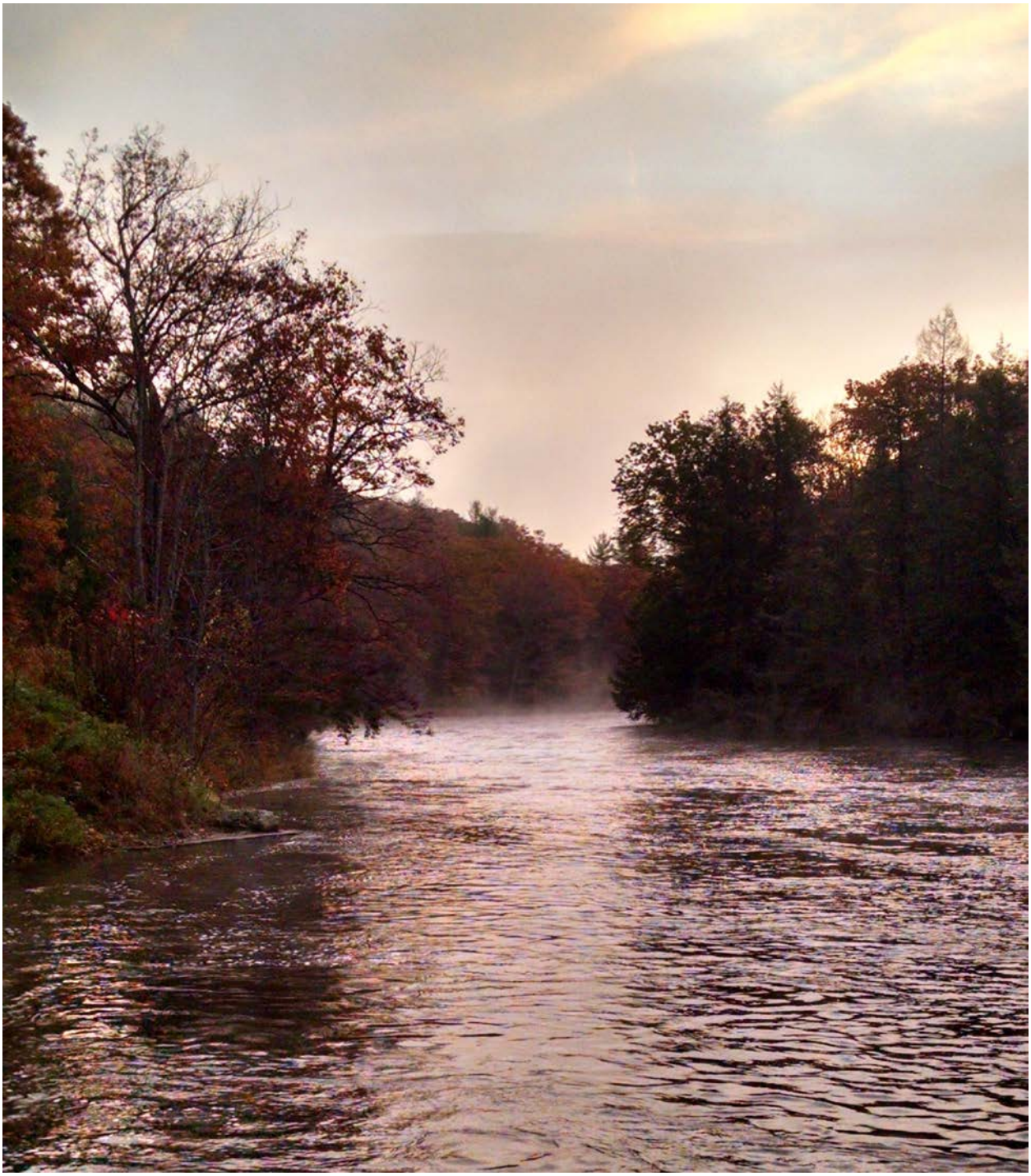
Application for Low Impact Hydro Recertification of the Lower Robertson and Ashuelot Hydroelectric Projects



Prepared by Sam Payne Ashuelot River Hydro Inc. April 11, 2019

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INTRODUCTION

This is an application to the Low Impact Hydropower Institute (LIHI) for recertification of two adjacent hydroelectric projects: Lower Robertson (ROB) and Ashuelot (ASH). The projects are located on the Ashuelot river near Winchester, New Hampshire, and are owned and operated by Ashuelot River Hydro, Inc. (ARH). Both projects are small, low head, run-of-river hydro plants built by previous owners in the mid-1980's at existing paper company dams. ARH purchased the projects in 2007 and has operated them ever since. LIHI first certified the projects as low impact in 2009 and recertified them in 2014. We at ARH are proud that the projects are certified and operate as low impact, sustainable green power generators for the people of central New England. We look forward to continuing to produce renewable energy from a carbon-free source.

PART I. FACILITY DESCRIPTIONS

Overview: The two projects are located on the Ashuelot River in Winchester, NH, off Route 119 between the village of Ashuelot and the town of Hinsdale. ROB is located beside Route 119 just downstream of the town of Ashuelot, and ASH is located at 80 Lost Road, an unmarked road off Route 119 about a mile downstream of ROB. The ROB and ASH sites were built in 1985 by the same owner, and have almost identical designs and equipment.

The Ashuelot river has a 425 square mile drainage area, flowing from its headwaters in Pillsbury State Park steeply for the first 30 miles, then through Gilsum and Keene to join the Connecticut river below Hinsdale, NH (see Appendix C. Watershed Map). The river was the source of power for the area during the Industrial Revolution. The mills in the area are long defunct, and the Ashuelot river is substantially cleaner and more ecologically viable than it was during that time. The headwaters are an important part of the drinking water supply for Keene and a key environmental resource for flora and fauna in the area.

The ASH and ROB projects are sited in the lower 4.5 miles of the Ashuelot river. After passing the ROB dam and powerhouse, the Ashuelot River drops steadily for an undeveloped mile to the ASH dam and powerhouse. The river drops steadily for a half mile downstream of the ASH dam, flattening out as it reaches the village of Hinsdale and the Fiske Mill Dam. There is little development for the first 3/4 mile, then bridges and streamside buildings in the town of Hinsdale.

From Hinsdale, the Ashuelot river flows about 2 more miles to its confluence with the Connecticut river, which then flows south through Vermont, Massachusetts, and Connecticut, and into the Atlantic Ocean.

Lower Robertson (ROB) Project Description: The ROB project is exempted from licensing by the Federal Energy Regulatory Commission ("FERC"). Exemption No. 8235 was granted on July 31, 1986 (see Appendices: xA ROB Exemption).

The major project works consist of a dam with a built-in intake structure, an impoundment, and a powerhouse. Specifically, the ROB project consists of:

(1) a concrete gravity dam, 160 feet long with an overflow spillway width of 67 feet, and a single set of Obermeyer crest gates along the top of the spillway. The height of the

dam is 20 feet, with a crest elevation of 384.6 feet above mean sea level (ft msl). The project has automated level control, which (with the Obermeyer crest gates raised) keeps the pond level at 386.6 ft msl during normal flows.
There are two 16ft wide x 6 ft tall Obermeyer flood gates between the spillway and the intake structure. The rest of the dam consists of the intake structure: trash racks, 3 turbine flumes, an Atlas Polar raker, and downstream fish passage. The intake structure houses 3 fully submerged Flygt turbine-generators with a combined capacity of 840 KW.

(2) an impoundment approximately 1160 ft long, with a surface area of 8.6 acres and 86 acre-feet of gross storage.

(3) a wood and steel powerhouse housing the project controls and switchgear.

(4) a 50 ft wide by 80 ft long tailrace.

(5) one 1000 kVA transformer, which steps up the generated 480V three phase power to 4160V, which then travels underground to the Eversource transmission line.

Ashuelot (ASH) Project Description:

The ASH project is exempted from licensing by the Federal Energy Regulatory Commission ("FERC"). Exemption No. 7791 was granted on July 31, 1986: (See Appendices xB ASH Exemption)

The major project works consist of a dam with a built-in intake structure, an impoundment, and a powerhouse. Specifically, the ASH project consists of:

(1) a concrete gravity dam, 148 ft long with an overflow spillway width of 78 ft, and a single set of Obermeyer crest gates along the top of the spillway. The height of the dam is 18 ft, with an elevation of 335.4 ft msl. The project has automated level control, which (with the Obermeyer crest gates raised) keeps the pond level at 339.6 ft msl during normal flows. There is an 11 ft wide submerged sluice gate next to the spillway, and the rest of the dam consists of the intake structure: trash racks, 3 turbine flumes, an Atlas Polar raker, and downstream fish passage. The intake structure houses 3 fully submerged Flygt turbine-generators with a combined capacity of 870 KW.

(2) an impoundment approximately 800 ft long, with a surface area of 1.6 acres and 13 acre-feet gross storage.

(3) a wood and steel powerhouse housing the projects controls and switchgear.

(4) a 60 ft wide by 70 ft long tailrace.

(5) one 1000 kVA transformer, which steps up the generated 480V three phase power to 4160V, which then travels across the river to the Eversource transmission line.

Table I. Facility Description Information for ROB and ASH

Item	***Information Requested***	***Response (include references to further details)***
Name of the Facility	Facility name (use FERC project name or other legal name)	Lower Robertson Hydroelectric Project Ashuelot Hydroelectric Project
Location	River name (USGS proper name)	Ashuelot River

Item	*Information Requested*	*Response (include references to further details)*
	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)	Middle Connecticut 01080201
	Nearest town(s), county(ies), and state(s) to dam	Winchester, Cheshire, New Hampshire
	River mile of ROB dam	Est. 3
	River mile of ASH dam	Est. 2
	Geographic latitude of ROB dam	42d47'09
	Geographic longitude of ROB dam	72d27'12"
	Geographic latitude of ASH dam	42d47'09”
	Geographic longitude of ASH dam	72d28'15"
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Sam Payne
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Ashuelot River Hydro, Inc. Sam Payne No change to ownership
	FERC licensee company name (if different from owner)	NA
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	FERC Exemptions, granted July 31, 1986: ROB No. 8235 ASH No. 7791
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", “non-jurisdictional”)	Exemption
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	1985: 401 Water Quality Certificate, 2009: NH DES water quality monitoring, 2019: NH DES water quality monitoring (pending).

