title	Kevin Mendik, ESQ. NPS Hydro Program Coordinator
Phone	617-223-5299
Email address	kevin_mendik@NPS.gov
Mailing Address	15 State Street, 10th floor, Boston, Massachusetts 02109

5.3 CURRENT STAKEHOLDER CONTACTS THAT ARE ACTIVELY ENGAGED WITH THE FACILITY

NGO Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	
Name and Title	
Phone	
Email address	
Mailing Address	

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	City of Shelburne
Name and Title	Town Clerk
Phone	
Email address	
Mailing Address	74 Village Road, Shelburne, NH 03581

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Town of Gorham
Name and Title	Mark Shea, City Manager
Phone	
Email address	
Mailing Address	20 Park Street, Gorham, NH 03581

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	American Rivers
Name and Title	Brian Graber, Director Northeast Field Office
Phone	
Email address	
Mailing Address	516 West Hampton Rd, Southampton, MA 01062

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Audubon Society of New Hampshire
Name and Title	Carol Foss, Senior Advisor for Science and Policy
Phone	
Email address	
Mailing Address	84 Silk Farm Rd, Concord, NH 03301

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Appalachian Mountain Club
Name and Title	Mark Zakutansky
Phone	
Email address	
Mailing Address	100 Illick's Mill Road, Bethlehem, PA 18017

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	New England FLOW
Name and Title	Thomas Christopher, Principal
Phone	
Email address	
Mailing Address	252 Fort Pond Inn Rd, Lancaster, MA 01523

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	American Canoe Association
Name and Title	Wade Blackwood, Executive Director
Phone	
Email address	
Mailing Address	1340 Central Blvd, Suite 210, Fredericksburg, VA 22401

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	American Whitewater
Name and Title	Kevin Colburn, National Stewardship Director
Phone	
Email address	
Mailing Address	1035 Van Buren St, Missoula, MT 59802

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	City of Berlin
Name and Title	James Wheeler, City Manager
Phone	
Email address	
Mailing Address	168 Main Street, Berlin, NH 03570

Agency Contact (Check area of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Town of Dummer
Name and Title	Town Clerk
Phone	
Email address	
Mailing Address	75 Hill Rd, Dummer, NH 03588

6.0 FERC AND REGULATORY INFORMATION

6.1 FERC LICENSE AND AMENDMENT ORDERS

- Federal Energy Regulatory Commission (FERC). 1994. Order Issuing New License. James River-New Hampshire Electric, Inc. Cascade Hydroelectric Project No. 2327-004. Issued August 1, 1994. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13711044

6.2 WATER QUALITY CERTIFICATION, AMENDMENTS, AND REPORTS

- See Section 7.0 for Water Quality Certification for the Cascade
- See Section 6.5.1 for water quality monitoring reports

6.3 SETTLEMENT AND OTHER AGREEMENTS

- 1983 Androscoggin River Headwaters Agreement (attached in Section 7.0)

6.4 PERMITS

- NPDES cooling water permits (attached in Section 7.0)

6.5 COMPLIANCE PLANS AND MONITORING REPORTS

- James River New-Hampshire Elec,Inc submits minimum flow & run of river monitoring plans for upper Androscoggin River projects (Sawmill Proj-2422,Cross Power Proj-2326 et al).https://elibrary.ferc.gov/eLibrary/filedownload?fileid=00E833B6-66E2-5005-8110-C31FAFC91712
- James River New-Hampshire Elec,Inc submits water quality monitoring plans for upper Androscoggin River Basin projects (Sawmill Proj-2422,Cross Power Proj-2326 et al).https://elibrary.ferc.gov/eLibrary/filedownload?fileid=00E833D1-66E2-5005-8110-C31FAFC91712
- Order modifying & approving minimum flow & run-of-river monitoring plan for Crown Vantage-NH Elec,Inc's Cascade Proj-2327.https://elibrary.ferc.gov/eLibrary/filedownload?fileid=00168FBD-66E2-5005-8110-C31FAFC91712
- Order modifying & approving water quality monitoring plan for James River-NH Elec,Inc's Cascade Proj-23 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0014E0A4-66E2-5005-8110-C31FAFC91712
- Environmental Report by New York Regional for Great Lakes Hydro America LLC's Cascade Project under P-2327. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01CD730D-66E2-5005-8110-C31FAFC91712

6.5.1 ECOLOGICAL FLOWS AND WATER QUALITY

- Federal Energy Regulatory Commission (FERC). 1993. Final Environmental Impact Statement. Relicensing Seven Existing Project in the Upper Androscoggin River Basin (FERC 2327-004, 2287-003, 2326-002, 2327-002, 2322-001, 2288-004, 2300-002). https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=165045

- Kleinschmidt Associates (Kleinschmidt). 1998. Water Quality Monitoring Report. Crown Vantage-New Hampshire Electric, Inc. Cascade Project (FERC No. 2327), Cross Power Project (FERC No. 2326), Sawmill Project (FERC No. 2422), Gorham Project (FERC No. 2311), and Shelburne Project (FERC No. 2300). June 1998. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=53664
- James River-NH Elec,Inc submits summary rept of 1995 water quality sampling at Sawmill P-2422 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=000D2B14-66E2-5005-8110-C31FAFC91712
- James River-NH Electric,Inc submits omitted Appendix B from 960229 ltr of summary rept of 1995 water quality sampling at Sawmill Proj-2422 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=000D2F62-66E2-5005-8110-C31FAFC91712
- New Hampshire Code of Administrative Rules (NHCAR). 2016. Chapter Env-Wq 1700 Surface Water Quality Standards. Available online: https://www.des.nh.gov/organization/commissioner/legal/rules/documents/env-wq1700.pdf [Accessed July 12, 2019].
- New Hampshire Department of Environmental Services (NHDES). 2005 Androscoggin River Water Quality Report. State of New Hampshire Volunteer River Assessment Program. February 2005. Available online: https://www.des.nh.gov/organization/divisions/water/wmb/vrap/androscoggin/documents/report04.pdf [Accessed July 1, 2019].
- New Hampshire Department of Environmental Services (NHDES). 2017. Chemical and Biological Parameter Explanations. Available online: https://www.des.nh.gov/organization/divisions/water/wmb/vlap/documents/parameters.pdf [Accessed July 16, 2019].
- New Hampshire Department of Environmental Services (NHDES). 2019a. 2018, Draft 303(d) List. Available online: https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2018/index.htm [Accessed July 14, 2019].
- New Hampshire Department of Environmental Services (NHDES). 2019b. Draft 2018 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. Available online: https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2018/documents/r-wd-19-04.pdf [Accessed July 13, 2019].
- New Hampshire Department of Environmental Services (NHDES). 2019c. Volunteer River Assessment Program Androscoggin River Report, Data, and Maps. Available online: https://www.des.nh.gov/organization/divisions/water/wmb/vrap/androscoggin/index.htm [Accessed July 1, 2019].
- New Hampshire Revised Statutes (NH Rev Stat). 2016. Title L- Water Management and Protection. Chapter 485-A-Water Pollution and Waste Disposal. Section 485-A:8 – Standards for Classification of Surface Waters of the State. Available online: https://law.justia.com/codes/new-hampshire/2016/title-l/chapter-485-a/section-485-a-8/ [Accessed July 13, 2019].
- United States Environmental Protection Agency (USEPA). 2018. New Hampshire Final Individual NPDES Permits. Available online: https://www.epa.gov/npdes-permits/new-hampshire-final-individual-npdes-permits [Accessed July 14, 2019].
- United States Geological Survey (USGS). 2019a. StreamStats. Available online: https://streamstats.usgs.gov/ss/ [Accessed July 11, 2019].
- United States Geological Survey (USGS). 2019b. USGS 01054000 Androscoggin River near Gorham, NH. Available online: https://waterdata.usgs.gov/nwis/nwismap/?site_no=01054000&agency_cd=USGS [Accessed July 11, 2019].

- Report of Brookfield Renewable Energy Group under P-2327, Cascade Excursion due to ice conditions. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0205A316-66E2-5005-8110-C31FAFC91712
- Letter informing Great Lakes Hydro America, LLC that the run-of-river deviation that occurred on 12/13/219 will not be considered a violation of Article 401 for the Cascade Hydroelectric Project under P2327. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02071FD9-66E2-5005-8110-C31FAFC91712

6.5.2 Upstream and Downstream Fish passage

- Boucher, D.P. 1997. Fishery Progress Report No. 97-4, Androscoggin River Survey (New Hampshire to Rumford Falls). Maine Department of Inland Fisheries and Wildlife. Augusta, Maine. 7pp.
- Brautigam, F. and Pellerin, J. 2014. Upper Androscoggin River Fishery Management Plan. Maine Department of Inland Fisheries and Wildlife. Division of Fisheries and Hatcheries.
- National Marine Fisheries Service (NMFS) 2009 Atlantic salmon GOM DPS: http://cybrary.fomb.org/ESA/20090000_NOOA_Bio_val_Atlantic_salmon_habitat_GOM_Distinct_Population_Segment.pdf
- Yoder, C., Kulik, B., Audet, J., Bagley, J. 2006a. The Spatial and Relative Abundance Characteristics of the Fish Assemblages in Three Maine Rivers. 269 pp. http://cybrary.friendsofmerrymeetingbay.org/FishWildlife/MAINE.RIVERS.REPORT_FINAL.09.01.2006.pdf
- Yoder, C., Kulik, B., Audet, J., and Apell, B. 2009. Maine Rivers Fish Assemblage Assessment. 74 pp. https://midwestbiodiversityinst.org/reports/maine-rivers-fish-assemblage-assessment-index-of-biotic-integrity-for-non-wadeable-rivers-addendum-december-31-2015/MAINE%20RIVERS%202007%20FINAL%20REPORT%20UPDATED%2020160331.pdf

6.5.3 Shoreline and Watershed Protection

- James River-NH Elec,Inc submits Shoreland Protection Plan re Cascade Proj-2327 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=00AC0991-66E2-5005-8110-C31FAFC91712
- Order modifying and approving shoreland protection plan for Crown Vantage-New Hampshire Electric Inc's Cascade Project et al under P-2327 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0015EB2F-66E2-5005-8110-C31FAFC91712

6.5.4 Threatened and Endangered Species

- New Hampshire Fish and Game (NHFG). 2015a. New Hampshire Wildlife Action Plan Appendix A Mammals: Tricolored Bat. file:///J:/1203/103/Docs/PAD/J.%20Brodie%20Smith/Section%205.7%20RTE/References/NHFG_2015_mammals-tricoloredbat.pdf. Accessed July 1, 2019.
- New Hampshire Fish and Game (NHFG). 2015b. New Hampshire Wildlife Action Plan Appendix A Mammals: Eastern Small-Footed Bat. file:///J:/1203/103/Docs/PAD/J.%20Brodie%20Smith/Section%205.7%20RTE/References/NHGF_2015_mammals-easternsmallfootedbat.pdf. Accessed March 7, 2019.
- New Hampshire Fish and Game (NHFG). 2015c. New Hampshire Wildlife Action Plan Appendix A Mammals: Canada lynx. file:///J:/1203/103/Docs/PAD/J.%20Brodie%20Smith/Section%205.7%20RTE/References/NHFG_2015_mammals-canadalynx.pdf. Accessed July 1, 2019.

- New Hampshire Fish and Game Department (NHFGD). 2017. Endangered and Threatened Wildlife of New Hampshire. https://www.wildlife.state.nh.us/nongame/documents/endangered-threatened-wildlife-nh.pdf. Accessed July 1, 2019.
- New Hampshire Fish and Game (NHFG). 2018a. Endangered and Threatened Wildlife of NH. https://www.wildlife.state.nh.us/nongame/endangered-list.html. Accessed July 1, 2019.
- New Hampshire Fish and Game (NHFG). 2018b. Bald eagle (Haliaeetus leucocephalus). https://www.wildlife.state.nh.us/wildlife/profiles/bald-eagle.html. Accessed June 15, 2018.
- New Hampshire Natural Heritage Bureau (NHB). 2018. Rare Plants, Rare Animals, and Exemplary Natural Communities in New Hampshire Towns. https://www.nhdfl.org/DRED/media/Documents/Natural%20Heritage/TownLists.pdf. Accessed June 15, 2018.
- New Hampshire Natural Heritage Bureau (NHB). 2019. Cascade Hydroelectric Project. NHB19-2055. June 28, 2019. *Confidential – Sent Under Separate Cover – See Section 7.0 Supporting Documentation.*
- U.S. Fish and Wildlife Service (USFWS). 2016. Species Profile: Northern Long-Eared Bat (Myotis septentrionalis). Available online at https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0JE Accessed July 1, 2019.
- U.S. Department of Interior: U.S. Fish and Wildlife Service (USFWS). 2019a. List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your project. Cascade Hydroelectric Project (P-2327). July 1, 2019. *Confidential – Sent Under Separate Cover – See Section 7.0 Supporting Documentation*

6.5.5 CULTURAL AND HISTORIC RESOURCES

Documents provided for this application regarding cultural and historic resources are confidential and are filed under separate cover.