Item	*Information Requested*	*Response (include references to further details)*
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories[1]	Please refer to Appendices for copies of all relevant documents
Powerhouse	Date of initial operation (past or future for pre-operational applications)	1985
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	ROB 840 kw ASH 870 kw Capacity has not changed
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	ROB 3.2 GWH ASH 3.3 GWH 2007-present Average generation has not changed
	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 Mode of operation has not changed
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	ROB: 3 Flygt Kaplan turbines, 300 kw each, 100-300 cfs each ASH: as for ROB
	Trashrack clear spacing (inches), for each trashrack	ROB 1 5/8", reduced to 3/4 in. with seasonal fish bars ASH: as for ROB
	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
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1985, no subsequent modifications

[1] For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

Item	*Information Requested*	*Response (include references to further details)*
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	ROB: 20' ROB Obermeyer crest gates: 2' ASH: 18' ASH Obermeyer crest gates: 4.2'
	Spillway elevation and hydraulic capacity	ROB: elevation 384.6', 10,000 cfs ASH: elevation 335.4', 10,000 cfs
	Tailwater elevation (provide normal range if available)	ROB: 372.6' MSL ASH: 322.4' MSL
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	ROB: flume, 20' length ASH: flume, 20' length No penstocks
	Dates and types of major infrastructure changes	none
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Hydroelectric generation
	Source water	Ashuelot river
	Receiving water and location of discharge	Ashuelot river
Conduit	Date of conduit construction and primary purpose of conduit	NA
Impoundment and Watershed	Authorized maximum and minimum water surface elevations **For recertifications: Indicate if these values have changed since last certification**	Projects are run-of-river. No specified range for elevations No change since last re-certification
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	ROB: 386.6' MSL ASH: 339.6' MSL Normal fluctuation is a few inches (both plants have automatic level control). No change since re-cert.
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	ROB) 86 acre feet; area 8.6 acres ASH) 13 acre feet; area 1.6 acres No change
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	ROB) 86 acre feet; area 8.6 acres ASH) 13 acre feet; area 1.6 acres No change

Item	*Information Requested*	*Response (include references to further details)*
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	The projects were awarded 401 Water Quality Certificates in 1985. Article 2 of the FERC Exemptions requires adherence to conditions originally issued by New Hampshire Fish & Game and U.S. Fish and Wildlife that instantaneous flows of 203 cfs (0.5 cfs/sm) be passed below the projects at all times. At the behest of the project owner of the time, FERC and those two agencies approved a stream flow gauging plan by orders dated November 1, 1994 (ASH) and May 16, 1995 (ROB). Under ARH ownership, the project is operated run-of-river and in conformance with those orders.
	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.	Ashuelot Park Dam, owned by City of Keene; Surry Mountain Dam & Otter Brook Dam (U. S. Army Corp flood control dams upstream of Keene); Nash Mill Dam, Marlow, FERC P-3309. No downstream fish passage at dams Please see Appendix: "xP ASH River Dams" for a map (river miles of dams are not stated).
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Fiske Mill Dam, mile 1, FERC P-8615. Has upstream fish passage.
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	None, other than general courtesy.
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	Land (including river bed) ROB: .95 acres ASH: 1.78 acres Water: ROB area 8.6 acres ASH area 1.6 acres

Item	*Information Requested*	*Response (include references to further details)*
Hydrologic Setting	Average annual flow at the dam, and period of record used	611.7 cfs, 2000-2017; same for ROB and ASH
	Average monthly flows and period of record used	Jan: 579, Feb: 479, Mar: 877, Apr: 1,350, May: 703, Jun: 519, Jul: 342, Aug: 270, Sep: 269, Oct: 555, Nov: 666, Dec: 729 Time period: 2000-2017, flows same for ROB and ASH
	Location and name of closest stream gauging stations above and below the facility	Upstream: USGS 01160350 ASHUELOT RIVER AT WEST SWANZEY, NH Downstream: USGS 01161000 ASHUELOT RIVER AT HINSDALE, NH
	Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.	ROB: 419 ASH: 421
Designated Zones of Effect	Number of zones of effect	4
	Upstream and downstream locations by river miles	ROB Zone 1 Impoundment .22 miles (1160 ft) from upstream limit to dam ROB Zone 2 River: .15 miles (770 ft) from dam to downstream limit ASH Zone 3: Impoundment.15 miles (800 ft) from upstream limit to dam ASH Zone 4: River .15 miles (780 ft) from dam to downstream limit
	Type of waterbody (river, impoundment, bypassed reach, etc.)	ROB Zone 1: impoundment ROB Zone 2: downstream reach ASH Zone 3: impoundment ASH Zone 4: downstream reach
	Delimiting structures or features	ROB Zone 1: from upstream edge of impoundment to dam upstream face; ROB Zone 2: from downstream face of dam to river bend at deeper rapids; ASH Zone 3: from upstream edge of impoundment to upstream face of dam ASH Zone 4: from downstream face of dam to auto bridge.
	Designated uses by state water quality agency	NH class B waters
Pre-Operational Facilities		

Item	*Information Requested*	*Response (include references to further details)*
Expected operational date	Date generation is expected to begin	NA
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	NA
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	NA

PART II. STANDARDS SELECTION

The ROB and ASH project sites offer four designated zones of effect for this application.

Zone 1 ROB is defined as extending from the upstream start of the impoundment .22 river miles (354m) downstream to the ROB dam. See Figure 1.

Zone 2 ROB is defined as extending from the downstream side of the ROB dam .15 miles (235m), to the downstream limit. See Figure 2.

Zone 3 ASH is defined as extending from the upstream start of the impoundment .15 river miles (245m) to the upstream face of the ASH dam. See Figure 3.

Zone 4 ASH is defined as extending from the downstream side of the ASH dam .15 miles (240m), to the downstream limit. See Figure 4.

Figure 1: ROB Zone 1 Impoundment

Figure 2: ROB Zone 2 downstream reach

Figure 3: ASH Zone 3 impoundment

Figure 4: ASH Zone 4 downstream reach

Table II-1. LIHI standards selected for ROB Zone of Effect No. 1 (impoundment)

Facility Name: Lower Robertson Zone of Effect: 1

	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			

Table II-2. LIHI standards selected for ROB Zone of Effect No. 2 (downstream reach)

Facility Name: Lower Robertson Zone of Effect: 2

	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				x
F	Threatened and Endangered Species Protection	x				
G	Cultural and Historic Resources Protection		x			
H	Recreational Resources		x			

Table II-3. LIHI standards selected for ASH Zone of Effect No. 3 (impoundment)

Facility Name: Ashuelot Zone of Effect: 3

	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			

Table II-4. LIHI standards selected for ASH Zone of Effect No. 4 (downstream reach)

Facility Name: Ashuelot Zone of Effect: 4

	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			

PART III. Supporting Information

This section contains the information that explains and justifies the standards selected to pass the LIHI certification criteria (see Part II for selections).

Information Required to Support Ecological Flow Standards

Table III-1 Ecological Flow Standards for ROB Zone 1, ROB Zone 2, ASH Zone 3, ASH Zone 4 (all Zones)

Criterion	*Standard*	*Instructions*
A	1	Not Applicable / De Minimis Effect: • Confirm the location of the powerhouse relative to dam/diversion structures and demonstrate that there are no bypassed reaches at the facility. • For run-of-river facilities, 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. • In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones only, explain water management (e.g., fluctuations, ramping, refill rates) and how fish and wildlife habitat within the zone is evaluated and managed. ***NOTE:*** this is required information, but it will not be used to determine whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion.

Agency recommendations:

Article 2 of the FERC Exemptions requires adherence to conditions originally issued by New Hampshire Fish & Game (NHF&G) and U.S. Fish and Wildlife (USF&W) that stated: "The exemptee shall provide an instantaneous minimum discharge below the project of at least 203 cfs (0.5 cfsm)or inflow to the project, whichever is less, to protect downstream aquatic resources".

At the behest of the project owner of the time, FERC, NHF&G, and USF&W approved a stream flow gauging plan by orders dated November 1, 1994 (ASH) and May 16, 1995 (ROB). Under current ownership, the project is operated run-of-river and in conformance with those orders.

Both ASH and ROB sites have submersible Flygt turbines installed in the dam. They have therefore no significant bypass reaches: the turbine intakes are at the trash racks, and the turbines discharge at the downstream toe of the dam.

Both ASH and ROB sites are fully automated. Impoundment levels are therefore

maintained within a few inches by a computer acting on data from pressure transducers located in the impoundment. Plant updates (including impoundment levels) are automatically sent to the owner/operators twice a day, and alarm texts are immediately sent in the event of high or low water levels. In addition, a local operator visits and maintains the sites daily. In practice, impoundment levels stay very stable. They reach higher levels when water flows exceed the turbine capacities, and lower levels only in extremely dry summer weather. During flood events both sites lower their Obermeyer crest gates, which helps to mitigate high water levels in the impoundments.

The stable, automated impoundment level control during regular run-of-the-river operations protects the aquatic habitat and its inhabitants.

References: Please refer to Appendices:

xC Flows

Information Required to Support Water Quality Standards

Table III-2 Water Quality Standards for ROB Zone 1, ROB Zone 2, ASH Zone 3, ASH Zone 4 (all Zones)

B	3	Site-Specific Monitoring Studies: • 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. • Document consultation with appropriate water quality agency to determine what water quality parameters and sampling methods are required. • Present recent water quality data from the facility or from other sources in the vicinity of the facility (e.g., data collected from the state, watershed associations, or others who collected data under generally accepted sampling protocols and quality assurance procedures) and explain and demonstrate how it satisfies current applicable water quality standards including designated uses, or provide a letter from the appropriate state or other regulatory agency accepting the data.

Agency Recommendations:

The New Hampshire Department of Environmental Services (NHDES) classifies the waters of the Ashuelot River Basin as Class B: acceptable for fishing, swimming, and other recreational purposes, and for use as water supplies after adequate treatment has been applied.

The ROB and ASH projects were awarded a federal 401 Water Quality Certificate in 1985. However, these documents were vaguely worded, and therefore ARH asked for a letter of compliance from the Water Quality division of the NHDES in 2009. In response, NHDES asked ARH to collect water quality data during the summer of 2009 to demonstrate compliance with state standards. The data was collected, and water quality standards were

met or surpassed. The Cleantech Analytics document under **References** below includes the 2010 data, and analysis of it. The water quality data was produced by Normandeau Associates Environmental Consultants.

Ted Walsh from NHDES notified ARH late last year that new water quality data was required for this 2019 LIHI recertification. ARH has communicated with Mr. Walsh regarding test parameters and has received a formal letter outlining the testing parameters, methods, etc. See **References** below.

The required testing does encompass all four Zones of Influence.

Because the testing must be done during low flow conditions and the current LIHI certification expires in July 2019, ARH requests that LIHI recertifies the sites pending acceptable water quality testing results, as was done in 2009-10.

References: Please refer to Appendices:

xD 2015 LIHI recertification by Cleantech analytics.pdf
xE 2019 DES LIHI water sampling requirements.pdf
xF 2019 email from NHDES Monitoring and Project Information Requirements.msg

Information Required to Support Upstream Fish Passage Standards

Diadromous fish species:

The list below was made by Matt Carpenter of NH Fish and Game. See **References** below.
American Eel – Known to occur at low densities in the Ashuelot River.
American Shad – Stocked in the river. Currently the focus of restoration in the Ashuelot.
Sea Lamprey – Known to spawn in the lower river. Expected to use fishways to access habitat upstream.
Blueback Herring – Not currently present (limited by low passage numbers at the Holyoke Dam), but could be the focus of future restoration efforts.
Atlantic Salmon – No longer under restoration or present in the watershed.

Table III-3. Information Required to Support Upstream Fish Passage Standards for ROB Zone 1 and ASH Zone 3 (the impoundments).

Criterion	*Standard*	*Instructions*
C	1	<u>Not Applicable / De Minimis Effect:</u> • 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.

Rationale: ROB Zone 1 and ASH zone 3 are impoundments upstream of their respective dams, and do not present a barrier to upstream fish passage.

Table III-4. Upstream Fish Passage Standards for ROB Zone 2 and ASH zone 4 (downstream reaches)

C	2	<u>Agency Recommendation:</u> • 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. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

Agency Recommendations:

The Ashuelot River has been targeted for anadromous fish restoration. A dam downstream of the ROB and ASH dams, known as Fiske Mill, installed upstream passage (a fish lift) in 2014. ARH has formally agreed to construct upstream fish passage at the Ashuelot and Lower Robertson projects in accordance with triggers and schedules that are described in this excerpt from the July 12, 2006 USF&W letter:

To derive trigger numbers for these projects, we consider the amount of suitable habitat available between the Fiske Mill Dam and the Ashuelot Paper Dam.. There are approximately 10 acres of impounded habitat and 14 acres of free-flowing habitat in this Section of river. Some of the free-flowing habitat is unsuitable for spawning due to excessive velocities. Therefore, we estimate that there are 15 acres of usable shad habitat. Using a production rate of 50 shad/acre,2 this reach would be expected to support a maximum population of 750 shad. At this level, the habitat is considered to be saturated. This level of passage indicates a substantial population of shad migrating to the Ashuelot and successful passage at the Fiske Mill fishway, at which time upstream passage would be needed immediately. Given time for construction and permitting, passage facilities would need to be operational two years after reaching this trigger.

Another method for establishing a passage construction trigger uses 20% of the estimated shad production for a given reach, but allows time for population expansion prior to passage implementation. For the Ashuelot projects, 20% of the 750 shad population target is 150 This method assumes that if at least 150 shad spawn successfully in the Fiske Mill to Ashuelot Paper reach, their progeny would be expected to produce a return of adults to the system (3-6 years later) that would saturate the habitat. At this level of returns, providing additional time for final design and construction, coupled with additional time for Ashuelot River stock development, would be reasonable. Therefore, the alternate passage trigger would be the installation of

passage facilities within four years from the passage of 150 shad above Fiske Mill Darn.

In conclusion, based on the calculation method we used for establishing the trigger number, the facilities will need to be to be operational either (1) within two years of Fiske Mill passing 750 shad,3 or (2) within four years of Fiske Mill passing 150 shad. (whichever occurs first).

ARH has agreed to construct fishways according to the schedule and designs prescribed by the resource agencies.

The latest communication ARH had with USF&W regarding upstream fish passage occurred on 2/16/2019 via email with Melissa Grader, Fish and Wildlife Biologist of the New England Office: "*Based on available information, the trigger for requiring upstream passage at Ashuelot Paper has not been reached. However, Ashuelot Hydro should be aware that we are in consultation with Fiske Hydro regarding fish lift operation and monitoring/counting at the Fiske Mill Project. The expectation is that formal monitoring will be initiated in the near future and therefore, we will have better information relative to how many shad are passing Fiske Mill.*"

References: Please refer to Appendices:

xQ Migratory and resident fish in the Ashuelot.msg
xG Fish Passage.pdf (downstream passage docs are a few pages into the doc)
xH 2019 F&W email re endangered species, flows, fish passage.msg
xI 2019 email from NHF&G.msg

Information Required to Support Downstream Fish Passage Standards

Resident Fish Species:

The list below was made by Matt Carpenter of NH Fish and Game. See **References** below.

The following fish species have been captured during various fish surveys in the lower Ashuelot River: American Eel, Common White Sucker, Longnose Dace, Smallmouth Bass, Tesselated Darter, Bluegill Sunfish, Common Sunfish (Pumpkinseed), Redbreast Sunfish, Yellow Bullhead, Brown Trout (stocked), Eastern Chain Pickerel, Fallfish, Yellow Perch.

Table III-5. Downstream Fish Passage Standards for ROB Zone 1, and Ash Zone 3 (the impoundments).

Criterion	*Standard*	*Instructions*
		•
D	2	Agency Recommendation: • 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 part of a Settlement Agreement or not. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

Agency Recommendations:

Using a design approved by FERC letter dated January 8, 1999, downstream fish passage was installed at Lower Robertson in the summer of 1999. It has been operating ever since. Using a design approved by FERC letter dated July 20, 2001, downstream fish passage was installed at Ashuelot in late 2001. It has been operating ever since. As mandated by NH Fish and Wildlife and US Fish and Game, downstream fish passages are opened at both sites from April – June 15, and August 15 – October 15, and use a flow of 25 CFS. In addition, fish bars which reduce the openings between trash rack bars to ¾", are installed from April – October 15.

References: Please refer to Appendices:

xQ Migratory and resident fish in the Ashuelot.msg
xG Fish Passage.pdf
xH 2019 F&W email re endangered species, flows, fish passage.msg
xI 2019 email from NHF&G.msg

Table III-6. Downstream Fish Passage Standards for ROB Zone 2, and Ash Zone 4 (the downstream reaches).

Criterion	*Standard*	*Instructions*
D	1	Not Applicable / De Minimis Effect: • 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.

Rationale: ROB Zone 2 and ASH Zone 4 are downstream reaches below their respective dams, and do not present a barrier to downstream fish passage. Neither of the sites has a significant bypass reach, the turbines and spillways discharge into the river bed directly below the dams.

Information Required to Support Shoreline and Watershed Protection Standards

Table III-7. Shoreline and Watershed Protection Standards for ROB Zone 1 and ASH Zone 3 (the impoundments):

Criterion	*Standard*	*Instructions*
E	1	Not Applicable / De Minimis Effect: • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

Rationale: The ROB and ASH impoundments mostly abut private property and therefore are beyond the control of the project. No request for a Shoreline Management Plan is

known to exist; none are on file.

Automatic level control is used in both sites and maintains pond levels within a few inches during normal flows, and discharges at true run-of-river amounts. Every effort is made to avoid draw-downs, and they only occur every few years, for maintenance purposes.

ROB is abutted by state route 119 on the north side of the impoundment and abandoned mill developments on the south. The ASH impoundment is forested on both sides of the river. Both sites are located close to the mouldering remains of the mills which originally built them. ROB and ASH were rebuilt by Algonquin Power in 1985. To the best of our knowledge the land does not have significant ecological value, although we are happy to say that it is slowly recovering from industrial use.

Watershed Preservation:

E	PLUS	Bonus Activities: • Provide documentation that the facility has a formal conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline that the facility owns around its reservoirs and river corridors • In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around undeveloped shoreline.

Rationale: ARH and its principals voluntarily donated to the Society for the Protection of NH Forests for the preservation of 1,800 acres of forest land in the Ashuelot headwaters. The donations were: $15,000 in 2008, $5,000 in 2010, and $5,000 in 2014. The 1,800 acres were successfully preserved and are now the Ashuelot River Headwaters Forest. ARH will continue to support preservation of the Ashuelot river basin. ARH donates annually to selected environmental organizations and causes that the principals identify as most urgently in need of funding. Please see **References** below for a map of the forest and supporting documents.

References: Please refer to Appendices:

xJ Forest Notes.pdf
xK Watershed Protection 2014.pdf
xR Ashuelot River Headwaters Forest.pdf

Table III-8. Shoreline and Watershed Protection Standards for ROB Zone 2 and ASH Zone 4 (the downstream reaches):

Criterion	*Standard*	*Instructions*
E	1	Not Applicable / De Minimis Effect: • If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

Rationale: The ROB and ASH riverine reaches mostly abut private property and therefore are beyond the control of the project. No request for a Shoreline Management Plan is known to exist; none are on file.

Both sites are located close to the mouldering remains of the mills which originally built them. The ROB and ASH hydro facilities were rebuilt by Algonquin Power in 1985, and the land around them is slowly returning to a wilder state. The ROB downstream reach is forested on both sides, with NH 119 a few hundred feet away on the north side. The ASH downstream reach has falling-down mill buildings and the railroad grade on the south side, and Lost Road (by the river and partly closed) and retention ponds last used by the mill on the north side. To the best of our knowledge the land does not have significant ecological value, although we are happy to say that it is slowly recovering from industrial use.

The downstream reaches for both sites are very similar: fast moving current in a relatively steep and rocky riverbed, bordered by mixed hard and softwood forest returning from cleared land.

Information Required to Support Threatened and Endangered Species Standards

Table III-9: Threatened and Endangered Species Standards for ROB Zone 1, ROB Zone 2, ASH Zone 3, ASH Zone 4 (all Zones)

Criterion	*Standard*	*Instructions*
F	1	Not Applicable / De Minimis Effect: • Document that there are no listed species in the facility area or affected riverine zones downstream of the facility. • If listed species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species. • If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.

Agency Recommendations:
Dwarf Wedgemussel are present in the upper reaches of the Ashuelot, but there are no documented occurrences in the vicinity of the ROB or ASH sites.
Northern Long Eared Bats have recently been federally listed, and their large home range includes the ROB and ASH sites. Rule 4(d) prohibits tree cutting within ¼ mile of their hibernacula, and prohibits cutting known roost trees. Hibernacula: We don't know of any hibernacula in the ROB or ASH site area, and don't believe the geology of the area is conducive to suitable, deep bat caves. Roost trees: We don't know of any roost trees in the area, although we wish we did. The only trees we cut are those mandated by FERC (i.e. any tree or vegetation within 20' of a dam structure). FERC inspects the facilities regularly, so the trees are never mature. We do not plan to cut mature trees on the project properties, and if we did need to, we are committed to following rule 4(d).
No other threatened or endangered species are known or suspected to be present in the project areas. We have submitted searches to the Natural Heritage Bureau of the NH DES, and are awaiting their response. Past searches have not caused concern.
Please refer to **References** below, in particular the 2/16/2019 email from Melissa Grader, Fish and Wildlife Biologist of the New England Office.
Broadly speaking, the land around the projects continues to successfully recover from industrialization. We see an occasional bald eagle flying over, great blue herons more commonly, river otters and mink are resident, beaver sign is very common.

References: see Appendices:

xH 2019 F&W email re endangered species, flows, fish passage.msg
xL 2009 Endangered Species report.pdf
NHB reviews are pending under ROB file number NHB19-1116, and ASH file number NHB19-1119.

Information Required to Support Cultural and Historic Resources Standards

Table III-10. Cultural and Historic Resources Standards for ROB Zone 1, ROB Zone 2 (ROB project)

G	2	<u>Approved Plan:</u> • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

Agency Recommendations: Article 10 of the ROB exemption (1986) requires that ARH: (1) construct project facilities in accordance with the Secretary of the Interior's Standards for Historic Preservation Projects so as to be consistent with the historical character of

Ashuelot Village; and (2) photo-document the historic features of Lower Robertson Dam that will be affected by project construction. To the best of our knowledge, Algonquin Power rebuilt the site according to these guidelines back in 1986. No significant new construction has occurred since 1986, and none is currently needed or planned, other than fish passage. Should fish passage be required in the near future, the NH Division of Historical Resources indicated in 2005 that it would have no effect on local historical resources.

References:
xA ROB exemption.pdf
xS 2005 FERC no cultural effect from fish passage.pdf
xT 2011 ROB FERC EIR.pdf

Table III-11. Cultural and Historic Resources Standards for ASH Zone 3, ASH Zone 4 (ASH project)

Criterion	*Standard*	*Instructions*
G	1	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.

Rationale: The ASH project exemption does not list Cultural or Historic management, as the 2003 FERC Environmental Inspection Report confirms. The only structure nearby is the old mill, which is not a historic resource. Searches by the New Hampshire Department of Natural and Cultural Resources during previous LIHI certifications have shown no resources in the project areas.

References: Please refer to the Appendices:
xU 2003 ASH FERC EIR.pdf
xD 2015 LIHI recert by Cleantech analytics.pdf
xM 2009 LIHI original reviewed cert.docx

Information Required to Support Recreational Resources Standards

Table III-12 Recreational Resources Standards for ROB Zone 1 and ROB Zone 2 (ROB project)

H	2	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

Agency Recommendations: Article 2 of the FERC Exemption requires adherence to conditions issued by agencies including the requirement to allow basic riverine access. There is no formal recreation plan. The ROB project does allow local recreational access. The defunct mill across the river from the project offers a parking area where fishers and boaters sometimes park. The river bank by the mill also allows an easy portage or launch site for boaters. The ROB powerhouse/intake area is fenced for security, but it is located on the other side of the river in a thin strip of land between NH route 119 and the water. People rarely access the river from that side because the banks are either steep, or covered in poison ivy, or both. Please refer to the ROB 2011 FERC Environmental Inspection Report.

References: Please refer to Appendices:
xT 2011 ROB FERC EIR.pdf
xA ROB Exemption.pdf

Table III-13 Recreational Resources Standards for ASH Zone 3 and ASH Zone 4 (ASH project)

H	2	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

Agency Recommendations:
Article 2 of the FERC Exemption requires adherence to conditions issued by agencies including the requirement to allow basic riverine access. River access is provided at ASH. Please reference the 2003 ASH FERC Environmental Inspection Report.