- August 8 1996 FERC Order amending programmatic agreement & granting extension of time re James River-NH Elec Inc et al under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10754391
- January 8, 1998 Crown Vantage-NH Elec,Inc submits annual report required by provision of Programmatic Agreement for managing Historic Properties etc re Cascade Proj-2327 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=108979
- April 23, 1999 Crown Vantage-New Hampshire Electric,Inc submits Annual Report of Programmatic Agreement for Managing Historic Properties for 1998 re Cascade Proj-2327,et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8360923
- May 18, 2000 Crown Vantage-New Hampshire Electric, Inc submits 1999 annual report required by provisions of the Programmatic Agreement for Managing Historic Properties re the Cascade Proj-2327. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8052945
- December 17, 2002 Great Lakes Hydro America, LLC submits its annual report required by provision of the Programmatic Agreement for Managing Historic Properties etc under P-2327 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10597541
- February 10, 2003 Letter order informing Great Lakes Hydro America LLC that the January filing meets the requirements of the PA for 2000, 2001 and 2002 under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10556258
- December 31, 2003 Great Lakes Hydro America, LLC submits its Annual Report required by provision of the Programmatic Agreement for Managing Historic Properties likely to be affected etc re the

Cascade Project et al under P-2327 et al.
https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10038100

- January 21, 2004 Letter order accepting Great Lakes America, LLC's 2003 Annual Report, Programmatic Agreement for managing historic properties as fulfilling the annual reporting requirements for the Shelburne Hydroelectric Proj-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10054333
- December 29, 2004 Great Lakes Hydro America, LLC submits this Annual Report required by provision of the Programmatic Agreement for the managing Historic Properties for the Cascade Project et al under P-2327 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10354148
- August 8, 2005 Letter order accepting Great Lakes Hydro America, LLC's 12/30/04 filing its 2004 Annual Historic Resources Management Plan Report for the Cascade Hydroelectric Project et al under P-2327 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10732203
- December 31, 2005 Great Lakes Hydro America LLC submits its 2005 Report required by the provision of the Programmatic Agreement for the Managing Historic Properties likely to be affected by operation of the Cascade Project et al under P-2327 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10919812
- April 27 2006 Letter order accepting Great Lakes Hydro American, LLC's 2005 Annual Report-Programmatic Agreement as fulfilling the annual filing requirements for the Shelburne Project under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11019615
- December 14, 2006 Great Lakes Hydro America, LLC submits its 2006 Report required by the provision of the Programmatic Agreement for the Managing Historic Properties likely to be affected by operation of the Cascade Project et al under P-2327 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11212197
- February 8, 2007 Letter informing Brookfield Power that their Annual Report summarizing the activities conducted in 2006 and proposed for 2007 etc for the New Hampshire Shelburne Project et al under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11258308
- December 26, 2007 Great Lakes Hydro America, LLC submits its annual report required by provision of the Programmatic Agreement for Managing Historic Properties re Shelburne Project under P-2300. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11546217
- March 13, 2008 Letter order accepting Great Lakes Hydro America, LLC's 12/26/07 filing of the annual report summarizing the activities conducted in 2007 and proposed for 2008 re historic resources for the Shelburne Proj-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11625059
- December 31 2008 Great Lakes Hydro America LLC submits the Programmatic Agreement for managing historic Properties for the Shelburne Project et al under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11901185
- February 20, 2009. Letter order accepting Great Lakes Hydro America, LLC's 12/31/08 filing of their annual report of cultural resources monitoring at the Shelburne Project et al under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11949779
- December 4, 2009. Great Lakes Hydro America LLC Annual Cultural Resources Report per Programmatic Agreement under P-2326. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12212728
- December 4, 2009. Report / Form of Great Lakes Hydro America LLC under P-2311 et., al. Annual Cultural Resources Report per the Programmatic Agreement. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12212725

- December 11, 2009 Letter order accepting Great Lakes Hydro America, LLC's 12/4/09 filing regarding Cultural Resource activities pursuant to the Programmatic Agreement & informing them of the next due date of 1/1/11 re the Shelburne Project under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12220299
- December 15, 2010 Great Lakes Hydro American LLC submits 2010 Report per the Programmatic Agreement for Managing Historic Properties under P-2300 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12522831
- December 27, 2011 Annual Report - Programmatic Agreement for Managing Historic Properties dated 12/27/2011 P-2300, et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12849733
- December 18, 2014 Report of Brookfield Renewable Energy Group's Annual Cultural Resource filing for the NH Project under P-2300, et. al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13714403
- December 1, 2015 Report of Brookfield Renewable Energy Group under P-2300, et. al.. Annual Cultural Resource filing. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14059939
- December 21, 2016 Brookfield Renewable Energy Group 2016 Annual Cultural Report under P-2300, et. al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14447020
- December 19, 2017 Annual Report of Brookfield Renewable Energy Group under P-2300, et. al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14779554
- January 2, 2020 Brookfield Renewable Energy Group Annual Cultural Resource Report under P-2300, et. al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15434812
- January 4, 2021 Great Lakes Hydro America, LLC Files Annual Report per the Programmatic Agreement for Managing Historic Properties under P-2300. et. al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020B3575-66E2-5005-8110-C31FAFC91712

6.5.6 Recreational Resources

- June 24, 2003 Letter to Great Lakes Hydro America LLC acknowledging receipt of the its FERC Form 80 filing & advises that they are exempt from further filing FERC Form 80 until further order of FERC re Riverside Project et al under P-2423 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0035EEB1-66E2-5005-8110-C31FAFC91712

6.6 License and Certification Compliance

- May 22, 2018 Letter informing Great Lakes Hydro America LLC that the 3/10-3/12/2018 Run - of - River Deviation will not be considered a violation of Article 401 re the Cascade and Cross Power Hydroelectric Project under P-2327 and P-2326. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14923830
- December 11, 2014 Letter informing Great Lakes Hydro America, LLC that the weather conditions and equipment failures will not be a violations of Article 401 of their licenses for the Cross Power et al under P-2326 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13708193
- December 11, 2014 Letter informing Great Lakes Hydro America, LLC that the weather conditions and equipment failures will not be a violations of Article 401 of their licenses for the Cross Power et al under P-2326 et al. https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13708193

6.7 OTHER

- Great Lakes Hydro America, LLC Notification of Intent and Pre-Application Document - Sawmill P-2422, Riverside P-2423, Cross Power P-2326. Cascade P-2327, Gorham P-2311, Shelburne P-2300 https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02027F9D-66E2-5005-8110-C31FAFC91712
- Notice of Intent to File License Applications, Filing of Pre-Application Documents, Commencement of Pre-Filing Process, and Scoping; Request for Comments on the Pads and Scoping Document etc. re Center Rivers Power, NH LLC et at under P-2287 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0203C886-66E2-5005-8110-C31FAFC91712
- Letter providing Scoping Document 1 for the J. Brodie Smith Project et al under P-2287 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0203C839-66E2-5005-8110-C31FAFC91712
- Supplemental Information of Great Lakes Hydro America, LLC under P-2422, et. al.. Previous Licensing Studies https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0204FC90-66E2-5005-8110-C31FAFC91712
- Letter providing the Scoping Document 2 for the J. Brodie Smith Hydroelectric Project et al under P-2287 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0205B41E-66E2-5005-8110-C31FAFC91712
- ILP Proposed or Rev. Study Plan of Great Lakes Hydro America, LLC under P-2422-058, et. al.. GLHA RSP Filing https://elibrary.ferc.gov/eLibrary/filedownload?fileid=0207FC6D-66E2-5005-8110-C31FAFC91712
- Letter to Central Rivers Power, NH LLC et al discussing the study plan determination for the J. Brodie Smith Project et al under P-2287 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020848C2-66E2-5005-8110-C31FAFC91712
- ILP Initial or Updated Study Report of Great Lakes Hydro America, LLC for the Riverside Hydroelectric Project under P-2422, et. al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020D9E54-66E2-5005-8110-C31FAFC91712
- Great Lakes Hydro America, LLC, an affiliate of Brookfield Renewable Partners L.P. submits response to comments on the initial study report for Sawmill Project et al under P-2422 et al. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=96B1AE05-0B1F-C2D3-B251-7BC0D0100000
- Letter to Central Rivers Power NH, LLC et al discussing the determination on requests for modification to the approved study plan for the New Hampshire J. Brodie Smith Hydroelectric https://elibrary.ferc.gov/eLibrary/filedownload?fileid=9E957906-EE71-C07A-8BF8-7C0E38200000

7.0 SUPPORTING DOCUMENTATION

Androscoggin River Headwater Benefits Agreement

ANDROSCOGGIN RIVER
HEADWATER BENEFITS AGREEMENT

This Agreement made as of the 1st day of June, 1983 by and among Androscoggin Reservoir Company ("ARCO") with a business address at 150 Main Street, Lewiston, Maine 04240, Union Water Power Company ("Union") with a business address at 150 Main Street, Lewiston, Maine 04240, International Paper Company ("IP") with a business address at International Paper Plaza, 77 West 45th Street, New York, New York 10036, Rumford Falls Power Company ("Rumford") with a business address at c/o Boise Cascade Corporation, Paper Group, Rumford Mill, Rumford, Maine 04276, James River Corporation. ("James River") with a business address at 650 Main Street, Berlin, New Hampshire 03570, and Public Service Company of New Hampshire ("Public Service") with a business address at 1000 Elm Street, Manchester, New Hampshire 03105:

W I T N E S S E T H T H A T

WHEREAS, Union owns dams, reservoirs, works and other structures to wit: On Rapid River at the outlet of Lower Richardson Lake in Township "C", Oxford County, Maine and known as Middle Dam; at the outlet of Mooselookmeguntic Lake in Richardsontown, T-4, R-1, Oxford County, Maine and known as Upper Dam; on Rangeley River at the outlet of Rangeley Lake, Rangeley, Franklin County, Maine and known as Rangeley Dam; and on the Androscoggin River, three (3) miles south of the outlet of Umbagog Lake, Errol, Coos County, New Hampshire and known as

Errol Dam; all of which reservoirs, dams, works and other structures are useful for the purposes of storage and regulation of the headwaters of the Androscoggin River, and

WHEREAS, ARCO owns a reservoir, dam and works on the Magalloway River at or near the head of Aziscohos Falls in Lincoln Plantation, Oxford County, Maine useful for the purposes of storage and regulation of the headwaters of the Androscoggin River, and

WHEREAS, ARCO is owned by Union, IP, James River, Rumford, and Public Service, and

WHEREAS, Union, IP, Rumford, James River and Public Service along with any other entity which becomes a party to this agreement pursuant to Section 7 (hereinafter called the "Benefited Proprietors") receive headwater benefits from the above-mentioned dams, reservoirs, works and other structures owned by Union and ARCO (hereinafter called the "Upstream Storages"), and

WHEREAS, the Benefited Proprietors have shared the operation and maintenance expenses of the Upstream Storages owned by Union pursuant to an agreement dated March 31, 1909 and have shared the expenses of operation and maintenance of the Upstream Storages owned by ARCO pursuant to the articles of incorporation, by-laws and resolutions of ARCO which along with the 1909 Agreement are hereinafter called the "Old Cost Sharing Arrangement", and

WHEREAS, new and expanded hydro power facilities have been built or are being planned by others which facilities are now

or will be receiving substantial headwater benefits from the Upstream Storages and this agreement is structured to facilitate their becoming Benefited Proprietors under this agreement such that they will pay their fair share of the operating and maintenance expenses of the Upstream Storages;

NOW THEREFORE, in consideration of the mutual undertakings set forth herein, the parties agree as follows:

1. Term of Agreement. This agreement will continue for a term of fifty (50) years beginning on the date first above written and ending at 12 o'clock noon at the expiration of the fiftieth year thereafter provided that notice of termination is given on or before 12 o'clock noon on the last day of the 49th year by any party. If notice of termination is not given, the rights and obligations under this agreement shall continue, provided that after the initial 50 year term, this agreement may only be terminated by any party upon giving one year's prior notice of termination in writing to all parties.

2. Regulation of River Flows. a. Unless prevented from doing so as a result of an "uncontrollable force" Union shall release and discharge through its dam on the Androscoggin River at Errol, New Hampshire, a quantity of water sufficient to maintain the flow of water in the Androscoggin River at Berlin, New Hampshire, above the falls in said river of not less than fifteen hundred and fifty (1550) cubic feet per second during the twenty-four hours of each day of each year, provided, first, that ARCO shall release and discharge from its reservoir

on the Magalloway River a quantity of water from time to time during each year if and as called for by the engineer of Union equivalent to one-third of the quantity annually released and discharged by Union through its dam at Errol, New Hampshire; and second, that in the judgement of the Engineering Committee there shall be a sufficient quantity of water in the Upstream Storages of Union and of ARCO to furnish and supply the quantity they are respectively required to release and discharge to maintain the flow of fifteen hundred and fifty (1550) cubic feet per second of water at said Berlin; and third, that any party to this agreement, shall have need for the same and request in writing that said amount be so released and discharged. "Uncontrollable force" for the purposes hereof shall mean storm, flood, drought, lightning, earthquake, fire, explosion, failure of facilities including Upstream Storage facilities, civil disturbance, labor disturbance, sabotage, war, national emergency, restraint by court or public authority, or other causes beyond the reasonable control of Union or ARCO.

b. Any excess of stored waters in the Upstream Storages of Union and/or ARCO not required to maintain said minimum flow of fifteen hundred and fifty (1550) cubic feet per second at Berlin, New Hampshire, shall be released and discharged in the respective proportions of one-third by ARCO and two-thirds by Union at such time and in such manner as shall maintain the flow of water in the Androscoggin River at said Berlin at as high a point above said minimum of fifteen hundred and fifty (1550) cubic feet per second as shall be consistent with a

proper and economical use of the whole storage controlled by Union and ARCO and with the maintenance of said minimum flow of fifteen hundred and fifty (1550) cubic feet per second at all seasons of the year.

c. Notwithstanding the provisions for regulating water releases at Errol Dam described in Sections 2.a. and 2.b. above, the Engineering Committee established by this agreement shall have the right at any time to request Union to Release and discharge through its dam at Errol, New Hampshire a greater or lesser amount of water than otherwise called for by this agreement. Upon receiving such a request from the Engineering Committee, Union will release the amount of water requested provided that: (1) the water is available, (2) the release of water is controllable as requested, (3) the release will not result in abnormally high or abnormally low lake levels in the opinion of Union's engineer and (4) the release will not violate any law, regulation or license to which Union is subject.

3. Engineering Committee. There shall be established an Engineering Committee consisting of five members, one member selected by and representing Union, IP, Rumford, James River and Public Service. The Engineering Committee shall annually elect one of its members to serve as Chairman. The duties of the Engineering Committee are as follows:

(a) To request modification of water releases from the Errol Dam as provided in Section 2.c. above.

(b) To approve the budget for operation and maintenance expenses of Union and ARCO as provided for in Section 4 below.

(c) To approve for payment under this agreement any operation and maintenance expenses which may arise within the intent of this agreement in the future and which are not specifically provided for in Section 4(b) and Appendix A.

Any decision under Subsection 3(a), (b) or (c) shall be by an affirmative vote of at least four members of the Engineering Committee.

4. Operation and Maintenance Expenses, Destruction of Upstream Storages. a. It is the intent of the parties to this Agreement that the Benefited Proprietors shall bear the full cost to Union and ARCO of operating and maintaining the Upstream Storages. Therefore, in consideration of the regulation of river flows, and the other mutual covenants, rights and obligations, the Benefited Proprietors agree to contribute and pay (no more often than quarterly) their "allocated share" of all operation and maintenance expenses incurred by Union and ARCO arising out of the ownership and operation of the Upstream Storages as determined by the method specified in Section 5.

b. "Operation and maintenance expenses incurred by Union and ARCO" shall mean all direct and indirect expenses arising out of the ownership, operation and maintenance of the Upstream

Storages including without limitation those expenses specified in Appendix A whether incurred by Union, ARCO or their employees, agents or independent contractors.

c. The word "maintenance" as used herein shall include all ordinary repairs and all ordinary renewals to the present dams, works and other structures of Union or ARCO, connected with said storage upon the headwaters of the Androscoggin River, the so-called Upstream Storages. Nothing herein shall be construed to bind Union or ARCO to rebuild any of the Upstream Storages.

d. If during the term of this agreement all or substantially all or a lesser portion of one, or all of the Upstream Storage dams, reservoirs or works are destroyed, damaged or condemned, Union or ARCO, while not obligated by this agreement to do so, may elect to complete, repair, restore or reconstruct the same to the former or intended character and use. Upon approval of all members of the Engineering Committee each Benefited Proprietor shall contribute and pay its allocated share of the cost thereof.