During LIHI certification in 2009, a local paddlers' association asked that ARH install a portage trail at ASH. This was completed in 2010 and photographs submitted to LIHI in March of 2011. The portage trail has been maintained since then and is occasionally used.

The project lands around the reservoirs and downstream are neither fenced nor posted, and no fees or charges are applied to visitors. The ASH powerhouse itself is fenced, and access to that side of the river is via a bridge which is privately owned and kept gated and locked by the mill owner. Folks occasionally fish on the other side of the river accessed by Lost Road, but we more often see birdwatchers and people parked on the roadside, enjoying the river.

References: Please refer to Appendices:

xU 2003 ASH FERC EIR.pdf
xB ASH Exemption.pdf
xN 2014 ARLAC letter.pdf
xD 2015 LIHI recertification by Cleantech analytics.pdf

B.3 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 Ashuelot River Hydro*, 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.

PLEASE INSERT FOR PRE-OPERATIONAL CERTIFICATIONS (see Section 4.5.3):

The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.

Company Name: Ashuelot River Hydro

Authorized Representative:

Name: Sam Payne

Title: Operations Manager

Authorized Signature: [signature]

Date: 5/20/2019

PART V. CONTACTS FORM

A. Applicant-related contacts

Facility Owner:	
Name and Title	Bob King, President
Company	Ashuelot River Hydro, Inc. (owner & operator)
Phone	603-352-3444
Email Address	bking31415@gmail.com
Mailing Address	42 Hurricane Rd., Keene, NH 03431
Facility Operator (if different from Owner):	
Name and Title	Sam Payne (Operations Manager)
Company	Ashuelot River Hydro, Inc.
Phone	603-903-7663
Email Address	bungeegull@hotmail.com
Mailing Address	2126 Stickney Brook Rd., Dummerston, VT 05301
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	NA
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Sam Payne
Company	(See above)
Phone	
Email Address	
Mailing Address	
Party responsible for accounts payable:	
Name and Title	Bob King
Company	(see above)
Phone	
Email Address	
Mailing Address	

B. Current and relevant state, federal, and tribal resource agency contacts with knowledge of the facility (copy and repeat the following table as needed).

Agency Contact (Check areas of responsibility: Flows__, Water Quality x__, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	NH Dept. of Environmental Services
Name and Title	Ted Walsh, Surface Water Monitoring Coordinator

Phone	(p) 603-271-2083, (F) 603-271-7894
Email address	email: twalsh@des.state.nh.us
Mailing Address	New Hampshire Department of Environmental Services Watershed Management Bureau 29 Hazen Drive, P.O. Box 95 Concord, New Hampshire 03301-0095
Agency Contact (Check areas of responsibility: Flows_x_, Water Quality __, Fish/Wildlife Resources _x_, Watersheds _x_, T/E Spp. _x_, Cultural/Historic Resources __, Recreation _x_):	
Agency Name	NH Dept. of Fish and Game
Name and Title	Matt Carpenter, Fisheries Biologist
Phone	(603) 271-2612
Email address	matthew.carpenter@wildlife.nh.gov
Mailing Address	New Hampshire Fish and Game Department 11 Hazen Drive Concord, NH 03301
Agency Contact (Check areas of responsibility: Flows_x_, Water Quality __, Fish/Wildlife Resources x__, Watersheds _x_, T/E Spp. x__, Cultural/Historic Resources __, Recreation _x_):	
Agency Name	US Fish and Wildlife
Name and Title	Melissa Grader, Fish and Wildlife Biologist
Phone	413-548-8002 x8124
Email address	melissa_grader@fws.gov
Mailing Address	U.S. Fish and Wildlife Service - New England Field Office 103 East Plumtree Road Sunderland, MA 01375
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources x__, Recreation __):	
Agency Name	New Hampshire Division of Cultural Resources
Name and Title	Staff,online search
Phone	603-271-3483 / FAX 603-271-3433
Email address	preservation@dncr.nh.gov
Mailing Address	19 Pillsbury Street - 2nd floor Concord, NH 03301-3570
Agency Contact (Check areas of responsibility: Flows_x_, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Federal Energy Regulatory Commission
Name and Title	John Spain, NYRO Director
Phone	212-273-5900
Email address	John.Spain@ferc.gov
Mailing Address	Federal Energy Regulatory Commission Office of Energy Projects NYRO 19 West 34th Street, Suite 400

	New York, NY 10001

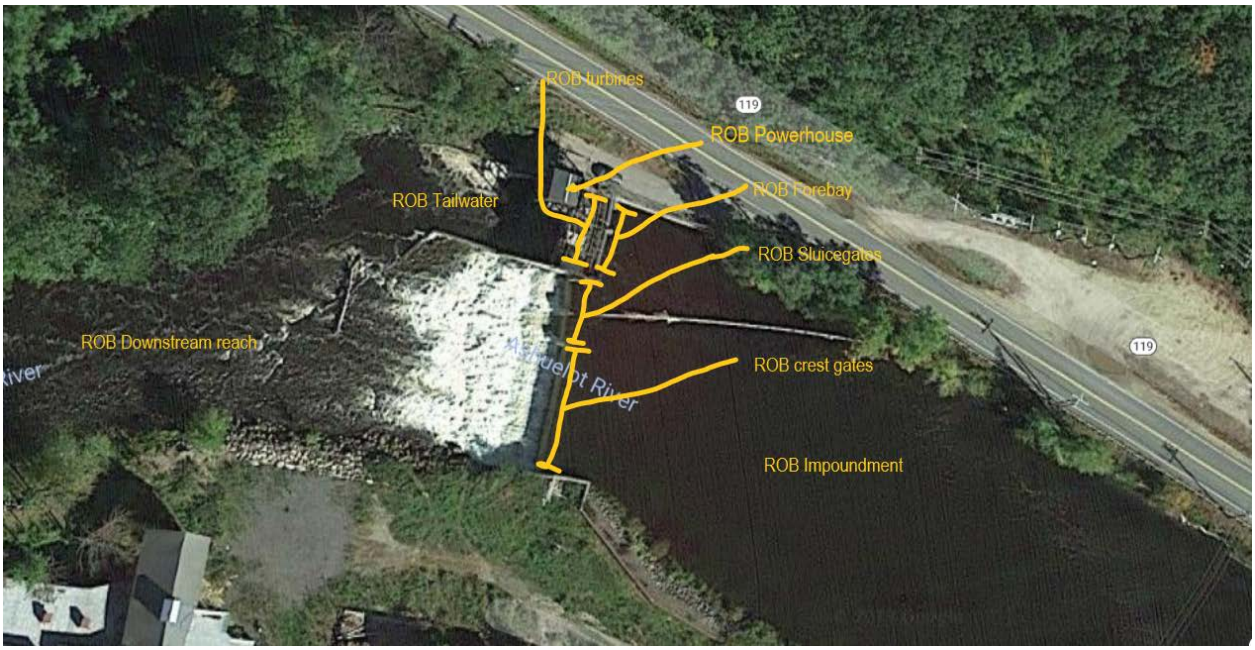
C. Current stakeholder contacts that are actively engaged with the facility (copy and repeat the following table as needed).

Stakeholder Contact (Check areas of interest: Flows__, Water Quality _x_, Fish/Wildlife Resources _x_, Watersheds _x_, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	Connecticut River Conservancy
Name and Title	**Ron Rhodes**, River Steward, Vermont/New Hampshire,
Phone	413-772-2020 ext. 214 or 413-768-4994
Email address	rrhodes@ctriver.org
Mailing Address	15 Bank Row Greenfield, MA 01301
Stakeholder Contact (Check areas of interest: Flows_x_, Water Quality __x, Fish/Wildlife Resources _x_, Watersheds _x_, T/E Spp. __, Cultural/Historic Resources __, Recreation _x_):	
Stakeholder Organization	Ashuelot River Local Advisory Committee
Name and Title	Barbara Skuly, Chairman
Phone	(603) 352-0987
Email address	bskuly@ne.rr.com
Mailing Address	19 Spring St., Swanzey, NH 03446
Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	
Name and Title	
Phone	
Email address	
Mailing Address	
Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	
Name and Title	
Phone	
Email address	
Mailing Address	