5. Allocation of Operation and Maintenance Expenses.

a. Operation and maintenance expenses will be allocated to Benefited Proprietors on the basis of "allocated shares." The allocated share of each Benefited Proprietor shall be determined once each year on or before April 30th based on the number of Benefited Proprietors, their beneficial drainage areas and developed heads by the method specified in Appendix B.

b. Each Benefited Proprietor shall make available to Union or ARCO as appropriate such funds as the representative of Union may reasonably request in order to provide necessary funds for inventories of materials and supplies and working capital for the operation and maintenance of the Upstream Storages or to make timely payments of any other costs incurred pursuant to this agreement; such funds in the aggregate shall not exceed the amounts theretofore approved under Section 3(b). The purpose of this Section 5(b) is to preclude the necessity for use by Union or ARCO of their own funds to cover the Benefited Proprietors' allocated shares of such payments.

c. If any Benefited Proprietor fails to pay any invoice within 30 days of its receipt, it shall be obligated to pay interest thereon from the date of the invoice at a rate of 2% per annum above the prime rate (or comparable rate) in effect at the First National Bank of Boston in Boston, Massachusetts as adjusted from time to time.

6. Limitation of Liability. Neither Union, ARCO, or their shareholders, directors, officers, employees or agents or the Engineering Committee will be liable to any Benefited Proprietor for personal injury or damage to property, whether in contract or in tort, arising out of, connected with, or resulting from this agreement or from the performance or breach thereof.

In no event, whether as a result of breach of contract or alleged negligence, shall Union, ARCO or their shareholders, directors, officers, employees or agents or the Engineering Committee be liable to any Benefited Proprietor for special or consequential damages including, but not limited to loss of

profits or revenue, loss of use of equipment, cost of substitute equipment, facilities or services, purchased power, cost of capital, downtime costs or claims of customers of the Benefited Proprietors for such damages.

The Benefited Proprietors shall share the risks of employee negligence and other risks of ownership, operation and maintenance of the Upstream Storages. Any claim, cost or expense to Union or ARCO arising out of negligence or other cause or factor, after reduction by insurance proceeds if any, shall be considered an operation and maintenance expense under Section 4 to be paid for by Benefited Proprietors on the basis of allocated shares determined in accordance with Section 5.

7. Counterparts, New Parties. Any number of counterparts of this agreement may be executed and each shall have the same force and effect as the original and as if all of the parties to all of the counterparts had signed the same instrument.

Any entity which receives headwater benefits from the Upstream Storages may become a party to this agreement as a Benefited Proprietor by signing an addendum to this agreement in the form of Appendix C wherein it assumes all the rights and obligations of other Benefited Proprietors. The effective date of such addendum shall be January 1st of the year it is executed or such other date as determined by a majority of the then existing Benefited Proprietors.

8. Miscellaneous. a. This agreement shall be binding on successors and assigns of each party and, insofar as permitted by law, on any receiver or trustee in bankruptcy, receivership or reorganization of any party.

b. This agreement is made under and shall be governed by the law of the State of Maine.

c. No Benefited Proprietor shall, by virtue of this agreement alone, have any right to participate in any generating capacity which is or may in the future be installed at any of the Upstream Storages nor shall it obtain any ownership interest in the dams, reservoirs, flowage rights, or other appurtenances by virtue of its sharing the expenses of operation and maintenance as provided in Sections 4 and 5 of this agreement.

d. All indices, titles, subject headings, section titles and similar items are provided for the purpose of reference and convenience and are not intended to be inclusive, definitive or to affect the meaning of the contents or scope of this agreement.

e. This agreement supersedes any and all oral or written agreements and understandings heretofore made relating to the subject matter hereof and contains the entire agreement of the parties relating to the subject matter hereof.

9. Termination By Benefited Proprietor. A Benefited Proprietor may terminate its rights and obligation hereunder if it ceases to generate power at its dam, gives one year's written notice of its intention to terminate, and pays all outstanding obligations under Sections 4 and 5 to the effective date of termination. Periods of maintenance or repair of hydro power dams or equipment shall not be considered ceasing generation for purposes of this Section unless the period shall continue for more than three years.

10. Notices. Any notice made to any other party pursuant to this agreement shall be made in writing and shall be delivered either in person, by prepaid telegram, or by first class mail postage prepaid to such officer of the party as shall have executed this agreement at the address first above written. Such officer and address may be changed from time to time by written notice by a party to the other parties.

IN WITNESS WHEREOF, the parties have caused this agreement to be signed by their respective authorized officers and their respective corporate seals to be affixed hereto as of the date first above written.

ANDROSCOGGIN RESERVOIR COMPANY

Seal

By /s/ E. W. Thurlow
E. W. Thurlow
Its President

UNION WATER POWER COMPANY

Seal

By /s/ C. E. Monty
C. E. Monty
Its Vice-President

INTERNATIONAL PAPER COMPANY

Seal

By /s/John M. Nevin
John M. Nevin
Its Vice-President

RUMFORD FALLS POWER COMPANY

Seal

By /s/ Jeffrey G. Lowe
Jeffrey G. Lowe
Its President

JAMES RIVER CORPORATION

Seal

By /s/ Edgar T. Dean
Edgar T. Dean
Its Group Vice-President

PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE

Seal

By /s/ Robert J. Harrison
Robert J. Harrison
Its President

State of Maine
County of Kennebec, ss

Dated June 1, 1983

Then personally appeared the above named E. W. Thurlow, its President, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Androscoggin Reservoir Company.

Before me,

/s/ Geraldine E. Downer
~~Justice of the Peace~~/Notary Public

State of Maine
County of Kennebec, ss

Dated June 30, 1983

Then personally appeared the above named C. E. Monty, its Vice-President, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Union Water Power Company.

Before me,

/s/ Geraldine E. Downer
~~Justice of the Peace~~/Notary Public

State of New York
County of New York, ss

Dated August 17, 1983

Then personally appeared the above named John M. Nevin, its Vice-President, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of International Paper Company.

Before me,

/s/ Frank H. Argenzio
~~Justice of the Peace~~/Notary Public

State of Maine
County of Oxford, ss

Dated June 7, 1983

Then personally appeared the above named Jeffrey G. Lowe, its President, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Rumford Falls Power Company.

Before me,

/s/ Gabriella M. LeVasseur
~~Justice of the Peace~~/Notary Public

State of New Hampshire
County of Coos , ss

Dated June 6 , 1983

Then personally appeared the above named Edgar T. Dean, its Group Vice-President, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of James River Corporation.

Before me,

/s/ Lorraine B. Pinette
Justice of the Peace/Notary Public

State of New Hampshire
County of Hillsborough , ss

Dated June 2 , 1983

Then personally appeared the above named Robert J. Harrison, its President, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Public Service Corporation of New Hampshire.

Before me,

/s/ Pierre O. Caron
Justice of the Peace/Notary Public

APPENDIX A

OPERATION AND MAINTENANCE EXPENSES

The following is a list of direct and indirect expenses arising out of the ownership, operation and maintenance of the Upstream Storages. This list is only representative and is not meant to be all inclusive, however, it does represent a reasonably comprehensive list of the categories of expenses supported under the Old Cost Sharing Arrangement. These costs are intended to include labor, materials, supplies equipment and associated overhead costs of Union, ARCO and their employees, agents or independent contractors.

1. Accounting expenses.
2. Administrative expenses.
3. Dam keepers expenses.
4. Engineering expenses including dam safety inspections.
5. Gauging station and water measurement expenses including payments directly to U.S.G.S.
6. Insurance expenses including fire and casulty insurance (with extended coverage), public liability and property damage covering Upstream Storages and offices, workers compensation coverage and other insurance necessary or desirable.
7. Interest on working capital.
8. Legal expenses.

9. Office-type expenses including rent, repair, maintenance, electricity, telephone, fuel, office supplies and equipment, communication equipment, equipment repair, etc.

10. Operating Expenses.

11. Public and legislative relation expenses.

12. Property taxes.

13. Purchasing expenses.

14. Repair and maintenance expenses.

15. Salary and wages including payroll taxes and employee benefits.

16. Travel expenses including transportation, meals and lodging.

17. Regulatory expenses, including the cost of obtaining and retaining required permits, licenses etc.

18. Vehicle expenses.

19. Debt service, including interest and principal, for major capital expenditures.

20. All other obligations and expenses approved by the Engineering Committee as being consistent with the intent of this agreement.

APPENDIX B

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES TO BENEFITED PROPRIETORS

A. GENERAL

Appendix B explains how cost and expenses determined by Section 4, Section 5 and Appendix A of this agreement (hereinafter called O & M Expenses) are to be allocated to the Benefited Proprietors as defined on page 2 of the agreement.

There are two categories of Benefited Proprietors. The first receives the full benefit from the 1045 square miles of drainage associated with the Upstream Storages. This category includes all generating stations from Errol Dam to tidewater at Brunswick. The second category receives only a partial benefit from the drainage associated with the Upstream Storages. In this category are the projects that may be built at the Upstream Storages above Errol Dam.

To determine each Benefited Proprietor's allocated share, each station gross head will be multiplied by the storage drainage area above the station. This product for each generating station will be totaled. The sum of the products for all operating stations is used as a denominator to determine allocated share as indicated by the following formula:

$$\text{Allocated Share} = \frac{(\text{Station Gross Head} \times \text{Storage Drainage Area})}{\sum(\text{Station Gross Head} \times \text{Storage Drainage Area})} \times \text{Total O \& M Expenses}$$

Where:

Station Gross Head is the difference in elevation between the top of headwater flashboards as normally used throughout the year and the elevation of free water surface at tailwater under optimum operating conditions to the nearest foot for each development of a Benefited Proprietor;

Storage Drainage Area is the drainage area in the Upstream Storages from which the Benefited Proprietor receives Upstream Storage benefits. For Errol Dam Project and below the Storage Drainage Area is 1045 square miles. The Storage Drainage Areas for the remaining Upstream Storage projects are as follows:

Rangeley Dam Project	=	99 square miles
Upper Dam Project	=	382 square miles
Middle Dam Project	=	472 square miles
Aziscohos Dam Project	=	214 square miles

Total O & M Expenses is the total cost or expense payable by the Benefited Proprietors under Section 4, Section 5 and Appendix A of this agreement.

Each Benefited Proprietor's total allocated share is the sum of the allocated shares for each of its generating stations.

B. EXAMPLES

For convenience, the examples below determine the allocated share of each Benefited Proprietor as a percentage not in dollars as would be done in each annual allocation.

EXAMPLE NO. 1
Existing Contributors

James River	200 x 1045	209,000	=	26.53%
Public Service	101 x 1045	105,545	=	13.40
Rumford	178 x 1045	186,010	=	23.61
IP Co.	95 x 1045	99,275	=	12.60
CMP. Co.	126 x 1045	131,670	=	16.71
UWP Co.	54 x 1045	56,430	=	7.16
	754	787,930		100.00%

EXAMPLE NO. 2
Existing Contributors
Plus One Lakes Storage Hydro (Aziscohos)

Aziscohos	150 x 214	32,100	=	3.91%
James River	200 x 1045	209,000	=	25.49
Public Service	101 x 1045	105,545	=	12.87
Rumford	178 x 1045	186,010	=	22.68
IP Co.	95 x 1045	99,275	=	12.11
CMP Co.	126 x 1045	131,670	=	16.06
UWP Co.	54 x 1045	56,430	=	6.88
	904	820,030		100.00%

EXAMPLE NO. 3
Existing Contributors
Plus One Lakes Storage Plus an Additional River Station

Aziscohos	150 x 214	32,100	=	3.81%
James River	200 x 1045	209,000	=	24.79
Public Service	101 x 1045	105,545	=	12.52
Rumford	178 x 1045	186,010	=	22.06
IP Co.	95 x 1045	99,275	=	11.78
CMP Co.	126 x 1045	131,670	=	15.62
UWP Co.	54 x 1045	56,430	=	6.69
Pejepscot	22 x 1045	22,990	=	2.73
	926	843,020		100.00%

SECTION 10(f) OF THE FEDERAL POWER ACT

Conditions of licenses.

SEC. 10. [*As amended August 26, 1935, and September 7, 1962.*] All licenses issued under this Part shall be on the following conditions:

* * * * * * * * * * * * * * *

Payment by licensee if benefited by work of another.

(f) That whenever any licensee hereunder is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvement, the Commission shall require as a condition of the license that the licensee so benefited shall reimburse the owner of such reservoir or other improvements for such part of the annual charges for interest, maintenance, and depreciation thereon as the Commission may deem equitable. The proportion of such charges to be paid by any licensee shall be determined by the Commission. The licensees or permittees affected shall pay to the United States the cost of making such determination as fixed by the Commission.

For benefit from Government construction.

Whenever such reservoir or other improvement is constructed by the United States the Commission shall assess similar charges against any licensee directly benefited thereby, and any amount so assessed shall be paid into the Treasury of the United States, to be reserved and appropriated as a part of the special fund for headwater improvements as provided in section 17 hereof.

Benefit to unlicensed project.

Whenever any power project not under license is benefited by the construction work of a licensee or permittee, the United States or any agency thereof, the Commission, after notice to the owner or owners of such unlicensed project, shall determine and fix a reasonable and equitable annual charge to be paid to the licensee or permittee on account of such benefits, or to the United States if it be the owner of such headwater improvement.

APPENDIX C

ADDENDUM
TO
ANDROSCOGGIN RIVER
HEADWATER BENEFITS AGREEMENT

As authorized by Section 7 of the agreement, _____, with a business address at _____ has, by causing this addendum to be signed by its authorized officer, affixing its Corporate Seal hereto, and acknowledging same before a Justice of the Peace or Notary Public, hereby become a party to this agreement and subject to all obligations and entitled to all rights as a Benefitted Proprietor thereunder effective _____.

Dated _____

_____
(Name of Entity)

(Seal)

By _____
Its _____

State of
County of , ss

Dated , 1983

Then personally appeared the above named its , and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

_____
Justice of the Peace/Notary Public

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

FILED
92 JUN 30 PM 4:27
FEDERAL ENERGY REGULATORY COMMISSION
SECRETARY

Androscoggin Reservoir Co.
Aziscohos Hydro Co., Inc.
Central Maine Power Co.
Boise Cascade
Errol Hydroelectric Ltd. Partnership
International Paper Co.
James River Corporation
Miller Hydro Group, Inc.
Pontook Operating Ltd. Partnership
Public Service Co. of New Hampshire
Topsham Hydro Partners
Union Water Power Co.