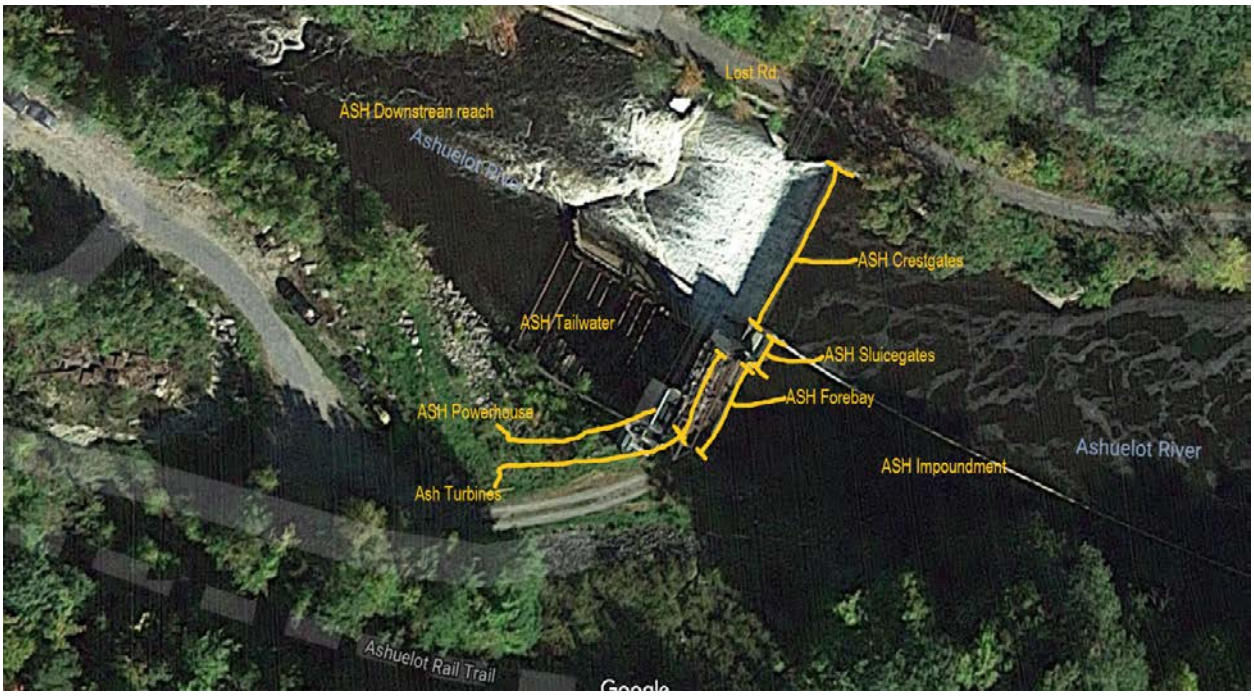
Appendices

A. Supporting Documents: please refer to the electronic files included with this application

B. Photos of Key Features:

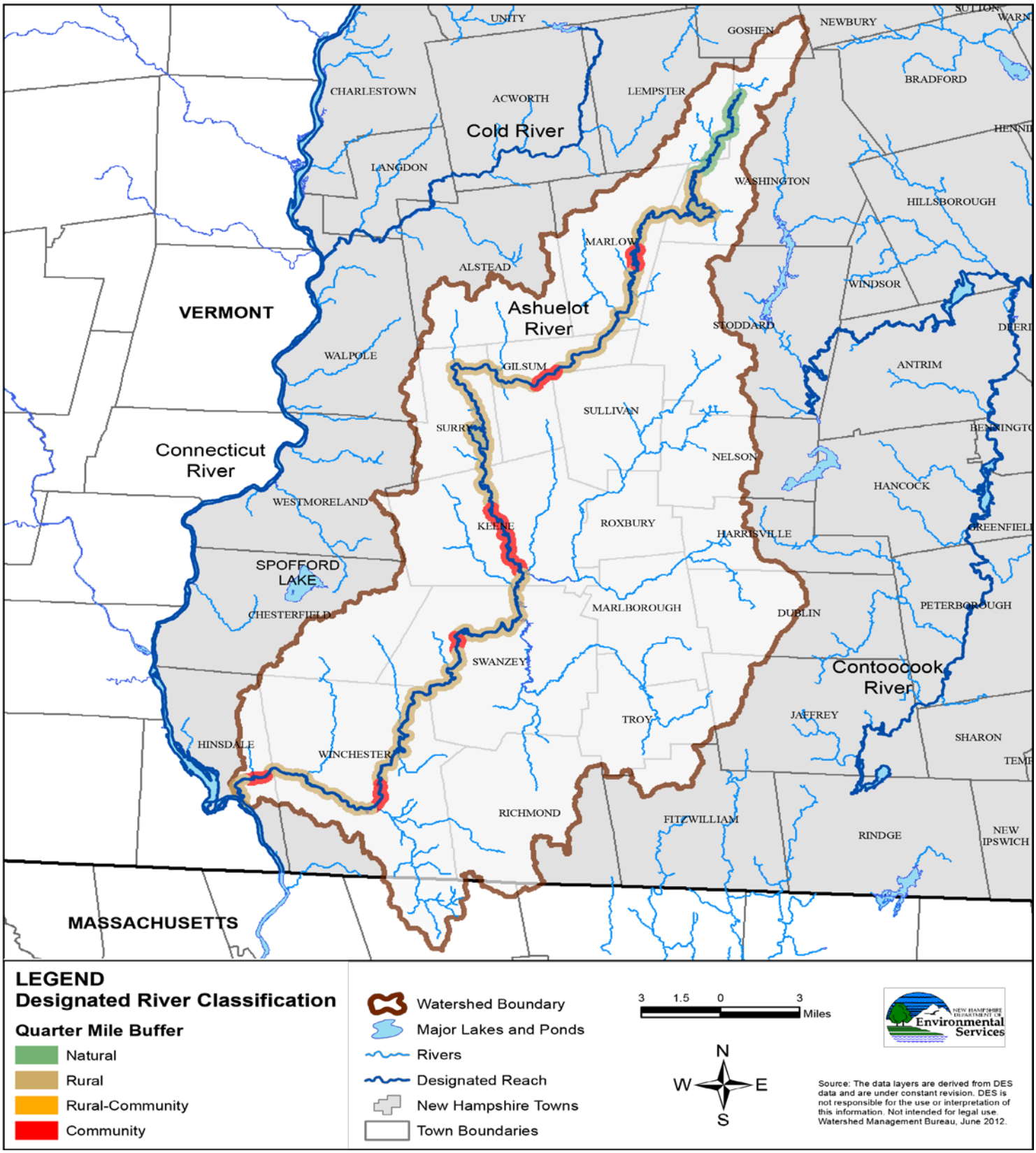


ROB Features



ASH Features

C. Ashuelot Watershed Map:



Attachment A FERC Exemption

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Hydroelectric Development, Inc. Project No. 8235-001

ORDER GRANTING EXEMPTION FROM LICENSING
(5 MW OR LESS)

(Issued July 31, 1986)

On January 30, 1985, Hydroelectric Development, Inc. filed an application to exempt the Lower Robertson Dam Project from the licensing requirements set forth in Part I of the Federal Power Act. The proposed small hydropower project is described in the attached public notice. The comments of interested agencies and individuals, including the U.S. Fish and Wildlife Service and the state fish and wildlife agency, have been fully considered in determining whether to issue this exemption from licensing.

Article 2 of this exemption requires compliance with the terms and conditions prepared by federal or state fish and wildlife agencies to protect fish and wildlife resources. These mandatory terms and conditions are contained in the attached letters commenting on the exemption application. If contested, the Commission will determine whether any mandatory term or condition is outside the scope of article 2.

After considering the mandatory terms and conditions designed to protect fish and wildlife resources, the environmental information in the exemption application, the staff's independent assessment 1/, and other public comments, the Director finds that issuance of this order is not a major federal action significantly affecting the quality of the human environment.

The Director orders:

(A) The Lower Robertson Dam Project is exempted from the licensing requirements of Part I of the Federal Power Act, subject to the attached standard articles and the special articles included below. See section 4.106 of the Commission's regulations.

1/ Environmental Assessment, Lower Robertson Dam, FERC Project No. 8235-001, Federal Energy Regulatory Commission, February 27, 1986. This document is available in the Commission's public file associated with this proceeding.

Article 9. Before commencing any ground-disturbing or spoil-producing activities, the exemptee, in consultation and cooperation with the appropriate Federal, state, and local agencies (including the Soil Conservation Service and any Federal agency with managerial authority over any part of the project lands), shall prepare a plan to control erosion and dust, stabilize slopes, and minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project. The plan shall identify critical areas, include functional design drawings and map locations of control measures, and establish schedules for implementation, monitoring, maintenance, and periodic review.

The exemptee may commence ground-disturbing or spoil-producing activities 30 days after submitting the final plan to the consulted agencies, or sooner if the plan is approved by the Soil Conservation Service and any Federal agency with managerial authority over any part of project lands. Any consulted agency that objects to the exemptee's final plan should notify the Commission, specify the objection, and recommend alternative measures. The Commission reserves the right to modify the final plan.

Article 10. The exemptee, after consultation with the New Hampshire State Historic Preservation Officer (SHPO), shall implement a cultural resources managment plan to: (1) construct project facilities in accordance with the Secretary of the Interior's Standards for Historic Preservation Projects so as to be consistent with the historical character of Ashuelot Village, and (2) photo-document the historical features of Lower Robertson Dam that will be affected by project construction. Documentation shall be filed with the SHPO to indicate that the plan has been implemented in a manner satisfactory to the SHPO. The photo-documentation of Lower Robertson Dam shall be determined acceptable by the SHPO prior to any construction that will affect recorded features. The exemptee shall make available funds in a reasonable amount for any required work. If any previously unrecorded archeological or historic sites are discovered during the course of the construction or development of any project works or associated facilities, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the exemptee shall consult with the SHPO to develop a mitigative plan for the protection of significant archeological or historic resources.

(B) This order is issued under authority delegated to the Director and is final unless appealed to the Commission within 30 days from the date of this order.

Richard T. Hunt

Richard T. Hunt
Director, Office of
Hydropower Licensing

§ 4.106 Standard terms and conditions of exemption from licensing

Any exemption from licensing granted under this subpart for a small hydroelectric power project is subject to the following standard terms and conditions:

(a) Article 1. The Commission reserves the right to conduct investigations under sections 4(g), 306, 307, and 311 of the Federal Power Act with respect to any acts, complaints, facts, conditions, practices, or other matters related to the construction, operation, or maintenance of the exempt project. If any term or condition of the exemption is violated, the Commission may revoke the exemption, issue a suitable order under section 4(g) of the Federal Power Act, or take appropriate action for enforcement, forfeiture, or penalties under Part III of the Federal Power Act.

(b) Article 2. The construction, operation, and maintenance of the exempt project must comply with any terms and conditions that the United States Fish and Wildlife Service any state fish and wildlife agencies have determined are appropriate to prevent loss of, or damage to, fish or wildlife resources or to otherwise to carry out the purposes of the Fish and Wildlife Coordination Act, as specified in Exhibit E of the application for exemption from licensing or in the comments submitted in response to the notice of the exemption application.

(c) Article 3. The Commission may revoke this exemption if actual construction or any proposed generating facilities has not begun within two years, or has not been completed within four years from the date on which this exemption was granted. If an exemption is revoked under this article, the Commission will not accept from the prior exemption holder a subsequent application for exemption from licensing or a notice of exemption from licensing for the same project within two years of the revocation.

(d) Article 4. This exemption is subject to the navigation servitude of the United States if the project is located on navigable waters of the United States.

(e) Article 5. This exemption does not confer any right to use or occupy any Federal lands that may be necessary for the development or operation of the project. Any right to use or occupy any Federal lands for those purposes must be obtained from the administering Federal land agencies. The Commission may accept a license application by any qualified license applicant and revoke this exemption, if any necessary right to use or occupy Federal lands for those purposes has not been obtained within one year from the date on which this exemption was granted.

(f) Article 6. In order to best develop, conserve, and utilize in the public interest the water resources of the region, the Commission may require that the exempt facilities be modified in structure or operation or may revoke this exemption.

(g) Article 7. The Commission may revoke this exemption if, in the application process, material discrepancies, inaccuracies, or falsehoods were made by or on behalf of the applicant.

(h) Article 8. Any exempted small hydroelectric power project that utilizes a dam that is more than 33 feet in height above streambed, as defined in 18 CFR 12.31(c) of this chapter, impounds more than 2,000 acre-feet of water, or has a significant or high hazard potential, as defined in 33 CFR Part 222, is subject to the following provisions of 18 CFR Part 12, as it may be amended:

(1) Section 12.4(b)(1)(i) and (ii), (b)(2)(i) and (iii), (b)(iv), and (b)(v);

(2) Section 12.4(c);

(3) Section 12.5;

(4) Subpart C; and

(5) Subpart D.

For the purposes of applying these provisions of 18 CFR Part 12, the exempted project is deemed to be a licensed project development and the owner of the exempted project is deemed to be a licensee.

(i) Before transferring any property interests in the exempt project, the exemption holder must inform the transferee of the terms and conditions of the exemption. Within 30 days of transferring the property interests, the exemption holder must inform the Commission of the identity and address of the transferee.

P-8235-001

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Notice of Application Filed with the Commission

(May 30, 1985)

Take notice that the following hydroelectric application has been filed with the Federal Energy Regulatory Commission and is available for public inspection:

a. Type of Application: Exemption (5 MW or Less)

b. Project No: 8235-001

c. Date Filed: January 30, 1985

d. Applicant: Hydroelectric Development, Inc.

e. Name of Project: Lower Robertson Dam

f. Location: On the Ashuelot River in Cheshire County, New Hampshire

g. Filed Pursuant to: Energy Security Act of 1980, Section 408, 16 U.S.C. §§2705 and 2708 as amended.

h. Contact Person: James C. Katsekas, River Engineering Corporation, 217 Rockingham Road, Londonderry, New Hampshire 03053

i. Comment Date: JUL 1 0 1985

j. Description of Project: The proposed run-of-river project would consist of: (1) the existing 18-foot-high and 125-foot-long Lower Robertson Dam with a spillway crest elevation of 383.6 feet mean sea level (msl) which would be raised 1 foot to elevation 384.6 feet msl; (2) new 1.5-foot-high flashboards to raise the normal maximum pool elevation to its historical elevation of 386.1 feet msl; (3) an impoundment with a surface area of 8.6 acres; (4) a new intake structure and powerhouse at the north end of the dam with 3 turbine-generator units with a total installed capacity of 840 kW; (5) a short tailrace; and (6) other appurtenances. Interconnection facilities are available at the site. Flashboards were last used in 1950 to create a maximum pool elevation of 386.1 feet msl. Applicant owns all existing facilities. Applicant estimates an average annual generation of 3,200,000 kWh. The Applicant filed this application within its preliminary permit term for Project No. 8235.

k. Purpose of Project: Project energy would be sold to the Public Service Company of New Hampshire.

l. This notice also consists of the following standard paragraphs: A1, A9, B, C, & D3a.

m. Purpose of Exemption: An exemption, if issued, gives the Exemptee priority of control, development, and operation of the project under the terms of the exemption from licensing, and protects the Exemptee from permit or license applicants that would seek to take or develop the project.

A1. Exemption for Small Hydroelectric Power Project under 5MW Capacity -- Any qualified license or conduit exemption applicant desiring to file a competing application must submit to the Commission, on or before the specified comment date for the particular application, either a competing license or conduit exemption application that proposes to develop at least 7.5 megawatts in that project, or a notice of intent to file such an application. Any qualified small hydroelectric exemption applicant desiring to file a competing application must submit to the Commission, on or before the specified comment date for the particular application, either a competing small hydroelectric exemption application or a notice of intent to file such an application. Submission of a timely notice of intent allows an interested person to file the competing license, conduit exemption, or small hydroelectric exemption application no later than 120 days after the specified comment date for the particular application. Applications for preliminary permit will not be accepted in response to this notice.

D3a. Agency Comments - The U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the State Fish and Game agency(ies) are requested, for the purposes set forth in Section 408 of the Energy Security Act of 1980, to file within 60 days from the date of issuance of this notice appropriate terms and conditions to protect any fish and wildlife resources or to otherwise carry out the provisions of the Fish and Wildlife Coorination Act. General comments concerning the project and its resources are requested; however, specific terms and conditions to be included as a condition of exemption must be clearly identified in the agency letter. If an agency does not file terms and conditions within this time period, that agency will be presumed to have none. Other Federal, State, and local agencies are requested to provide any comments they may have in accordance with their duties and responsibilities. No other formal requests for comments will be made. Comments should be confined to substantive issues relevant to the granting of an exemption. If an agency does not file comments within 60 days from the date of issuance of this notice, it will be presumed to have no comments. One copy of an agency's comments must also be sent to the Applicant's representatives.

A9. Notice of intent -- A notice of intent must specify the exact name, business address, and telephone number of the prospective applicant, include an unequivocal statement of intent to submit, if such an application may be filed, either (1) a preliminary permit application or (2) a license, small hydroelectric exemption, or conduit exemption application, and be served on the applicant(s) named in this public notice.

Kenneth F. Plumb
Secretary

Attachment 4 FERC Exemption

41.6.1

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Hydroelectric Development, Inc. Project No. 7791-001

ORDER GRANTING EXEMPTION FROM LICENSING
(5 MW OR LESS)

(Issued July 31, 1986)

On February 15, 1985, Hydroelectric Development, Inc. filed an application to exempt the Ashuelot Paper Company Dam Project from the licensing requirements set forth in Part I of the Federal Power Act. The proposed small hydropower project is described in the attached public notice. The comments of interested agencies and individuals, including the U.S. Fish and Wildlife Service and the state fish and wildlife agency, have been fully considered in determining whether to issue this exemption from licensing.

Article 2 of this exemption requires compliance with the terms and conditions prepared by federal or state fish and wildlife agencies to protect fish and wildlife resources. These mandatory terms and conditions are contained in the attached letters commenting on the exemption application. If contested, the Commission will determine whether any mandatory term or condition is outside the scope of article 2.

After considering the mandatory terms and conditions designed to protect fish and wildlife resources, the environmental information in the exemption application, the staff's independent assessment 1/, and other public comments, the Director finds that issuance of this order is not a major federal action significantly affecting the quality of the human environment.

1/ Environmental Assessment, Ashuelot Paper Company Dam, FERC Project No. 7791-001, Federal Energy Regulatory Commission, June 18, 1986. This document is available in the Commission's public file associated with this proceeding.

The Director orders:

(A) The Ashuelot Paper Company Dam Project is exempted from the licensing requirements of Part I of the Federal Power Act, subject to the attached standard articles and the special article included below. See section 4.106 of the Commission's regulations.

Article 9. Before commencing any ground-disturbing or spoil-producing activities, the Exemptee, in consultation and cooperation with the appropriate Federal, state, and local agencies (including the Soil Conservation Service and any Federal agency with managerial authority over any part of the project lands), shall prepare a plan to control erosion and dust, stabilize slopes, and minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project. The plan shall identify critical areas, include functional design drawings and map locations of control measures, and establish schedules for implementation, monitoring, maintenance, and periodic review.

The Exemptee may commence ground-disturbing or spoil-producing activities 30 days after submitting the final plan to the consulted agencies, or sooner if the plan is approved by the Soil Conservation Service and any Federal agency with managerial authority over any part of project lands. Any consulted agency that objects to the Exemptee's final plan should notify the Commission, specify the objection, and recommend alternative measures. The Commission reserves the right to modify the final plan.

(B) This order is issued under authority delegated to the Director and is final unless appealed to the Commission within 30 days from the date of this order.

Richard T. Hunt

Richard T. Hunt
Director, Office of
Hydropower Licensing

A1. Exemption for Small Hydroelectric Power Project under 5MW Capacity -- Any qualified license or conduit exemption applicant desiring to file a competing application must submit to the Commission, on or before the specified comment date for the particular application, either a competing license or conduit exemption application that proposes to develop at least 7.5 megawatts in that project, or a notice of intent to file such an application. Any qualified small hydroelectric exemption applicant desiring to file a competing application must submit to the Commission, on or before the specified comment date for the particular application, either a competing small hydroelectric exemption application or a notice of intent to file such an application. Submission of a timely notice of intent allows an interested person to file the competing license, conduit exemption, or small hydroelectric exemption application no later than 120 days after the specified comment date for the particular application. Applications for preliminary permit will not be accepted in response to this notice.

A9. Notice of intent -- A notice of intent must specify the exact name, business address, and telephone number of the prospective applicant, include an unequivocal statement of intent to submit, if such an application may be filed, either (1) a preliminary permit application or (2) a license, small hydroelectric exemption, or conduit exemption application, and be served on the applicant(s) named in this public notice.

P-7791-001

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Notice of Application Filed with the Commission

(May 30, 1985)

Take notice that the following hydroelectric application has been filed with the Federal Energy Regulatory Commission and is available for public inspection:

a. Type of Application: Exemption (5 MW or Less)

b. Project No: 7791-001

c. Date Filed: February 15, 1985

d. Applicant: Hydroelectric Development, Inc.

e. Name of Project: Ashuelot Paper Company Dam

f. Location: On the Ashuelot River in Cheshire County, New Hampshire

g. Filed Pursuant to: Energy Security Act of 1980, Section 408, 16 U.S.C. §§2705 and 2708 as amended.

h. Contact Person: James C. Katsekas, Rivers Engineering Corporation, 217 Rockingham Road, Londonderry, New Hampshire 03053

i. Comment Date: JUL 10 1985

j. Description of Project: The proposed run-of-river project would consist of: (1) the existing 18-foot-high and 144.5-foot-long concrete-capped timber crib Ashuelot Paper Company Dam with a spillway crest elevation of 335.4 feet mean sea level (msl); (2) the reinstallation of 3.5-foot-high flashboards to raise the normal maximum pool elevation to 338.9 feet msl; (3) a small impoundment; (4) a new intake structure and powerhouse at the south end of the dam with 3 turbine-generator units with a total installed capacity of 870 kW; (5) a 100-foot-long tailrace; and (6) other appurtenances. Interconnection facilities are available at the site. Flashboards, 3.5 feet high, were utilized at the dam until 1963 creating a normal maximum pool elevation of 338.9 feet msl. Applicant owns all existing facilities. Applicant estimates an average annual generation of 3,300,000 kWh. The application was filed during the Applicant's preliminary permit term for the Ashuelot Paper Company Dam Project No. 7791.

k. Purpose of Project: Project energy would be sold to the Public Service Company of New Hampshire.

l. This notice also consists of the following standard paragraphs: A1, A9, B, C, & D3a.

m. Purpose of Exemption: An exemption, if issued, gives the Exemptee priority of control, development, and operation of the project under the terms of the exemption from licensing, and protects the Exemptee from permit or license applicants that would seek to take or develop the project.

§ 4.106 Standard terms and conditions of exemption from licensing

Any exemption from licensing granted under this subpart for a small hydroelectric power project is subject to the following standard terms and conditions:

(a) Article 1. The Commission reserves the right to conduct investigations under sections 4(g), 306, 307, and 311 of the Federal Power Act with respect to any acts, complaints, facts, conditions, practices, or other matters related to the construction, operation, or maintenance of the exempt project. If any term or condition of the exemption is violated, the Commission may revoke the exemption, issue a suitable order under section 4(g) of the Federal Power Act, or take appropriate action for enforcement, forfeiture, or penalties under Part III of the Federal Power Act.

(b) Article 2. The construction, operation, and maintenance of the exempt project must comply with any terms and conditions that the United States Fish and Wildlife Service or any state fish and wildlife agencies have determined are appropriate to prevent loss of, or damage to, fish or wildlife resources or to otherwise carry out the purposes of the Fish and Wildlife Coordination Act, as specified in Exhibit E of the application for exemption from licensing or in the comments submitted in response to the notice of the exemption application.

(c) Article 3. The Commission may revoke this exemption if actual construction or any proposed generating facilities has not begun within two years, or has not been completed within four years from the date on which this exemption was granted. If an exemption is revoked under this article, the Commission will not accept from the prior exemption holder a subsequent application for exemption from licensing or a notice of exemption from licensing for the same project within two years of the revocation.

(d) Article 4. This exemption is subject to the navigation servitude of the United States if the project is located on navigable waters of the United States.

(e) Article 5. This exemption does not confer any right to use or occupy any Federal lands that may be necessary for the development or operation of the project. Any right to use or occupy any Federal lands for those purposes must be obtained from the administering Federal land agencies. The Commission may accept a license application by any qualified license applicant and revoke this exemption, if any necessary right to use or occupy Federal lands for those purposes has not been obtained within one year from the date on which this exemption was granted.

(f) Article 6. In order to best develop, conserve, and utilize in the public interest the water resources of the region, the Commission may require that the exempt facilities be modified in structure or operation or may revoke this exemption.

(g) Article 7. The Commission may revoke this exemption if, in the application process, material discrepancies, inaccuracies, or falsehoods were made by or on behalf of the applicant.

(h) Article 8. Any exempted small hydroelectric power project that utilizes a dam that is more than 33 feet in height above streambed, as defined in 18 CFR 12.31(c) of this chapter, impounds more than 2,000 acre-feet of water, or has a significant or high hazard potential, as defined in 33 CFR Part 222, is subject to the following provisions of 18 CFR Part 12, as it may be amended:

(1) Section 12.4(b)(1)(i) and (ii), (b)(2)(i) and (iii), (b)(iv), and (b)(v);

(2) Section 12.4(c);

(3) Section 12.5;

(4) Subpart C; and

(5) Subpart D.

For the purposes of applying these provisions of 18 CFR Part 12, the exempted project is deemed to be a licensed project development and the owner of the exempted project is deemed to be a licensee.

(i) Before transferring any property interests in the exempt project, the exemption holder must inform the transferee of the terms and conditions of the exemption. Within 30 days of transferring the property interests, the exemption holder must inform the Commission of the identity and address of the transferee.

D3a. Agency Comments - The U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the State Fish and Game agency(ies) are requested, for the purposes set forth in Section 408 of the Energy Security Act of 1980, to file within 60 days from the date of issuance of this notice appropriate terms and conditions to protect any fish and wildlife resources or to otherwise carry out the provisions of the Fish and Wildlife Coorination Act. General comments concerning the project and its resources are requested; however, specific terms and conditions to be included as a condition of exemption must be clearly identified in the agency letter. If an agency does not file terms and conditions within this time period, that agency will be presumed to have none. Other Federal, State, and local agencies are requested to provide any comments they may have in accordance with their duties and responsibilities. No other formal requests for comments will be made. Comments should be confined to substantive issues relevant to the granting of an exemption. If an agency does not file comments within 60 days from the date of issuance of this notice, it will be presumed to have no comments. One copy of an agency's comments must also be sent to the Applicant's representatives.

Kenneth F. Plumb
Secretary

B. Comments, Protests, or Motions to Intervene - Anyone may submit comments, a protest, or a motion to intervene in accordance with the requirements of the Rules of Practice and Procedure, 18 C.F.R. §§385.210, .211, .214. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a motion to intervene in accordance with the Commission's Rules may become a party to the proceeding. Any comments, protests, or motions to intervene must be received on or before the specified comment date for the particular application.