Docket No. HB22-82-2-000
Maine

ORDER APPROVING HEADWATER BENEFITS AGREEMENT
IN THE ANDROSCOGGIN RIVER BASIN IN MAINE
(Issued June 30, 1992)

On August 23, 1991, Central Maine Power Company filed with the Commission for approval a Headwater Benefits Agreement (Agreement) in the Androscoggin River Basin. The filing was made to obtain the Commission's approval of a negotiated settlement for headwater benefits charges in the Androscoggin River Basin. The settlement was executed among 12 parties on June 1, 1983, in order to apportion charges for benefits derived from headwater projects.

Background

Pursuant to section 10(f) of the Federal Power Act, when a non-federal owner of a downstream hydroelectric project is directly benefitted by the construction work of another licensee, the Commission shall require that the non-federal owner so benefitted reimburse the owner of the headwater improvements for such part of the annual charges for interest, maintenance, and depreciation thereon as the Commission may deem equitable.

The Commission's regulations provide an opportunity for a negotiated settlement among non-federal owners of downstream hydroelectric projects directly benefitted by non-federal headwater storage projects[1]. Settlements must be filed with the Commission for its approval, according to the provisions of 18 C.F.R. § 385.602.

There are a number of headwater storage projects and downstream hydroelectric projects in the basin, some of which have been in operation since the early 1900's. A previous

[1] 18 C.F.R. § 11.14

agreement dated March 31, 1909 was in effect prior to June 1, 1983; however, under section 10(f) of the Federal Power Act the Commission did not have jurisdiction to approve any headwater benefits agreement in the Androscoggin River Basin because there were no licensed or permitted headwater projects. The Commission's jurisdiction to assess, or approve headwater benefits agreements or payments in this basin commenced on August 1, 1983, the effective date of the Commission license for the Errol Hydroelectric Project, No. 3133.

Basin Description

The Androscoggin River Basin, which lies partly in western Maine and partly in northeastern New Hampshire, begins at the Canadian border and stretches to the Atlantic Ocean. The Agreement covers a portion of the basin from the Aziscohos Hydroelectric Project which is located on the Magalloway River in Lincoln Plantation, Maine and the Errol Hydroelectric Project which is located in northeastern New Hampshire approximately six miles from the New Hampshire-Maine border. Starting from the Errol Hydroelectric Project, the Agreement continues to cover that portion of the basin that is downstream 163 river miles to the Brunswick Hydroelectric Project near the mouth of the Androscoggin River.

Three unlicensed and two licensed storage projects are located in the headwaters of the Androscoggin River Basin. Table 1 shows the headwater storage projects, their owners, and the FERC project numbers. There are 18 downstream licensed hydroelectric projects that receive energy gains from the headwater projects. Table 2 shows the downstream hydroelectric projects, their owners, and the FERC project numbers.

Table 1

Headwater Storage Project	Owner	FERC Project No.
Middle Dam	Union Water Power Co.	unlic.
Upper Dam		unlic.
Rangeley Dam		unlic.
Errol Hydro-electric Project[2]		3133
Aziscohos Hydro-electric Project[2]	Androscoggin Reservoir Co.	4026

[2] The hydroelectric project at this site is also a headwater storage project with hydroelectric facilities that utilize the head of the storage project. There are separate owners of the storage facilities and the hydroelectric facilities at the site.

Table 2

Downstream Hydroelectric project	Owner	FERC Project No.
Errol Hydro-electric Project	Errol Hydroelectric Ltd. Partnership	3133
Aziscohos Hydro-electric Project	Aziscohos Hydro Co., Inc.	4026
Pontook Hydro-electric Project	Pontook Operating Ltd. Partnership	2861
Sawmill Hydro-electric Project	James River Corporation	2422
Riverside Project		2423
Cross Project		2326
Cascade Project		2327
Gorham Hydroelectric Development		2311
Shelburne Hydroelectric Development		2300
Smith Hydro-electric Project	Public Service Co. of New Hampshire	2287
Gorham Hydro-electric Project		2288
Rumford Falls Project	Boise Cascade	2333
Riley-Jay-Livermore Project	International Paper Co.	2375
Gulf Island Project	Central Maine Power Co.	2283
Brunswick Project		2284
Lewiston Falls Project	Union Water Power Co.	2302
Worumbo Hydro-electric Project	Miller Hydro Group, Inc.	3428
Pejepscot Project	Topsham Hydro Partners	4784

Headwater Benefits Agreement

The present Agreement sets forth a method for calculating the headwater benefits received by the downstream projects. The calculation is based upon the gross head of the project, the storage drainage area above the project, and the total operation and maintenance expenses for the five headwater projects.

Payments for headwater benefits are determined by taking the costs of the headwater storage projects and allocating them to the owners of the downstream projects. The payments are allocated according to the guidelines in the Agreement. Based on the information provided in the Agreement, including method of payment, we find the Agreement and payments thereunder satisfactory for approval.

The Director orders:

(A) The Agreement dated June 1, 1983, and payments made thereunder, is approved to the extent of the Commission's authority under section 11.14(a) of the Regulations under the Federal Power Act, until such time as the Commission, upon its own motion or upon the motion of any party, finds that changed conditions warrant a new determination.

(B) Each party to this Agreement shall pay within 30 days of this order $260 each for the Commission's costs of review and approval of this Agreement. Payment should be sent to: Federal Energy Regulatory Commission; Lock Box 93938; Chicago, IL 60673.

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

J. Mark Robinson
Director, Division of Project
Compliance and Administration

FEDERAL POWER COMMISSION

Part 13 - Settlements Involving Headwater Benefits

REGULATIONS UNDER THE FEDERAL POWER ACT

Order No. 237 - Docket No. R-202
(26 F.R. 10794, November 18, 1961)

The Commission's Order No. 237, issued November 14, 1961 and effective December 31, 1961, amends the Regulations under the Federal Power Act by adding a new Part 13 to read as follows:

§ 13.1 Settlements involving headwater benefits.

Henceforth, licensees and permittees with headwater improvements providing power benefits to downstream non-Federal power developers may file contracts entered into with such parties so benefited agreeing to the amount of annual payments for headwater benefits. The aforesaid contracts will be accepted for filing subject to subsequent review and approval by the Commission. When possible, such contracts should be filed prior to the incurring of expense by the Commission for headwater benefit investigation with respect to a particular project pursuant to section 10(f) of the Federal Power Act.

(49 Stat. 858, 80 Stat. 239; 16 U.S.C. 825h, 5 U.S.C. 1004(b))

Cascade Water Quality Certification

Attachment 1

FIG

State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES
WATER SUPPLY & POLLUTION CONTROL DIVISION
6 Hazen Drive, P.O. Box 95, Concord, NH 03301
603-271-3504

ALDEN H. HOWARD
COMMISSIONER

RUSSELL A. NYLANDER, P.E.
CHIEF ENGINEER

COUNCIL
JOHN F. BRIDGES, Chairman
MICHAEL G. LITTLE, Vice Chairman
E. H. B. BARTELINK
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DONALD A. NORMANDEAU, Ph.D.
WAYNE L. PATENAUDE
ROBERT W. VARNEY
JAMES VAROTSIS
WILLIAM T. WALLACE, M.D., M.P.H.

July 6, 1989

Andrew E. Sims, Dir. Licenses & Permits
Kleinschmidt Associates
75 Main Street, P.O. Box 576
Pittsfield, Maine 04967

RE: Water Quality Certificate (pursuant to Section 401 of the Clean Water Act): Cascade Project, FERC No. 2327, James River-New Hampshire Electric, Inc.

Dear Applicant:

The division has determined that the subject project complies with the applicable provisions of sections 301, 302, 303, 306, and 307 of the Clean Water Act as amended. Additionally, the subject project will receive State permits in accordance with RSA 149:8-a, RSA 483:A and other applicable State statutes.

Accordingly, this certification is issued subject to the condition that this office be in receipt of final erosion control plans and specification of the project prior to construction.

Sincerely yours,

Richard A. Flanders, Jr.

Richard A. Flanders, Jr., Supervisor
Water Quality Section

RAF/RJB/tmk
cc: Mr. Delbert Downing - NHWB
Mr. Allen Crabtree - NH F&G

Scott Herke - Dept. of the Army
N.E. Division, Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

NPDES cooling water permit

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

BY CERTIFIED MAIL #7011 1570 0003 6776 0414

December 9, 2014

Antonio Zarella, Director of Operations
Great Lakes Hydro America, LLC
c/o Brookfield Renewable Energy Group
Berlin, New Hampshire 03570

Subject: Adoption of NPDES Permit No. NHG360010
Brookfield's Cascade Hydroelectric Generating Station in Gorham, NH

Dear Mr. Zarella:

As you know, the U.S. Environmental Protection Agency (EPA) authorized the subject facility, effective December 5, 2014, to discharge in accordance with the provisions of the New Hampshire General NPDES Permit No. NHG360000 for Hydroelectric Generating Facilities (HYDRO GP). The Department of Environmental Services hereby adopts the HYDRO GP as your State Discharge Permit that is required by RSA 485-A:13,I.(a).

Enclosed is a copy of the letter from EPA dated December 5, 2014, NPDES Permit NHG360000, Standard Conditions (Part II), and Best Management Practices (Part III).

Should you have any questions relative to your State discharge permit please call me at 271-3434.

Sincerely,

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

cc: Town of Gorham (w/o enclosure)
Town of Shelburne, town downstream of the above referenced facility (w/o enclosure)
ec: Paul L. Heirtzler, PE, Esq., Administrator, NHDES Wastewater Engineering Bureau (w/o enclosure)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 5, 2014

Antonio Zarella, Director of Operations
Great Lakes Hydro America, LLC
c/o Brookfield Renewable Energy Group
972 Main Street
Berlin, NH 03570

Re: NPDES General Permit for Hydroelectric Generating Facilities in New Hampshire –
No. NHG360010 for Brookfield's Cascade Hydroelectric Generating Station in Gorham, NH

Dear Mr. Zarella:

Based on the review of your original notice of intent (NOI) dated March 19, 2010 and revised NOI submitted on December 3, 2014, the United States Environmental Protection Agency (EPA) hereby authorizes you to discharge in accordance with the provisions of the New Hampshire General NPDES Permit No. NHG360000 for Hydroelectric Generating Facilities (HYDRO GP) effective on the date of this letter. EPA will close out any and all NPDES applications submitted to EPA prior to this date for an individual permit for this discharge.

Although the authorization to discharge goes into effect as of the date of this letter, the effluent limitations and monitoring requirements for this discharge, which is designated as Outfall 022, shall go into effect during the calendar quarter beginning on January 1, 2015. For the purposes of the HYDRO GP, the calendar quarters are defined as January 1 to March 31, April 1 to June 30, July 1 to September 30, and October 1 to December 31. As a convenience, the enclosed effluent limitations summary page for Outfall 022 is provided and is based on the information provided in your original and revised NOIs. This summary page includes effluent limitations and monitoring requirements applicable to your discharge. However, this summary page does not represent the complete requirements of the New Hampshire Hydroelectric Facilities General Permit. Permittees must comply with all of the applicable requirements of this general permit, including effluent monitoring, State of New Hampshire permit conditions, administrative aspects; additional permit conditions, best management practices plan, and standard conditions including reporting requirements. The complete HYDRO GP and related information can be found at EPA's website: http://www.epa.gov/region1/npdes/newhampshire.html.

EPA has developed a web-based tool named "NetDMR" that allows permittees to electronically submit their discharge monitoring reports (DMRs) and other reports to EPA via a secure internet connection. NetDMR is now available for use at facilities in New Hampshire and Massachusetts, and information concerning NetDMR can be found at http://www.epa.gov/netdmr. Although the

HYDRO GP does not currently require the use of NetDMR, EPA expects that future permits will include a requirement for its use. Accordingly, EPA is requesting that all permittees subject to the requirements of the HYDRO GP consider using NetDMR during this permit cycle. In order to begin using NetDMR, a facility must participate in some training which is provided at no cost by EPA. If you are interested in registering for the NetDMR training or have questions about the use of NetDMR please send an email to R1.NetDMR@epa.gov.

A supply of DMR forms to be used to report monitoring results will be mailed to you under separate cover. These forms are to be used to enter the facility data and reporting requirements for each calendar quarter until this permit expires or until the facility elects to use NetDMR and is approved by EPA to use it. If more than one page per reporting cycle is used, please enter all repetitious data, such as facility name, address, NPDES number, outfall number and applicable limits on each page. These forms shall be completed and postmarked no later than the 15th day of the month following the completed reporting quarter. Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to the appropriate State address listed in the general permit and to the EPA address listed below:

U.S. Environmental Protection Agency
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

This general permit and authorization to discharge expire on December 7, 2014. The permit may then be administratively continued. In this situation, you will need to follow instructions for maintaining coverage under a reissued general permit once these instructions are made available.

In the future, if a situation should arise where the information provided on the NOI no longer represents the facility's operations or there are planned changes to the facility or its discharges, you must notify EPA as soon as possible in accordance with Part II.D.1 of the general permit. With this information, EPA will determine whether a change in permit coverage is warranted.

Your NPDES permit number is indicated in the subject line of this letter and should be referenced on all correspondence. We appreciate your cooperation in applying for coverage under this general permit. If you have any questions regarding this permit, please contact George Papadopoulos at (617) 918-1579 or Robin Johnson at (617) 918-1045.

Sincerely,

Thelma Murphy

Thelma Murphy, Chief
Stormwater and Construction Permits Section
Office of Ecosystem Protection

Enclosure

cc: Amy Clark, NHDES
Kyle Murphy, Brookfield

Summary of specific numeric effluent limitations and monitoring requirements for Brookfield's Cascade Hydroelectric Generating Facility. Monitoring for this outfall is to be conducted and reported in accordance with Part I.B.6 and Part I.E of the HYDRO GP. This summary is provided as a convenience using the submitted NOI information and it does not replace the effluent limitations and monitoring requirements, and other conditions set forth in New Hampshire General Permit No. NHG360000; effective December 7, 2009.

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge equipment-related cooling water (non-contact cooling water from turbine generators and water cooled transformers) and equipment and floor drain water (turbine leakage) from Outfall 022 to the Androscoggin River. Sampling shall be conducted at the outlet of the oil/water separator and prior to discharge to the Androscoggin River. These discharges are limited as shown below and on Page 14 of the HYDRO GP.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average Monthly	Measurement Frequency	Sample Type
Flow [1]	Gallons/day	Report	1/Quarter	Estimate
pH Range [2,3]	Standard Units	6.5 to 8.0	1/Quarter	Grab
Oil and Grease [4]	mg/L	15	1/Quarter	Grab
Temperature	° F	Report	1/Quarter	Grab

Explanation to Superscripts:

(1) The No Data Indicator Code (NODI) "C" applies when there is no discharge from an outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMR forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) State certification requirement; see Part I.B.15.a.