C. Filing and Service of Responsive Documents - Any filings must bear in all capital letters the title "COMMENTS", "NOTICE OF INTENT TO FILE COMPETING APPLICATION", "COMPETING APPLICATION", "PROTEST", or "MOTION TO INTERVENE", as applicable, and the Project Number of the particular application to which the filing is in response. Any of the above named documents must be filed by providing the original and those copies required by the Commission's regulations to: Kenneth F. Plumb, Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426. An additional copy must be sent to: Fred E. Springer, Director, Division of Project Management Branch, Office of Hydropower Licensing, Federal Energy Regulatory Commission, Room 208 RB at the above address. A copy of any notice of intent, competing application or motion to intervene must also be served upon each representative of the Applicant specified in the particular application.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. BOX 1518
CONCORD, NEW HAMPSHIRE 03301

4.6.1

REF: FERC NO. 7791

FEB 14 1985

Ms. H. Orianna Roth
Rivers Engineering Corp.
217 Rockingham Road
Londonderry, New Hampshire 03053

RECEIVED FEB 15 1985

Dear Ms. Roth:

This responds to your letter of January 18, 1985, which transmitted for our review and comment Exhibits A, B, and E for the Ashuelot Paper Power Project, located on the Ashuelot River in Cheshire County, New Hampshire. These comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Ashuelot River is a component stream of the Connecticut River Anadromous Fishery Restoration Program. Provision of fish-passage facilities is in the deferred category, which means that facilities will not be needed for the next 15-20 years, if at all. A decision regarding what type of facilities (i.e., fish ladders or trap and trucking) likewise will not be made at least until then. However, since exemptions are granted in perpetuity, it is necessary to include a condition regarding fish passage.

S.F.

Recent action by the FERC (order Issuing Exemption for Project No. 6267) defers to fish and wildlife agencies any future assessment of cumulative impacts of exempted hydroelectric projects on fish and wildlife resources. Article 9 of that order gives the FWS the right to add and alter terms and conditions during the life of the project to carry out its responsibilities. Accordingly, such a condition will be included in this exemption. The Exemptee will, of course, be consulted if additional conditions become necessary.

?

To comply with the condition requiring flow monitoring, you should place a permanent "mark" upstream and downstream of the project, calibrated to the required minimum flow. The procedure for accomplishing this is described in the U.S. Geological Survey publication TWI 3-A8, and can be obtained from the U.S. Geological Survey, Eastern Distribution Branch, 604 S. Pickett St., Arlington, Virginia 22304. Your plan for monitoring compliance with flow releases should be submitted to us for approval within six months from the date of issuance of an exemption, and following our approval, implemented when the project commences operation.

Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act require inclusion in the exemption of all terms and conditions that are prescribed by State and Federal fish and wildlife agencies to prevent loss of,

or damage to, fish and wildlife resources, and to otherwise carry out the purposes of the Fish and Wildlife Coordination Act. Consistent with our responsibilities, the following terms and conditions are provided:

1. The Exemptee shall provide an instantaneous minimum discharge below the project of at least 205 cfs (0.5 cfsm) or inflow to the project, whichever is less, to protect downstream aquatic resources.

2. The Exemptee shall provide fish-passage facilities at this project when prescribed by the U.S. Fish and Wildlife Service and/or the New Hampshire Fish and Game Department.

3. The Exemptee shall notify the Fish and Wildlife Service in writing when the project commences operation. Such notice shall be sent within 30 days of start-up to Supervisor, Ecological Services, U.S. Fish and Wildlife Service, P.O. Box 1518, Concord, New Hampshire 03301.

4. The Exemptee shall allow public access to the project area for utilization of public resources, subject to reasonable safety and liability limitations.

5. The Exemptee shall, within six months of the date of issuance of an exemption from licensing, present to the Fish and Wildlife Service for approval a plan for monitoring instantaneous flow releases at this project. Following approval of the plan, the Exemptee shall implement the plan upon commencement of project operation.

6. The Exemptee shall allow the Fish and Wildlife Service to inspect the project area at any time while the project operates under an exemption from licensing to monitor compliance with their terms and conditions.

7. The Fish and Wildlife Service is reserved the right to add and alter terms and conditions as appropriate to carry out its responsibilities during the life of the project with respect to fish and wildlife resources. The Exemptee shall, within thirty (30) days of receipt, file with the Commission any additional terms and conditions imposed by the above agency.

8. The Exemptee shall incorporate the aforementioned fish and wildlife conditions in any conveyance -- by lease, sale or otherwise -- of his interests so as to legally assure compliance with said conditions for as long as the project operates under an exemption from licensing.

If you have any questions about the contents of this letter, please call Mr. Bob Scheirer of my staff, at (603) 224-2585.

In order to acknowledge receipt of this letter, please sign the enclosed copy and return as soon as possible.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor
New England Field Office

Enclosure
As Stated

I have received this letter.

_____ (signed)

_____ (date)

STATE OF NEW HAMPSHIRE

FISH AND GAME DEPARTMENT

CHARLES E. BARRY
EXECUTIVE DIRECTOR

Box 2003
34 Bridge Street
Concord, N.H. 03301
(603) 271-3421

June 14, 1985

Mr. Kenneth Plumb, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D. C. 20426

Re. NH Dam #255.01
Ashuelot Paper Company Dam
Ashuelot River, Winchester, NH
Project No. 7791
COMMENTS

Dear Mr. Plumb:

Thank you for the opportunity to provide comments on the application for exemption (5 MW or less) for the above referenced project. The New Hampshire Fish and Game Department is providing comments pursuant to the Fish & Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et. seq.) and New Hampshire RSA 206:9 and 206:10.

The New Hampshire Fish and Game Department stipulates the following as binding conditions of the exemption.

1. That an instantaneous flow of 205 c.f.s. (0.5 CFSM) or inflow, whichever is less, be released at the dam.
2. That upstream and/or downstream fish passage facilities be incorporated into the project when deemed necessary by the New Hampshire Fish & Game Department, U. S. Fish & Wildlife Service and/or National Marine Fisheries Service.
3. That the conditions of the exemption be transferred by sale or lease of the project in order to protect the interests of fish and wildlife.
4. That the Exemptee notify the Fish & Game Department and U. S. Fish & Wildlife Service when the project goes on line.
5. That reasonable access to the river for fishermen be provided at the project.
6. The Exemptee shall, within six months of the date of issuance of the exemption from licensing, present to the Fish & Game for approval a plan for monitoring instantaneous flow releases at this project. Following approval of the monitoring plan, the Exemptee shall then measure instantaneous flows and provide records of discharge at the project on a regular basis as per specifications of the Fish & Game Department. Upon receiving a written request from the Exemptee, the New Hampshire Fish & Game Department may waive the requirement for flow monitoring at this project provided the Exemptee satisfactorily demonstrates that the required flow will be discharged at all times.

7. The Exemptee shall allow the Fish & Game Department to inspect the project area at any time while the project operates under an exemption from licensing to monitor compliance with their terms and conditions.

8. The Fish and Game Department is reserved the right to add and alter terms and conditions as appropriate to carry out its responsibilities during the life of the project with respect to fish and wildlife resources. The Exemptee shall, within thirty (30) days of receipt, file with the Commission any additional terms and conditions imposed by the above Agency.

Sincerely yours,

Charles E. Barry
Executive Director

CEB:WCI:emb
cc: Fred Springer, Director, Office of Hydropower Licensing, FERC
Gordon Beckett, Supvr., New England Area Office, USF&WS
Thomas Bigford, Habitat Branch Chief, NER, NMFS-NOAA
James C. Katsekas, Rivers Engineering Corp.
William C. Ingham, Jr., Fish & Wildlife Ecologist, NHF&GD

Cleantech analytics LLC

Peter Drown
Cleantech Analytics LLC
2665 Prosperity Avenue, #320
Fairfax, VA 22031

Thursday, March 19, 2015

Dr. Michael J. Sale
Executive Director
Low Impact Hydropower Institute

Subject: Recertification Recommendation for the Ashuelot River Hydroelectric Projects

Dear Mike:

This letter contains my recommendation for recertification of the Ashuelot Hydroelectric Project, comprised of the Ashuelot Hydroelectric Project (FERC #7791) and the Lower Robertson Hydroelectric Project (FERC #8235) (collectively, the "Project").

I. Recertification Standards

The December 27, 2013 letter to applicant notifying of upcoming expiration of Low Impact Hydropower Institute certification, included the Standards for Recertification providing that a "request for renewal of a previously-issued LIHI certification ("recertification") will be granted at the conclusion of the term of the existing certification if re-certification is desired by the certificate holder, and so long as (I) there have been no "material changes" at the facility that would affect the certification and (2) LIHI's certification criteria have not been revised since the previous certification was issued by LIHI."

The Recertification review criteria also provides that "If the Application Reviewer can definitively determine from the submitted application materials, a review of the LIHI file containing the past certification decision(s), any public comments received during the application process, and any limited reviewer-initiated questioning by LIHI of the applicant and/or third parties, that the answer to both questions above is "no," the Application Reviewer will recommend re-certification approval to LIHI's Executive Director, and there will be no further application review."

II. No Further application review is recommended.

The Project received an Exemption (#7791, 8235) from the Federal Energy Regulatory Commission on July 31, 1986. The Project was initially certified by LIHI as "Low Impact" in June 24, 2009. The applicant submitted a timely application for recertification on April 9, 2014. Due to an administrative backlog at LIHI in processing applications, a certification extension was provided until December 31, 2015.

The application was public noticed and received one comment from Barbara Skuly of the Ashuelot River Local Advisory Committee (ARLAC) on November 3, 2014. The letter recognized the efforts of the owner and that the facilities have "shown themselves to qualify as low impact." However, the letter noted concerns regarding impact of the facilities on resident non-migratory fish populations, and suggested the owner support studies to determine the impact of the facilities on passage of resident fish species.

Downstream fish passage facilities were installed at the facilities in 1999 and 2001 (Robertson and Ashuelot, respectively.) During migration season, ARH passes 25 cfs through downstream sluices, and installs bars on the facility's trashracks at approximately ¾ inch spacing to keep fish out of the turbines. Upstream passage facilities are required to be installed when certain fish passage triggers at downstream Fiske Mill project are met, specifically within 2 years after 750 American Shad are passed or within 4 years after 150 shad are passed. ARH has agreed to construct alternative fishway designs in consultation with and according to the schedule prescribed by the resource agencies. Upstream fish passage at the Fiske Mill project was completed in 2012. Melissa Grader, Fish and Wildlife Biologist from the USFWS was contacted to determine whether this trigger had been reached, and confirmed it had not.

In the original 2009 certification, the Connecticut River Watershed Council made a similar comment regarding fish passage effectiveness. In the Reviewer's Report: "LIHI acknowledges and respects the CRWC's position, but we disagree with it. LIHI's consistent approach to delayed implementation, is to certify projects where the Applicants have accepted their FERC license (includes FERC Exemptions), and by doing so have made a legal commitment to comply with license conditions, even those that don't come in to play for years."

In addition to maintaining downstream fish passage facilities, the applicant has maintained a legal commitment to comply with upstream fish passage once the trigger is met, and therefore has maintained compliance with LIHI criteria. Due to the good-faith efforts of the applicant to maintain effective passage needs at the project site, additional studies for non-migratory fish are not warranted at this time.

III. There have been no "material changes" at the facility that would affect the certification.

In accordance with the Recertification Standards, "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. Based on my review of materials provided, review of FERC's public records, and consultation with the noted individuals, I found that there are no instances of noncompliance or new or renewed issues of concern.