(3) Results of the ambient upstream river water pH sampling that are obtained to determine compliance with this limit shall be submitted as an attachment with the DMR.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

General Permits Under the National Pollutant Discharge Elimination System (NPDES) for Hydroelectric Generating Facilities in the States of Massachusetts and New Hampshire and Tribal Lands in Massachusetts.

This permit is organized as a single permit with the effluent limitations and specific conditions for facilities in Massachusetts (including both Commonwealth and Tribal Lands) and New Hampshire in Part I.A. and Part I.B., respectively. Additional State or Tribal Land conditions are contained in Part I.J. Part I.C. through Part I.K., Part II, Part III, and Attachment I are common to both permits.

Table of Contents

PART I - GENERAL PERMITS UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES).

A. Massachusetts General Permit, Permit No. MAG360000

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§ 1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53), operators of hydroelectric generating facilities located in Massachusetts (including both Commonwealth and Tribal Lands), which discharge equipment cooling waters, equipment and floor drain water, equipment backwash strainer water, and specific maintenance waters from the facility to the classes of waters as designated in the Massachusetts Water Quality Standards, 314 CMR 4.00 et seq.; are authorized to discharge to all waters, unless otherwise restricted, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit shall become effective on the date specified in the notice of availability published in the Federal Register.

This permit and the authorization to discharge expire at midnight, five years from the effective date, which is the date specified in the notice of availability, for the general permit published in the Federal Register.

Signed this 10th day of November 2009

/s/ SIGNATURE ON FILE

Ken Moraff, Acting Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
Boston, MA

/s/ SIGNATURE ON FILE

Glenn Haas, Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

A. 1. Effluent Limitations and Monitoring Requirements for Equipment-Related Cooling Water

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge equipment-related cooling water from the following operations: noncontact cooling water and direct cooling water. Each outfall discharging equipment-related cooling water shall be limited and monitored by the permittee as specified below in accordance with the receiving water classification when indicated. Monitoring for each outfall is to be conducted and reported in accordance with Part I.A.6 and Part I.E.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average Monthly	Measurement Frequency	Sample Type
Flow [1]	gpd	Report	1/Quarter	Estimate
pH Range for Class A and Class B waters [2]	Standard Units	6.5 to 8.3	1/Quarter	Grab
pH Range for Class SA and Class SB waters [3]	Standard Units	6.5 to 8.5	1/Quarter	Grab
Temperature	^{o} F	Report	1/Quarter	Grab

Explanation to Superscripts to Part I.A.1.:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) The pH shall be in the specified range or within 0.5 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.5 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(3) The pH shall be in the specified range or within 0.2 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.2 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

A. 2. Effluent Limitations and Monitoring Requirements for Equipment and Floor Drain Water

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge equipment and floor drain water from the following operations: floor drains, trench drains, station sumps, oil/water separators, wheel pit drains or sumps, compressor blowdowns, equipment and seal leakage, lower guide bearing drains and other bearing-related discharges, various pit drains, and miscellaneous infiltration and seepage waters collected in a sump or an oil/water separator. Each outfall discharging equipment and floor drain water shall be limited and monitored by the permittee as specified below in accordance with the receiving water classification when indicated. Monitoring for each outfall is to be conducted and reported in accordance with Part I.A.6 and Part I.E.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average Monthly	Measurement Frequency	Sample Type
Flow [1]	Gpd	Report	1/Quarter	Estimate
pH Range for Class A and Class B waters [2]	Standard Units	6.5 to 8.3	1/Quarter	Grab
pH Range for Class SA and Class SB waters [3]	Standard Units	6.5 to 8.5	1/Quarter	Grab
Oil and Grease for Class A and Class SA waters [4]	mg/L	0.0 , See Part I.A.13	1/Quarter	Grab
Oil and Grease for Class B and Class SB waters [4]	mg/L	15	1/Quarter	Grab

Explanation to Superscripts to Part I.A.2.:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) The pH shall be in the specified range or within 0.5 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.5 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(3) The pH shall be in the specified range or within 0.2 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.2 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

A. 3. Effluent Limitations and Monitoring Requirements for Maintenance-Related Water

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge maintenance-related water from sump dewatering. Each outfall discharging maintenance-related water shall be limited and monitored by the permittee as specified below in accordance with the receiving water classification when indicated. Monitoring for each outfall is to be conducted and reported in accordance with Part I.A.6 and Part I.E.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average ~~Monthly~~	Measurement Frequency	Sample Type
Flow [1]	Gpd	Report	1/Year	Estimate
pH Range for Class A and Class B waters [2]	Standard Units	6.5 to 8.3	1/Year	Grab
pH Range for Class SA and Class SB waters [3]	Standard Units	6.5 to 8.5	1/Year	Grab
Oil and Grease for Class A and Class SA waters [4]	mg/L	0.0, See Part I.A.13	1/Year	Grab
Oil and Grease for Class B and Class SB waters [4]	mg/L	15	1/Year	Grab

Explanation to Superscripts to Part I.A.3.:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) The pH shall be in the specified range or within 0.5 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.5 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(3) The pH shall be in the specified range or within 0.2 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.2 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

A.4. Effluent Limitations and Monitoring Requirements for Facility Maintenance-Related Water during Flood/High Water Events and for Equipment-Related Backwash Strainer Water During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge facility maintenance-related water during flood/high water events from flood water pumps, high water sump pumps, and miscellaneous flood/high water collection devices; and to discharge equipment-related backwash strainer water from the operation of the backwash strainer on the cooling water intake line. Monitoring for each outfall is to be conducted and reported in accordance with Part I.A.6 and Part I.E.

Monitoring and reporting requirements for facility maintenance-related water during flood/high water events are: the date and approximate duration of each flood/high water discharge event shall be reported as an attachment to the monthly DMR. Flood/high water discharges shall comply with the requirements in Parts I.D and III.

Monitoring for equipment-related backwash strainer water is not required.

A.5. Effluent Limitations and Monitoring Requirements for Any Combination of the Following: Equipment-Related Cooling Water, Equipment and Floor Drain Water, Maintenance-Related Water, Equipment-Related Backwash Strainer Water, and Facility Maintenance-Related Water During Flood/High Water Events During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge a combination of two or more of the following from the associated operations identified in Parts I.A.1, A.2, A.3, and A.4.: equipment-related cooling water, equipment and floor drain water (includes internal drainage system with a sump or an oil/water separator present), maintenance-related water, equipment-related backwash strainer water, and facility maintenance-related water during flood/high water events. Each outfall with these combined discharges shall be limited and monitored by the permittee as specified below in accordance with the receiving water classification when indicated. The Limit and Monitor column lists the effluent limitations and monitoring requirements applicable to the combined discharges. Monitoring for each outfall is to be conducted and reported in accordance with Part I.A.6 and Part I.E.

Monitoring and reporting requirements for facility maintenance-related water during flood/high water events are: the date and approximate duration of each flood/high water discharge event shall be reported as an attachment to the monthly DMR. Flood/high water discharges shall comply with the requirements in Parts I.D and III.

Monitoring for equipment-related backwash strainer water is not required.

Effluent Characteristic	Limit and Monitor	Units	Discharge Limitation	Monitoring Requirement	
			Average Monthly	Measurement Frequency	Sample Type
Flow [1]	All	gpd	Report	1/Quarter	Estimate
pH Range for Class A and Class B waters [2]	All	Standard Units	6.5 to 8.3	1/Quarter	Grab
pH Range for Class SA and Class SB waters [3]	All	Standard Units	6.5 to 8.5	1/Quarter	Grab
Oil and Grease for Class A and Class SA waters [4]	(see note 6)	mg/L	0.0, See Part I.A.13	1/Quarter	Grab
Oil and Grease for Class B and Class SB waters [4]	(see note 6)	mg/L	15	1/Quarter	Grab
Temperature	(see note 7)	° F	Report	1/Quarter	Grab

See page 6 for the explanation to the Superscripts and Notes.

Explanation to Superscripts and Notes to Part I.A.5. on page 6:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) The pH shall be in the specified range or within 0.5 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.5 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(3) The pH shall be in the specified range or within 0.2 units of the background pH. For purposes of this permit, the background pH is the receiving water pH measured upstream of the facility at a location that is representative of upstream conditions unaffected by the facility. If the discharge pH exceeds the specified range, the permittee may use the background pH to demonstrate compliance by showing that the discharge pH is within 0.2 units of the background pH. The background pH and the discharge pH shall be measured on the same day. The background pH results shall be submitted as an attachment with the DMR. State certification requirement.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

Note 6: The effluent limitations and monitoring requirements for Oil and Grease apply to outfalls discharging equipment and floor drain water or facility maintenance-related water.

Note 7: The effluent limitations and monitoring requirements for Temperature apply to outfalls discharging equipment-related cooling water.

A. Effluent Limitations and Monitoring Requirements (continued)

6. Samples taken in compliance with the monitoring requirements specified above shall be taken at a location that provides a representative analysis of the discharge. Where feasible, samples for an outfall shall be taken concurrently. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Effluent sampling begins with the first complete quarter following the active date of permit coverage.

   If the facility contains two or more outfalls with substantially identical discharges, the permittee may sample the representative outfall once the outfalls are identified and updated as necessary in accordance with Part III.E (Optional Representative Outfall Sampling). The monthly DMR is to include a statement listing the other outfalls with discharges covered by the representative outfall sampling results.

The selected representative outfall shall not be changed in future monitoring periods unless the outfall is eliminated or ceases to be representative. The Director may determine the outfalls are not representative and require sampling of all non-identical outfalls.

7. Solid materials shall be removed from the trash racks or intake screens and disposed of in accordance with the procedures developed in Part III.D.4 (Trash Racks or Intake Screens) of this permit. Installation of trash racks or other equipment to remove the solid materials is not a permit requirement.

8. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

9. The discharge shall not jeopardize any of the uses assigned to the receiving stream and shall not violate applicable water quality standards for the receiving water Class as defined by the State of Massachusetts.

10. There shall be no discharge of floating solids, visible oil sheen or foam other than in trace amounts.

11. The discharge shall not cause visible discoloration or turbidity in the receiving waters which would impair the uses designated by the classification of the receiving waters.

12. The discharge shall not contain materials in concentrations or in combinations which are hazardous or toxic to aquatic life or which would impair the uses designated by the classification of the receiving waters.

13. The limit at which compliance/noncompliance determinations for Oil and Grease will be based is the Minimum Level (ML) which is defined as 5.0 mg/L for Oil and Grease. Any Oil and Grease value below 5.0 mg/L shall be reported as zero.

14. This permit does not allow for the addition of any chemical for any purpose to the discharges except for non-toxic neutralization chemicals. The Commonwealth of Massachusetts will review each identified neutralization chemical to determine its acceptability. In addition, additives used to control biological growth in cooling water are prohibited due to their inherent toxicity to aquatic life.

    For each non-toxic neutralization chemical used the following data must be supplied with the Notice Of Intent letter to be covered by this general permit.

    (1) Name and manufacturer,
    (2) Maximum and average daily quantity used on a monthly basis as well as the maximum and average daily expected concentrations (mg/l) in the discharge, and
    (3) The vendor's reported aquatic toxicity (NOAEL and/or LC50 in % for typically acceptable aquatic organism).

    All substitutions of non-toxic neutralization chemicals must be approved by the State in writing prior to their usage. All written substitution requests must contain the information required in Part I.A.14.(1)-(3) immediately above.

15. The Massachusetts state permit conditions require that all Massachusetts permittees shall comply with the following conditions which are included as state certification requirements.

a. This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection pursuant to M.G.L. Chap.21, §43.

b. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

B. New Hampshire General Permit, Permit No. NHG360000

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§ 1251 et seq.; the "CWA"), operators of hydroelectric generating facilities located in New Hampshire which discharge equipment cooling waters, equipment and floor drain water, equipment backwash strainer water, and specific maintenance waters from the facility are authorized to discharge to all waters, unless otherwise restricted by the New Hampshire water quality standards, 50 RSA § 485-A:8 and the N.H. Code of Administrative Rules Env-Wq 1700-1709 in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit shall become effective on the date specified in the notice of availability published in the Federal Register.

This permit and the authorization to discharge expire at midnight, five years from the effective date, which is the date specified in the notice of availability, for the general permit published in the Federal Register.

Signed this 10th day of November 2009

/s/ SIGNATURE ON FILE

Ken Moraff, Acting Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
Boston, MA

B. 1. Effluent Limitations and Monitoring Requirements for Equipment-Related Cooling Water

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge equipment-related cooling water from the following operations: noncontact cooling water and direct cooling water. Each outfall discharging equipment-related cooling water shall be limited and monitored by the permittee as specified below. Monitoring for each outfall is to be conducted and reported in accordance with Part I.B.6 and Part I.E.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average Monthly	Measurement Frequency	Sample Type
Flow [1]	gpd	Report	1/Quarter	Estimate
pH Range [2, 3]	Standard Units	6.5 to 8.0	1/Quarter	Grab
Temperature	°F	Report	1/Quarter	Grab

Explanation to Superscripts to Part I.B.1.:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) State certification requirement; see Part I.B.15.a.

(3) Results of the ambient upstream river water pH sampling that are obtained to determine compliance with this limit shall be submitted as an attachment with the DMR.

B. 2. Effluent Limitations and Monitoring Requirements for Equipment and Floor Drain Water

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge equipment and floor drain water from the following operations: floor drains, trench drains, station sumps, oil/water separators, wheel pit drains or sumps, compressor blowdowns, equipment and seal leakage, lower guide bearing drains and other bearing-related discharges, various pit drains, and miscellaneous infiltration and seepage waters collected in a sump or an oil/water separator. Each outfall discharging equipment and floor drain water shall be limited and monitored by the permittee as specified below. Monitoring for each outfall is to be conducted and reported in accordance with Part I.B.6 and Part I.E.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average Monthly	Measurement Frequency	Sample Type
Flow [1]	gpd	Report	1/Quarter	Estimate
pH Range [2, 3]	Standard Units	6.5 to 8.0	1/Quarter	Grab
Oil and Grease [4]	mg/L	15	1/Quarter	Grab

Explanation to Superscripts to Part I.B.2.:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR. A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) State certification requirement; see Part I.B.15.a.

(3) Results of the ambient upstream river water pH sampling that are obtained to determine compliance with this limit shall be submitted as an attachment with the DMR.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

B. 3. Effluent Limitations and Monitoring Requirements for Maintenance-Related Water

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge maintenance-related water from sump dewatering. Each outfall discharging maintenance-related water shall be limited and monitored by the permittee as specified below. Monitoring for each outfall is to be conducted and reported in accordance with Part I.B.6 and Part I.E.

Effluent Characteristic	Units	Discharge Limitation	Monitoring Requirement	
		Average Monthly	Measurement Frequency	Sample Type
Flow [1]	gpd	Report	1/Year	Estimate
pH Range [2, 3]	Standard Units	6.5 to 8.0	1/Year	Grab
Oil and Grease [4]	mg/L	15	1/Year	Grab

Explanation to Superscripts to Part I.B.3.:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR. A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) State certification requirement; see Part I.B.15.a.

(3) Results of the ambient upstream river water pH sampling that are obtained to determine compliance with this limit shall be submitted as an attachment with the DMR.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

B.4. Effluent Limitations and Monitoring Requirements for Facility Maintenance-Related Water during Flood/High Water Events and for Equipment-Related Backwash Strainer Water During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge facility maintenance-related water during flood/high water events from flood water pumps, high water sump pumps, and miscellaneous flood/high water collection devices; and to discharge equipment-related backwash strainer water from the operation of the backwash strainer on the cooling water intake line. Monitoring for each outfall is to be conducted and reported in accordance with Part I.B.6 and Part I.E.

Monitoring and reporting requirements for facility maintenance-related water during flood/high water events are: the date and approximate duration of each flood/high water discharge event shall be reported as an attachment to the monthly DMR. Flood/high water discharges shall comply with the requirements in Parts I.D and III.

Monitoring for equipment-related backwash strainer water is not required.

B.5. Effluent Limitations and Monitoring Requirements for Any Combination of the Following: Equipment-Related Cooling Water, Equipment and Floor Drain Water, Maintenance-Related Water, Equipment-Related Backwash Strainer Water, and Facility Maintenance-Related Water During Flood/High Water Events During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge a combination of two or more of the following from the associated operations identified in Parts I.B.1, B.2, B.3, and B.4.: equipment-related cooling water, equipment and floor drain water (includes internal drainage system with a sump or an oil/water separator present), maintenance-related water, equipment-related backwash strainer water, and facility maintenance-related water during flood/high water events. Each outfall with these combined discharges shall be limited and monitored by the permittee as specified below. The Limit and Monitor column lists the effluent limitations and monitoring requirements applicable to the combined discharges. Monitoring for each outfall is to be conducted and reported in accordance with Part I.B.6 and Part I.E.

Monitoring and reporting requirements for facility maintenance-related water during flood/high water events in combination with the other identified discharges in this part are: the date and approximate duration of each flood/high water discharge event shall be reported as an attachment to the monthly DMR. Flood/high water discharges shall comply with the requirements in Parts I.D and III.

Monitoring for equipment-related backwash strainer water is not required.

Effluent Characteristic	Limit and Monitor	Units	Discharge Limitation	Monitoring Requirement	
			Average Monthly	Measurement Frequency	Sample Type
Flow [1]	All	gpd	Report	1/Quarter	Estimate
pH Range [2, 3]	All	Standard Units	6.5 to 8.0	1/Quarter	Grab
Oil and Grease [5]	(see note 5)	mg/L	15	1/Quarter	Grab
Temperature	(see note 6)	° F	Report	1/Quarter	Grab

See page 15 for the explanation to the Superscripts and Notes.

Explanation to Superscripts and Notes to Part I.B.5. on page 14:

(1) The No Data Indicator Code (NODI) C applies when there is no discharge from the outfall and is entered on the monthly Discharge Monitoring Report (DMR). A written explanation for the NODI is required with the DMR report. Additional NODI codes applicable to other conditions are found in the annual NPDES Permit Program Instructions for the DMRs forms. These instructions can be found at: http://www.epa.gov/ne/enforcementandassistance/dmr.html.

(2) State certification requirement; see Part I.B.15.a.

(3) Results of the ambient upstream river water pH sampling that are obtained to determine compliance with this limit shall be submitted as an attachment with the DMR.

(4) Oil and Grease shall be tested using EPA test method 1664 Revision A as approved in 40 CFR 136.

Note 5: The effluent limitations and monitoring requirements for Oil and Grease apply to outfalls discharging equipment and floor drain water or facility maintenance-related water.

Note 6: The effluent limitations and monitoring requirements for Temperature apply to outfalls discharging equipment-related cooling water.

B. Effluent Limitations and Monitoring Requirements (continued)

6. Samples taken in compliance with the monitoring requirements specified above shall be taken at a location that provides a representative analysis of the discharge. Where feasible, samples for an outfall shall be taken concurrently. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Effluent sampling begins with the first complete quarter following the active date of permit coverage.

   If the facility contains two or more outfalls with substantially identical discharges, the permittee may sample the representative outfall once the outfalls are identified and updated as necessary in accordance with Part III.E (Optional Representative Outfall Sampling). The monthly DMR is to include a statement listing the other outfalls with discharges covered by the representative outfall sampling results.

   The selected representative outfall shall not be changed in future monitoring periods unless the outfall is eliminated or ceases to be representative. The Director may determine the outfalls are not representative and require sampling of all outfalls.

7. Solid materials shall be removed from the trash racks or intake screens and disposed of in accordance with the procedures developed in Part III.D.4 (Trash Racks or Intake Screens) of this permit. Installation of trash racks or other equipment to remove the solid materials is not a permit requirement.

8. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

9. The discharge shall not jeopardize any of the uses assigned to the receiving stream and shall not violate applicable water quality standards for the receiving water Class as defined by the

State of New Hampshire.

10. There shall be no discharge of floating solids, visible oil sheen or foam other than in trace amounts.

11. Discharges shall not cause the turbidity of the receiving waters to exceed naturally occurring conditions by more than 10 Nephelometric Turbidity Units (NTU).

12. The discharge shall not cause visible discoloration which would impair the uses designated by the classification of the receiving waters.

13. The discharge shall not contain materials in concentrations or in combinations which are hazardous or toxic to aquatic life or which would impair the uses designated by the classification of the receiving waters.

14. This permit does not allow for the addition of any chemical for any purpose to the discharges except for non-toxic neutralization chemicals. In addition, additives used to control biological growth in cooling water are prohibited due to their inherent toxicity to aquatic life.

    For each non-toxic neutralization chemical used the following data must be supplied with the Notice Of Intent letter to be covered by this general permit.

    (1) Name and manufacturer,
    (2) Maximum and average daily quantity used on a monthly basis as well as the maximum and average daily expected concentrations (mg/l) in the discharge, and
    (3) The vendor's reported aquatic toxicity (NOAEL and/or LC50 in % for typically acceptable aquatic organism).

    Notification of all substitutions of non-toxic neutralization chemicals must be sent to EPA and the State in writing. These written substitution notifications must contain the information required in Part I.B.14.(1)-(3) immediately above.

15. The New Hampshire State Permit Conditions require that all New Hampshire permittees shall comply with the following conditions which are included as State Certification requirements.

    a. The pH of the discharge shall be in the range of 6.5 to 8.0 standards units (S.U.) unless the upstream ambient pH in the receiving water is outside of this range and is not altered by the facility's discharge or activities. If the permittee's discharge pH is lower than 6.5 S.U., the permittee may demonstrate compliance by showing that the discharge pH is either higher than, or no more than 0.5 S.U. lower than, the ambient upstream river water pH. If the permittee's discharge pH is higher than 8.0 S.U., the permittee may demonstrate compliance by showing that the discharge pH is either lower than, or no more than 0.5 S.U. higher than, the ambient upstream river water pH. For this demonstration, the upstream river water sample must be collected on the same day as the discharge pH is measured. The location where the upstream ambient pH sample is collected must be representative of the upstream conditions unaffected by the facility's discharge(s) or activities.

    b. This NPDES Discharge Permit is issued by the EPA under Federal and State law. Upon final issuance by the EPA, the NHDES-WD may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13. Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification,

suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of the Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.

C. Unauthorized Discharges

1. The permittee is authorized to discharge in accordance with the terms and conditions of the permit in Part I. Discharges from any other point sources at the hydroelectric generating facility are not authorized.

2. New and increased discharges from hydroelectric generating facilities that may adversely affect a listed or proposed to be listed endangered or threatened species or its critical habitat or that may adversely affect any federal managed species for which Essential Fish Habitat has been designated are not authorized under this general permit (see sections IV.G and M of the Fact Sheet).

D. Best Management Practices Plan

1. The permittee shall develop and implement a best management practices (BMP) plan for this hydroelectric generating facility. The BMP plan shall be prepared in accordance with good engineering practices, and except as provided elsewhere in this permit, shall provide for compliance with the terms of this permit and the plan, no later than 90 days after the active date of permit coverage. The objectives of the BMP plan are to minimize the potential for violations of the terms of the permit; to protect the designated water uses of the surrounding surface water bodies; to mitigate pollution from materials storage areas, in-plant transfers of hazardous and/or toxic materials, process and material handling areas, loading and unloading operations, and accidental spillage; and to manage the removal and disposal of solid materials, except for naturally occurring materials, from the trash racks or intake screens. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of discharges associated with day-to-day work activity at the facility from equipment and floor drain-related water, equipment and station maintenance-related water, and facility maintenance-related water during flood/high water events. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in discharges associated with work-related operations at the facility from equipment and floor drain-related water, equipment and station maintenance-related water, and facility maintenance-related water during flood/high water events; and to assure compliance with the terms and conditions of this permit. The BMP plan shall describe and provide for implementing practices to remove and to dispose of the solid materials, except for naturally occurring materials, from the trash racks or intake screens. The BMP plan shall include inspection and maintenance procedures for an installed backwash strainer. The BMP plan shall also contain a provision if the permittee elects to sample the discharge from a representative outfall at the facility. A permittee with flood/high water discharges authorized under Parts I.A.4 and 5, and B.4 and 5 of this permit shall also describe and develop specific flood/high water practices and procedures in a flood/high water BMP plan for the facility. The permittee must implement the provisions of the BMP plan required under this part as a condition of this permit. The requirements for the development of this plan are contained in Part III.

2. Annually, no later than February 15th, the permittee shall submit a certification to the State and EPA which states that the previous calendar year's inspections and maintenance activities were conducted, results recorded, and records maintained and the hydroelectric generating facility is

in compliance with the BMP Plan.

E. Monitoring and Reporting

Massachusetts: Monitoring results obtained during the previous three months shall be summarized for each calendar quarter and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the completed reporting period. The reports are due on the 15th day of April, July, October, and January.

New Hampshire: Monitoring results obtained during the previous three months shall be summarized for each calendar quarter and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the completed reporting period. The reports are due on the 15th day of April, July, October, and January.

The DMR reports and all reports required herein should be sent to EPA and to the appropriate State, according to the instructions below, at the following addresses:

1. EPA: Submit signed and dated original DMRs, certifications for the BMP Plan, and all other reports required herein at the following addressee: U.S. Environmental Protection Agency, Region I, Water Technical Unit (SEW), P.O. Box 8127, Boston, Massachusetts 02114-8127.

2. Massachusetts Department of Environmental Protection:

   a. The Regional Offices wherein the discharge occurs, shall receive a copy of the DMRs required herein:

      Massachusetts Department of Environmental Protection
      Western Regional Office
      436 Dwight Street, Suite 402
      Springfield, MA 01103

      Massachusetts Department of Environmental Protection
      Southeastern Regional Office
      20 Riverside Drive
      Lakeville, MA 02347

      Massachusetts Department of Environmental Protection
      Northeastern Regional Office
      One Winter Street
      Boston, MA 02108

      Massachusetts Department of Environmental Protection
      Central Regional Office
      627 Main Street
      Worcester, Massachusetts 01608

   b. Copies of all DMRs, certifications for the BMP Plan, and other notifications required by this permit shall also be submitted to the State at:

      Massachusetts Department of Environmental Protection
      Division of Watershed Management

627 Main Street, 2nd floor
Worcester, MA 01608

3. New Hampshire Department of Environmental Services: Signed copies of all reports and information required herein shall be submitted to the State at: New Hampshire Department of Environmental Services, Water Division, Wastewater Engineering Bureau, 29 Hazen Drive, P.O. Box 95, Concord, New Hampshire 03302-0095.

F. General NPDES Permit Conditions

1. Description of the Hydroelectric Generating Facility Discharges

Certain discharges at Hydroelectric Generating Facilities occur from similar type of operations, are similar in composition, and require the same effluent limitations and monitoring requirements. A Hydroelectric Generating Facility includes the generating station (station), dam(s), reservoir(s), canal system or tunnel system at certain facilities, and associated equipment and structures used in the generation of hydroelectric power. These discharges consist of the following:

a. Equipment-related cooling water from the following operations: noncontact cooling water and direct cooling water;

b. Equipment and floor drain water from the following operations: floor drains, trench drains, station sumps, oil/water separators (including oil flotation tanks and oil flotation wells), wheel pit drains or sumps, compressor blowdowns, equipment and seal leakage, lower guide bearing drains and other bearing-related discharges (including bearing seal leakage, bearing water seal, and bearing lubrication water), various pit drains such as the gate stems, turbine access doors, and scroll case access doors, and miscellaneous infiltration and seepage waters collected in a sump or an oil/water separator;

c. Maintenance-related water from the following operations: sump dewatering;

d. Facility maintenance-related water during flood/high water events from flood water pumps, high water sump pumps, and miscellaneous flood/high water collection devices including floor drains, siphon hoses, and access manway areas; and equipment-related backwash strainer water from the operation of the backwash strainer on the cooling water intake line; and

e. A combination of two or more of the following discharges identified in paragraphs 1.a, b, c, and d of this section: equipment-related cooling water, equipment and floor drain water(includes internal drainage system with a sump or an oil/water separator present) maintenance-related water, equipment-related backwash strainer water, and facility maintenance-related water during flood/high water events.

2. Geographic Coverage Area

a. Massachusetts (Permit No. MAG360000). All of the discharges to be authorized by this general NPDES permit for dischargers in the Commonwealth of Massachusetts are into all waters of the Commonwealth and Tribal Lands unless otherwise restricted by the Massachusetts Surface Water Quality Standards, 314 CMR 4.00 (or as revised), including 314 CMR 4.04(3) Protection of Outstanding Resource Waters.

b. New Hampshire (Permit No. NHG360000). All of the discharges to be authorized by this general NPDES permit for dischargers in the State of New Hampshire are into all waters of the State of New Hampshire unless otherwise restricted by the State Water Quality Standards: see 50 RSA § 485-A:8 and the N.H. Code of Administrative Rules, Env-Wq 1700-1709 or as revised.

3. Exclusions

a. These general permits are not available to any facility discharging to an impaired water where the discharge of the pollutant causes or contributes to the impairment for which the receiving water is listed in the States' published 303(d) lists. The impaired waters require a TMDL according to the state's CWA section 303(d) list. This exclusion does not apply to facilities discharging: (1) oil and grease that is limited by the permit at the applicable water quality criteria or (2) pH within the range specified in permit as provided by the Massachusetts State Permit Conditions and New Hampshire Permit Conditions for each permit.

b. These general permits are not available to "New Source" dischargers as defined in 40 CFR §122.2.

c. These general permits are not available for new discharges to Class A waters or to Class SA waters in Massachusetts, or for discharges to Class A waters in New Hampshire.

d. These general permits are not available to facilities whose discharge(s) may adversely affect threatened or endangered species or its critical habitat.

e. These general permits are not available to any facility that the Director may require an individual permit based on consideration of a recommendation from the state.

G. Notice of Intent

1. All facilities that wish to be covered by this General Permit must submit a written Notice of Intent. For purposes of this General Permit, the Notice of Intent consists of either the suggested Notice of Intent form with the instructions in Attachment I of this permit or another form of official correspondence containing all of the information required in Parts I.G and H of this permit. Operators of facilities whose discharge, or discharges, are identified in Part I.F.1 above and whose facilities are located in the geographic area described in Part I.F.2. above, must submit a Notice of Intent to EPA, Region I to be covered by this general permit at the following address:

U.S. Environmental Protection Agency, Region I
Municipal Assistance Unit (CMU)
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

2. The Notice of Intent must include for each individual facility, the owner's and/or operator's legal name, address and telephone number; the facility name, address, contact name and telephone number; the number and type of facility (SIC code) to be covered; the facility location; the number of discharge points; the number of turbines and the combined turbine discharge (installed capacity) at maximum and minimum output, in cubic feet per second; and a

topographic quadrangle map indicating the facility location and discharge point(s). The outfalls should be grouped under the following categories corresponding with the discharges authorized by these permits: equipment-related cooling water; equipment and floor drain water; maintenance-related water; facility maintenance-related water during flood/high water events, and equipment-related backwash strainer water (see Parts I.A.1,2, 3, and 4; or Parts I.B.1, 2, 3,and 4); and then numbered sequentially. Outfalls discharging any combination of the following: equipment-related cooling water, equipment and floor drain water, maintenance-related water, equipment-related backwash strainer water, and facility maintenance-related water during flood/high water events (see Parts I.A.5 and B.5) are grouped and the sequential numbering continued. Provide for each outfall the latitude and longitude; the name(s) of the receiving waters into which discharge will occur; the operations contributing flow and the average flow from each operation (include units and appropriate notation if this value is a design value, estimate or not available); the treatment received by the discharge; and indicate if the discharge can be sampled at least once per year or sampled under the representative outfall sampling provisions (see Parts I.A.6 or B.6). Note if the outfall discharges intermittently or seasonally. Include a line drawing or flow schematic showing water flow through the facility including sources of intake water, operations contributing flow, treatment units, outfalls, and receiving waters(s); and antidegradation review for new or increased discharges (see section IV.B of the Fact Sheet).

3. Facilities that intend to be covered under these general permits must also submit a formal certification with the Notice of Intent that no chemical additives except those used for pH adjustment are used in their operations that contribute flow to the discharges.

4. A facility that intends to be covered under the Massachusetts general permit and that discharge to the Connecticut or Merrimack Rivers is eligible for coverage under this general permit if the facility meets one or more of the following Endangered Species Act (ESA) eligibility criteria:

   a. The applicant provides a formal certification with the Notice of Intent that indicates the previous consultation, with the National Marine Fisheries Service (NMFS), resulted in either a no jeopardy opinion or a written concurrence on a finding that the discharges are not likely to adversely affect the shortnose sturgeon or critical habitat. The applicant also provides information indicating the discharges to be authorized by this general permit are covered by this previous consultation and demonstrating no significant changes in these discharges have occurred since this consultation.

      EPA will consider a hydroelectric facility's previous ESA Section 7 consultation with NMFS under the following conditions: 1) the consultation covered the discharges to be authorized under the general permit; 2) no significant changes in these discharges have occurred since the previous consultation; and 3) this consultation resulted in either a no jeopardy opinion or a written concurrence by NMFS with a finding that the discharges are not likely to adversely affect the shortnose sturgeon or critical habitat.

   b. The discharges for coverage under this general permit have already been addressed in another operator's certification of the ESA eligibility. The applicant provides a copy of this operator's certification.

   c. Following submission of the applicant's Notice of Intent, informal consultation between EPA and NMFS under Section 7 of the ESA, results in a finding that the hydroelectric facility's discharges are not likely to adversely affect shortnose sturgeon or critical

habitat.

A facility that does not meet the ESA eligibility requirements in this part must apply for an individual NPDES permit.

5. The Notice of Intent must be signed in accordance with the signatory requirements of 40 CFR Section 122.22. Each facility must also submit a copy of the Notice of Intent with original signatures to the appropriate State authority listed in Parts I.E.2 and 3. Each facility located in Massachusetts must submit the appropriate information required in Part I.H.2.a.

   The facilities authorized to discharge under the final general permit will receive written notification from EPA Region I and the State. Failure to submit to EPA Region I a Notice of Intent to be covered and/or failure to receive from EPA written notification of permit coverage means that the facility is not authorized to discharge under this general permit.

H. Administrative Aspects

1. Facilities Eligible for Coverage. Hydroelectric Generating facilities within the geographic coverage area specified in Part I.F. are eligible for coverage under this general permit except for those facilities operated as pump storage projects. Hydroelectric Generating facilities operated as pump storage projects are eligible for coverage, on a case-by-case basis, after a State determination with EPA concurrence (see Section III of the Fact Sheet).

2. Request to be covered. A facility is not covered by any of this general permit until it meets the following requirements. First, it must send a Notice of Intent, with original signatures, to EPA and the appropriate State indicating it meets the requirements of the permit and wants to be covered. And second, it must be notified in writing by EPA that it is covered by this general permit. The Notice of Intent for this permit consists of either the suggested Notice of Intent form with the instructions in Attachment I of this permit or another form of official correspondence containing all of the information required in Parts I.G and H of this permit.

   a. Massachusetts: Copies of the State Application Form BRP WM 15, Request for General Permit coverage for Hydroelectric Generating facilities and the Transmittal Form for Permit Application and Payment, may be obtained from the Massachusetts Department of Environmental Protection (MassDEP) website at http://www.state.ma.us/dep/water. Questions on the form may be directed to any MassDEP Regional Service Center located in each Regional Office or to the MassDEP, Division of Watershed Management.

      A copy of the transmittal form, a copy of the check, and Form BRP WM 15 should be sent to MassDEP, Division of Watershed Management, 627 Main Street, Worcester, MA 01608. A copy of the transmittal form and the appropriate fee should be sent to MassDEP, P.O. Box 4062, Boston, MA 02111. Municipalities are fee-exempt, but should send a copy of the transmittal form to that address for project tracking purposes. A copy of Form BRP WM 15 should be sent to U.S. Environmental Protection Agency, Region I, Municipal Assistance Unit (CMU), 1 Congress Street, Suite 1100 Boston, Massachusetts 02114-2023. Keep a copy of the transmittal form and a copy of the application package for your records.

   b. New Hampshire: Provide the Notice of Intent to New Hampshire Department of

Environmental Services, Water Division, Wastewater Engineering Bureau, 29 Hazen Drive, P.O. Box 95, Concord, New Hampshire 03302-0095.

3. Eligibility to Apply: Any facility operating under an effective (unexpired) individual NPDES permit may request that the individual permit be revoked and that coverage under the general permit be granted, as outlined in 40 CFR § 122.28(b)(3)(v). If EPA revokes the individual permit, the general permit would apply to the discharge.

Facilities with expired individual permits that have been administratively continued in accordance with 40 CFR§ 122.6 may apply for coverage under this general permit. When coverage under the general permit is granted, the expired individual permit will automatically terminate. Proposed new dischargers may apply for coverage under this general permit and must submit the Notice of Intent 90 days prior to the discharge. A proposed new discharger to New Hampshire waters should contact the NHDES at the address in this part to determine if additional lead time is necessary.

4. Continuation of this General Permit after expiration: If this permit is not reissued prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and in effect as to any particular permittee as long as the permittee submits a new Notice of Intent two (2) months prior to the expiration date in the permit. However, once this permit expires EPA cannot provide written notification of coverage under this general permit to any permittee who submits Notice of Intent to EPA Region I after the permit's expiration date. Any permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

a. Reissuance of this permit, at which time the permittee must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or
b. The permittee's submittal of a Notice of Termination; or
c. Issuance of an individual permit for the permittee's discharges; or
d. A formal permit decision by the Director not to reissue this general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.

5. Monitoring Frequency Adjustment: The permittee may submit a written request to EPA for a reduction in the monitoring frequency of any pollutant, after completing 10 valid analytical test results that demonstrate compliance with the respective permit limits or that demonstrate no reasonable potential to cause or contribute to water quality standards violations. A summary of the monitoring data shall be included with this request. Until written notice is received by certified mail from the EPA indicating that the monitoring frequency requirement for a pollutant has been changed, the permittee is required to continue testing at the frequency specified in the permit. The monitoring frequency will not be changed to less than once per year.

6. Discharges Eligible for Coverage: Coverage under this general permit is restricted to the discharges at a facility that can be monitored at least once a year or that can be monitored using the representative outfall requirements in Parts I.A.6 or B.6.

I. Additional General Permit Conditions

1. Termination of Operations

Operators of facilities and/or operations authorized under this permit shall notify the Director upon the termination of discharges. The notice must contain the name, mailing address, and location of the facility for which the notification is submitted, the NPDES permit number for the discharge identified by the notice, and an indication of whether the discharge has been eliminated or the operator of the discharge has changed. The notice must be signed in accordance with the signatory requirements of 40 CFR §122.22.

2. When the Director May Require Application for an Individual NPDES Permit.

a. The Director may require any person authorized by this permit to apply for and obtain an individual NPDES permit. Any interested person may petition the Director to take such action. Instances where an individual permit may be required include the following:

(1) The discharge(s) is a significant contributor of pollution;
(2) The discharger is not in compliance with the conditions of this permit;
(3) A change has occurred in the availability of the demonstrated technology of practices for the control or abatement of pollutants applicable to the point source;
(4) Effluent limitation guidelines are promulgated for point sources covered by this permit;
(5) A Water Quality Management Plan or Total Maximum Daily Load containing requirements applicable to such point source is approved;
(6) Discharge to the territorial sea;
(7) Discharge to outstanding natural resource water;
(8) The discharge causes violations to the water quality standards of the receiving water or if actual or imminent harm to aquatic organisms is identified;
(9) The discharge adversely impacts any federal managed species for which Essential Fish Habitat has been designated;
(10) Discharge into waters that are not attaining state water quality standards; or
(11) The point source(s) covered by this permit no longer:
(a)Involves the same or substantially similar types of operations;
(b)Discharges the same types of wastes;
(c)Requires the same effluent limitations or operating conditions;
(d)Requires the same or similar monitoring; and
(e)In the opinion of the Director, is more appropriately controlled under a general permit than under an individual NPDES permit.

b. The Director may require an individual permit only if the permittee authorized by the general permit has been notified in writing that an individual permit is required, and has been given a brief explanation of the reasons for this decision.

3. When an Individual NPDES Permit may be Requested.

a. Any operator authorized to discharge under this general permit may request to be excluded from the coverage of this permit by applying for an individual permit in accordance with 40 CFR §122.28(b)(3)iii.

b. When an individual NPDES permit is issued to an operator otherwise subject to this general permit, the applicability of this permit to that owner or operator is automatically terminated on the effective date of the individual permit.

J. Additional Permit Conditions Applicable to Specific States or Tribal Lands

Additional permit conditions applicable to specific States or Tribal Lands are not required subsequent to the State certification process and the public notice period.

K. Summary of Responses to Public Comments

EPA's "Response to Comments" document is attached.

(Note: the following documents are separate attachments to this permit.)

Part II. Standard Conditions - See attachment.

Part III. Best Management Practices (BMP) Plan- See attachment.

Attachment I. Suggested Notice of Intent, Form and Instructions - See attachment.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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NPDES PART II STANDARD CONDITIONS
(January, 2007)

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete "Duty to Comply" regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.

ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(4) The permittee complied with any remedial measures required under B.3. above.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. Twenty-four hour reporting.

(1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a "discharge", a "sewage sludge use or disposal practice", or a related activity is subject to, including "effluent limitations", water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices", pretreatment standards, and "standards for sewage sludge use and disposal" under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in "approved States", including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source", or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See "Point Source" definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States", the waters of the "contiguous zone", or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise "effluent limitations".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program".

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants";

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source"; and

(d) Which has never received a finally effective NPDES permit for discharges at that "site".

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants", the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System".

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a "POTW".

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a "primary industry category".

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of "sludge use or disposal practices" any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

PART III. BEST MANAGEMENT PRACTICES (BMP) PLAN

The permittee shall develop and implement a best management practices (BMP) plan for this hydroelectric generating facility. The BMP plan shall be prepared in accordance with good engineering practices. The objectives of the BMP plan are to eliminate or to significantly minimize the potential for violations of the terms of the permit; to protect the designated water uses of the surrounding surface waters; to mitigate pollution from materials storage areas, in-plant transfers of hazardous and/or toxic materials, process and material handling areas, loading and unloading operations, and accidental spillage; and to manage the removal and disposal of solid materials, except for naturally occurring materials, from the trash racks or intake screens. The BMP plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of discharges associated with day-to-day work activity at the facility from equipment and floor drain-related water, maintenance-related water, and facility maintenance-related water during flood high water events (collectively referred to as the "internal facility drainage water" in this Part). The BMP plan shall describe and ensure the implementation of practices which are to be used to eliminate or reduce the pollutants in internal facility drainage water discharges associated with work-related operations at the facility and to assure compliance with the terms and conditions of this permit. In addition, the BMP plan shall describe and provide for implementing practices to remove and to dispose of the solid materials, except for naturally occurring materials, from the trash racks or intake screens. The permittee must implement the provisions of the BMP plan required under this Part as a condition of this permit.

The BMP plan shall include inspection and maintenance procedures for any installed backwash strainer(s) at the facility. The BMP plan shall contain a provision if the permittee elects to sample the discharge from a representative outfall at the facility. A permittee with flood/high water discharges authorized under Parts I.A.4 and B.4 of this permit shall also develop and implement specific flood/high water practices and procedures to eliminate pollutants from areas of the facility that would be inundated during flood/high water events and that would reasonably be expected to add significant amounts of pollutants to the identified flood/high water discharges at the facility. Areas of the facility inundated by flood or high waters should be maintained to prevent pollutants from entering the surrounding surface waters during flood or high water events. These specific flood/high water practices and procedures shall be described and included in a flood/high water BMP plan for the facility following the appropriate items in Part III.D. The permittee must also implement the provisions of this flood/high water BMP plan required under this Part as a condition of this permit.

A. Deadlines for BMP Plan Preparation and Compliance

1. The BMP plan for this facility shall be prepared, and except as provided elsewhere in this permit, shall provide for compliance with the terms of the permit and the BMP plan, no later than the date specified in the permit.

2. Upon a showing of good cause, the Director may establish, in writing, a later date for preparing and compliance with a BMP plan.

B. Signature and BMP Plan Review

1. The BMP plan shall be signed in accordance with Part II.D.2. (Signatory Requirement) and be retained on-site at the facility in accordance with Part II.C.1.b. (Monitoring and Records) of this permit.

2. The permittee shall make the BMP plan available upon request to the Director, or an authorized representative.

3. The Director, or an authorized representative, may notify the permittee at any time that the BMP plan does not meet one or more of the minimum requirements of this Part. Such notification shall identify those provisions of the permit which are not being met by the BMP plan, and identify which provisions of the BMP plan require modifications in order to meet the minimum requirements of this Part. Within 30 days of such notification from the Director, (or as otherwise provided by the Director), or an authorized representative, the permittee shall make the required changes to the BMP plan and shall submit to the Director a written certification that the requested changes have been made.

C. Keeping BMP Plans Current

The permittee shall amend the BMP plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States or if the BMP plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Section D.2.(Description of Potential Pollutant Sources), below, or in otherwise achieving the general objectives of controlling pollutants in the internal facility drainage water discharges. Amendments to the BMP plan may be reviewed as described above in Section B.

D. Contents of BMP Plan

The BMP plan shall include, at a minimum, the following items:

1. Pollution Prevention Team The BMP plan shall identify a specific individual or individuals within the facility organization as members of the Pollution Prevention Team who are responsible for developing the BMP plan and for assisting the facility manager in the implementing, maintaining, and revising of this plan. The responsibilities of each team member must be listed. The activities and responsibilities of the Pollution Prevention Team shall address all aspects of the facility's BMP plan.

2. Description of Potential Pollutant Sources The BMP plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to internal facility drainage water discharges. Each BMP plan shall identify all

activities and significant materials which may be potentially significant pollutant sources. The BMP plan shall include at a minimum:

a. Drainage

(1) A plot of the floor drainage of the facility's interior including sumps and oil/water (O/W) separators and locations where major spills or leaks identified under Section D.2.c. (Spills and Leaks) have occurred.

(2) For internal facility drainage water discharges that could reasonably be expected to contain significant amounts of pollutants, a prediction of the direction of flow, and an identification of the types of pollutants which are likely to be present in the discharges. Factors to consider include the toxicity of pollutants; quantity of pollutants used; the likelihood of contact with internal facility drainage water discharges; and history of significant leaks or spills.

b. Inventory of Exposed Materials The BMP plan shall include an inventory of the types of materials handled at the facility that potentially may be inadvertently spilled. Such inventory shall include a narrative description of significant materials that are or have been handled, treated, stored or disposed in a manner to allow exposure to internal facility drainage water between the time of three years before the active date of permit coverage and the present; method and location of on-site storage or disposal; materials management practices employed to minimize contact of materials with internal facility drainage water between the time of three years before the active date of permit coverage and the present; the location and description of existing structural and non-structural control measures to reduce pollutants in the internal facility drainage water discharges; and a description of any treatment these discharges receive.

c. Spills and Leaks A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred, during the three year period prior to the active date of permit coverage, at areas that drain to an outfall associated with floor drains. Such a list shall be updated as appropriate during the term of the permit.

d. Sampling Data A summary of existing discharge sampling data describing pollutants in internal facility drainage water discharges from the facility, including a summary of sampling data collected during the term of this permit.

e. Risk Identification and Summary of Potential Pollutant Sources A narrative description of the potential pollutant sources from the following activities: loading and unloading operations; maintenance programs; and on-site waste disposal practices. The description shall specifically list any significant potential source of pollutants at the facility and for each potential source, any pollutant or

pollutant parameter (e.g. biochemical oxygen demand, etc.) of concern shall be identified.

3. Measures and Controls The permittee shall develop a description of internal facility drainage water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a BMP plan shall reflect identified potential sources of pollutants at the facility. The description of internal facility drainage water management controls shall address the following minimum components, including a schedule for implementing such controls:

   a. Good Housekeeping Good housekeeping requires the maintenance of areas, which may contribute pollutants to internal facility drainage water discharges, to be clean and orderly.

   b. Preventive Maintenance A preventive maintenance program shall involve timely inspection and maintenance of internal facility drainage water management devices (e.g., cleaning oil/water separators, pits, sumps) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.

   c. Oil /Water Separators Proper operation of the oil/water separators shall be maintained by inspections at appropriate intervals, by regularly scheduled maintenance, and by review of sampling data. Detailed operating procedures for oil/water separators shall be maintained to insure the maximum design flow rate of the oil/water separators will not be exceeded.

   d. Spill Prevention and Response Procedures Areas where potential spills, which can contribute pollutants to internal facility drainage water discharges, can occur and their accompanying drainage points shall be identified clearly in the BMP plan. Procedures shall be developed and implemented to eliminate and/or minimize the opportunity for oil leakage to enter the drainage system at the facility. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment in the BMP plan should be considered. Procedures for cleaning up spills shall be identified in the BMP plan and made available to the appropriate personnel. The necessary equipment to implement a clean up should be available to personnel.

   e. Inspections Qualified facility personnel shall be identified to inspect designated equipment and areas of the facility at appropriate intervals specified in the BMP plan. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspection shall be maintained.

   f. Employee Training Employee training programs shall inform personnel

responsible for implementing activities identified in the BMP plan or otherwise responsible for internal facility drainage water management, at all levels of responsibility, of the components and goals of the BMP plan. Training should address topics such as spill response, good housekeeping and material management practices. The BMP plan shall identify periodic dates for such training.

g. Record-keeping and Internal Reporting Procedures A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of internal facility drainage water discharges shall be included in the BMP plan required under this Part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the BMP plan.

h. Record-keeping and Reporting Procedures An Annual Report summarizing the scope of compliance evaluations(s), personnel making the evaluations, the dates(s) of the evaluations, major observations relating to the implementation of the BMP plan and actions taken shall be prepared and retained as part of the BMP plan for at least three years after the date of the evaluations(s). The Annual Report shall be retained on-site at the hydroelectric generating facility in accordance with Part II.C.1.b. (Monitoring and Records) of this permit. The Annual Report shall identify any incidents of noncompliance (such as oil spills, or other discharges of toxic or hazardous pollutants to the receiving waters). Where an Annual Report does not identify any incidents of noncompliance, the Annual Report shall contain a certification that the facility is in compliance with the BMP plan and this permit. The Annual Report shall be signed in accordance with Part II.D.2 (Signatory Requirements) of this permit.

4. Trash Racks or Intake Screens The permittee shall develop and implement procedures to remove solid materials from the trash racks or intake screens. The solid materials exclude naturally occurring materials such as leaves, branches, grass, and so forth. Provisions shall be included and implemented to provide disposal for the removed solid materials in accordance with the Massachusetts Solid Waste Management Facility Regulations at 310 CMR 19.000 or the New Hampshire Solid Waste Rules at Env-Sw 100-2100, as appropriate. Inspections and maintenance of the trash racks and intake screens shall be scheduled and documented with the record-keeping included with the BMP plan and summarized in the Annual Report required under Section D.3.h. The permittee shall amend the removal procedures whenever there is a change in the design, construction, operation, or maintenance which has a significant effect on the deposition of solid material on the trash racks or intake screens.

The trash removal activities are to be performed where it is reasonable and feasible at the facility. These trash removal procedures are to include appropriate safety practices because the permittee is responsible for employee safety at the facility.

5. Backwash strainer For those facilities with a backwash strainer on the cooling water intake line, the permittee shall develop and implement inspection and maintenance procedures at appropriate intervals specified in the BMP plan to insure proper operation of the backwash strainer. Qualified facility personnel shall be identified to inspect this equipment. Records of the inspections and maintenance shall be maintained and summarized in the Annual Report required under Section D.3.h.

E. Optional Representative Outfall Sampling

A facility may contain two or more outfalls with substantially identical discharges. The permittee may sample a representative outfall in accordance with Parts I.A.6 and B.6 of this permit, providing the BMP plan includes the following items:

1. Identify Representative Outfalls The permittee shall prepare a description of the locations of outfalls with substantially identical discharges at the facility, describe the operations contributing flow, explain why the discharges are expected to be substantially identical, and identify the selected representative outfall for effluent sampling under this permit. The other outfalls with discharges covered by the representative outfall sampling results are listed. The outfalls should be grouped and numbered using the system established in the Notice of Intent for the facility (see Part I.G.2).

2. Amend Representative Outfall Information The permittee shall amend the representative outfall information whenever the outfall is eliminated or ceases to be representative.

NHB THREATENED AND ENDANGERED SPECIES INFORMATION

Provided under separate cover as "Confidential".

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: Kayla Easler, Kleinschmidt Assoicates
141 Main Street
P.O. Box 650
Pittsfield, ME 04967

From: Amy Lamb, NH Natural Heritage Bureau
Date: 7/10/2019 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB19-2068 Town: Gorham, Berlin Location: The western side of the project is accessible via the access road (Cascade Flats) off of State Route 16 (Main Street) or the path which runs along the impoundment.

Description: Cascade is part of the Berlin 5 re-licensing with FERC
cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Please contact the NH Fish & Game Department to address wildlife concerns.

Vertebrate species	**State[1]**	**Federal**	**Notes**
Bald Eagle (*Haliaeetus leucocephalus*)	SC	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

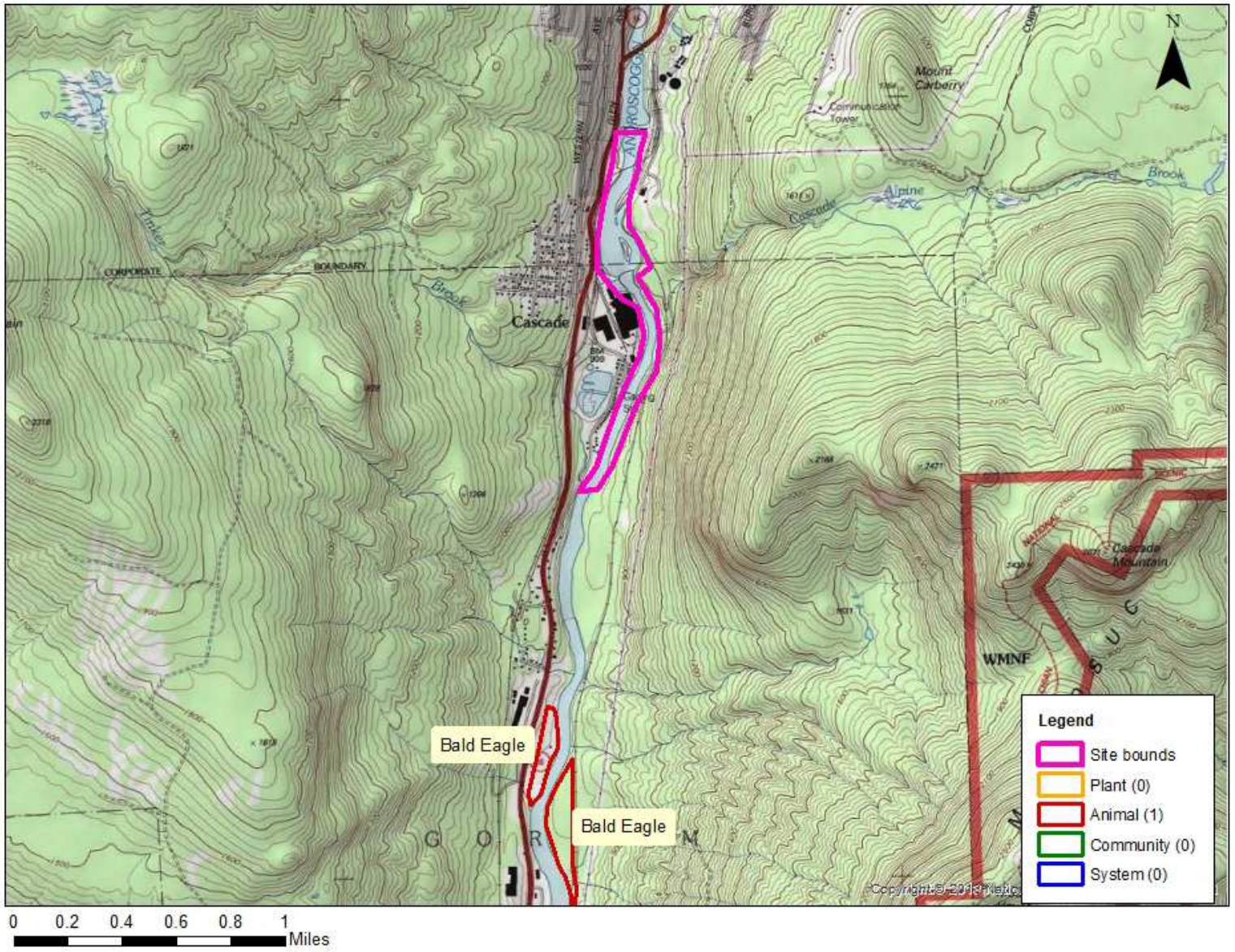
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB19-2068



New Hampshire Natural Heritage Bureau - Animal Record

Bald Eagle (*Haliaeetus leucocephalus*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Special Concern	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2012: 1 eagle observed on 1/17.2008: 1 eagle observed on 1/12.2007: 1 eagle observed on 1/10. 1 eagle observed on 2/24.2006: 1 eagle observed on 2/24.2002: 1 eagle observed on 1/12.1993: Occasional observations from Rte. 16 between Berlin and Gorham.
General Area:
General Comments:
Management Comments:

Location

Survey Site Name: Androscoggin River
Managed By: Town of Shelburne Land

County: Coos
Town(s): Shelburne
Size: 167.4 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: All along the Androscoggin River.

Dates documented

First reported:	1993	Last reported:	2012-01-07

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

USFWS THREATENED AND ENDANGERED SPECIES LIST AND IPAC REPORT

Provided under separate cover as "Confidential".

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: July 01, 2019
Consultation Code: 05E1NE00-2019-SLI-2148
Event Code: 05E1NE00-2019-E-05406
Project Name: Cross (P-2426), Cascade (P-2327), and Gorham (P-2311)

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2019-SLI-2148

Event Code: 05E1NE00-2019-E-05406

Project Name: Cross (P-2426), Cascade (P-2327), and Gorham (P-2311)

Project Type: DAM

Project Description: Cross, Cascade and Gorham are part of the Berlin 5 relicensing with FERC

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.42768501254113N71.19036375248356W

Counties: Coos, NH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.