Since the original certification, the only changes to the physical facility are the installation of a canoe portage trail (referenced below,) and the replacement of flashboards and stop logs with two Obermeyer Crest Gate systems. However, this is for safety reasons and they are not changing the impoundment level, therefore no effect on LIHI criteria should have resulted from the changes.

The LIHI Board provided the following nonstandard project conditions for the Ashuelot River Project during its certification in 2009:

1. The certificate holder shall complete a recreational access plan, obtain the concurrence of appropriate stakeholders, and submit the plan to FERC by February 28, 2010; thereafter, the certificate holder shall abide by the terms of that plan; and,
2. No later than December 31, 2010, file a report with LIHI demonstrating that the Ashuelot River Project meets applicable New Hampshire surface water quality standards.

The recreational access plan was required in response to a comment from ARLAC about better recreational access at the site in response to local boating clubs. In 2010, in consultation with these stakeholders, ARH completed installation of a canoe portage trail (see Figure 1,) enhancing the

recreational opportunities available at the project and therefore meeting this requirement. I believe this fulfills the intent of the recreational access condition.

Figure 1 - Canoe Portage Trail completed at Ashuelot

In response to condition #2, the applicant informed LIHI about additional Water Quality sampling in 2010, and that the results from additional testing was done in cooperation with the New Hampshire Department of Environmental Service. The *2010 Ashuelot River Watershed Water Quality Report*[1] provides evidence that the project meets both qualitative and numerical water quality criteria. The samples upstream, Route 119 in Winchester and downstream, 147 River Street in Hinsdale, had nearly all samples meet NH Class B Standards (see table below). The one exception is pH, where 3 out of 5 of the downstream sample met Class B Standards and 0 out of 5 of the upstream met these standards. However, the NHDES notes in the report: "lower pH measurements are likely the result of natural conditions such as the soils, geology, or the presence of wetlands in the area. Rain and snow falling in New Hampshire is relatively acidic, which can also effect pH levels; after the spring melt or significant rain events, surface waters will generally have a lower pH." This report fulfills condition #2 of the original LIHI certification.

	Route 119	**147 River Street**	**NH Class B Standard**
Dissolved Oxygen (mg/L)	6.77 - 8.36	7.9 - 9.57	5.0+
pH (level)	5.75 - 6.46	6.43 - 7.19	6.5-8.0
Turbidity (NTU)	0.8 - 2.1	0.65 - 1.2	<10
Specific Conductance (µS/cm)	115 - 240.7	118.1 - 248.4	835
Water Temp. (°C)	16.3 - 24.6	16.7 - 24.0	n/a
E.coli (cts/100ml)	52-613	28-65	<406
Phosphorous (mg/l)	0.021 - 0.024	0.021 - 0.034	qualitative, facility meets
Chloride (mg/l)	22 - 53	24 - 50	<230

Table 1 - Ashuelot River Water Quality Data (2010)

[1] http://des.nh.gov/organization/divisions/water/wmb/vrap/ashuelot/documents/ash_data10.pdf

IV. LIHI's criteria have been revised since last recertification, but none of the changes affect this project.

On November 20, 2014, the Governing Board of the Low Impact Hydropower Institute (LIHI) approved revised Criteria to be used in LIHI's certification decisions, and will soon be announcing those changes. The full details of the transition and implementation from previous approaches have not yet been published. A revised LIHI Handbook is pending, and the implementation of revised criteria will likely be phased in over the first half of 2015. All facilities applying for recertification in the first half of 2015 (January – June) will be reviewed under the previous criteria, unless the certificate holder voluntarily requests the application of the newer, revised criteria.

This facility originally applied for recertification in September of 2014, so the new changes in criteria do not affect recertification.

V. Conclusion

Considering the above factors, I recommend recertification of the Ashuelot River Hydroelectric Project.

Please contact me with any questions.

Regards,

Peter R. Drown
Cleantech Analytics LLC

Cleantech analytics LLC

Attachment 1
Agency and Applicant Communications

Date: 03/17/2015
Contact Person: Robert King, P.E.
Agency: N/A (Ashuelot River Hydro, Inc.)
Title: President

Robert King, President of Ashuelot River Hydro Inc., was contacted in regards to a 2010 letter on FERC e-library from his company to the USFWS regarding the applicant's potential interest in raising the Lower Robertson pond level. Bob had initially reached out to agencies to gauge their response to such a plan, prior to filing a license amendment. Bob informed me that he decided against pursuing the plan hearing back from USFWS.

Date: 03/17/2015
Contact Person: Melissa Grader
Agency: U.S. Fish and Wildlife Service
Title: Fish and Wildlife Biologist

Melissa Grader was contacted to understand whether the trigger had been received yet at the below Fiske Mill Project that would require installation of upstream fish passage at Lower Robertson and Ashuelot Projects. Melissa responded that the trigger had not yet been met.

The State of New Hampshire

Department of Environmental Services

Robert R. Scott, Commissioner

March 5, 2019

Robert E. King, P.E., Pres.
Ashuelot River Hydro, Inc.
42 Hurricane Road
Keene, NH 03431

RE: Water Quality Monitoring Recommendations for Low Impact Hydropower Institute Recertification of the Ashuelot Hydroelectric Project (FERC Exemption No. 7791) and the Lower Robertson Hydroelectric Project (FERC Exemption No. 8235), Ashuelot River

Dear Mr. King:

The New Hampshire Department of Environmental Services (NHDES) understands that Ashuelot River Hydro, Inc. (ARH) has applied for Low Impact Hydropower Recertification from the Low Impact Hydropower Institute (LIHI) for the Ashuelot Hydroelectric Project (FERC Exemption No. 7791) and the Lower Robertson Hydroelectric Project (FERC Exemption No. 8235) on the Ashuelot River in Winchester, NH. In order to receive LIHI recertification, you need a statement from the New Hampshire Department of Environmental Services (DES) stating that the upstream and downstream reaches of the Ashuelot River are in compliance with New Hampshire water quality standards pursuant to the federal Clean Water Act. Table 1 provides the current assessment status of the parameters of concern included in the monitoring plan outlined in a later section of this letter. The information provided in Table 1 is derived from DES's draft 2018 305(b)/303(d) report.

Table 1. Assessment Status for Water Quality Monitoring Parameters at the Ashuelot Hydroelectric Project and Lower Robertson Hydroelectric Project

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		Dissolved Oxygen (% Saturation)	Aquatic Life	No Data
		Chlorophyll-a	Primary Contact Recreation	No Data
			Aquatic Life	No Data
		Total Phosphorus	Aquatic Life	No Data
		Water Temperature	Aquatic Life	No Data
NHRIV802010403-12 03T-ASH	Downstream of Lower Robertson Dam	Dissolved Oxygen (mg/L)	Aquatic Life	No Data
		Dissolved Oxygen (% Saturation)	Aquatic Life	No Data
		Chlorophyll-a	Primary Contact Recreation	No Data
		Total Phosphorus	Aquatic Life	No Data
		Water Temperature	Aquatic Life	No Data

NHIMP802010403-01 04-ASH	Lower Robertson Dam Impoundment	Dissolved Oxygen (mg/L)	Aquatic Life	No Data
		Dissolved Oxygen (% Saturation)	Aquatic Life	No Data
		Chlorophyll-a	Primary Contact Recreation	No Data
		Total Phosphorus	Aquatic Life	No Data
		Water Temperature	Aquatic Life	No Data

In order for NHDES to determine if the Ashuelot Hydroelectric Project and the Lower Robertson Hydroelectric Project are currently causing or contributing to water quality standard violations, new monitoring data and facility information is needed. The maximum age of river data NHDES can use to determine if the river is meeting surface water quality standards is five years. This aligns with LIHI's requirement that certifications be renewed every five years.

Environmental data and project information is needed to address the following water quality concerns that are typically associated with hydropower projects:

1. Impact on ambient water quality criteria;
2. Impact of pond fluctuations on aquatic habitat;
3. Maintenance of adequate minimum flows to protect downstream aquatic life; and
4. Adequate upstream and downstream fish passage.

Specifics are provided below:

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Water quality parameters most susceptible to impact from hydroelectric projects typically include dissolved oxygen, water temperature, chlorophyll-a and total phosphorus. Samples are typically collected upstream and downstream of the dam and if applicable in the bypass reach. Based on our current understanding of the project, the following is recommended.

Table 2 provides the water quality sampling locations NHDES recommends be used for recertification sampling. Recommended parameters and frequency of monitoring are provided in Table 3 below. Exact sampling locations will need to be confirmed based on field conditions, access, and secure locations for deployment of dataloggers.

Table 2. Recommended Sampling Locations for Water Quality Monitoring at the Ashuelot Hydroelectric Project and the Lower Robertson Hydroelectric Project

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NHRIV802010403-12	Downstream of Lower Robertson Dam	03T-ASH	43.788643	-72.444860
NHIMP802010403-01	Lower Robertson Dam Impoundment	04-ASH	42.787781	-72.440189

Table 3. Recommended Water Quality Monitoring for LIHI Recertification - Ashuelot Hydroelectric Project and the Lower Robertson Hydroelectric Project

Site ID	Location	Parameters	Frequency
NHRIV802010403-17 03-ASH	Downstream of Ashuelot River Dam	Continuous dissolved oxygen (mg/L and % Saturation) and water temperature collected with dataloggers	At least 10 days of data collected at 15 minute increments that includes the following conditions: • Power is actively being generated • Low flow conditions (≤3 x 7Q10) • Water temperature is over 23 degrees
		Total Phosphorus and Chlorophyll-a	10 samples - once a week for 10 weeks (from July through September)
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Prior to sampling, a sampling plan should be submitted to NHDES for approval which includes sampling locations, parameters to be sampled, sample timing and frequency, sampling and laboratory analysis protocols and quality control provisions.

With regards to quality assurance/quality control, the following should be included in the plan:

- During one sampling event a replicate sample should be collected for each parameter (total phosphorus /chlorophyll-a) for laboratory analysis.
- Multiparameter dataloggers and handheld meters should be calibrated on-site for dissolved oxygen before each sampling event according to the manufacturer's instructions. Calibration documentation and post deployment checks should be submitted with the datalogger data.
- Field sampling quality control should consist of 1) replicate analysis, 2) maintenance records, 3) field calibration and record of calibration, and 4) record of equipment used.
- Instrument and equipment maintenance should include: 1) checking field test kits to be sure all reagents are not contaminated and are not beyond expiration dates, 2) replacing reagents in accordance with manufacturer's recommendations, 3) calibrating equipment before each sampling event, and 4) recording of maintenance and calibration activities.
- Chain of custody forms and information regarding laboratory standard methods should be submitted to NHDES with the data.

The sampling plan should specify that the continuous water quality data (i.e., dissolved oxygen and water temperature) will be collected under near critical low flow and relatively high water temperature conditions. The 7Q10 low flow is typically considered the critical low flow. However, because the 7Q10 flow occurs relatively infrequently (i.e., on average once every 10 years), NHDES typically recommends that sampling occur during slightly more frequent flows (i.e., at or below 3 x 7Q10). This provides an idea of near critical conditions and has a better chance of occurring in any given year. The United States Geologic Services maintains a stream gage (USGS 01161000) in Hinsdale, NH on the Ashuelot River approximately a mile and a half downstream of the Ashuelot River Dam. Data from this gage can be used to estimate when the Ashuelot River is flowing below 3 x 7Q10 low flow conditions at the monitoring stations. The 3 x 7Q10 value for USGS stream gage 01161000 is 137 cfs. During the sampling period the Ashuelot River Dam and Lower Robertson Dam should be operating under normal operating procedures which includes times when power is being generated..

All water quality and water quantity data should be submitted to NHDES electronically and in a form that can be automatically uploaded into the NHDES Environmental Monitoring Database (EMD). Information on uploading data to the EMD can be found at http://des.nh.gov/organization/divisions/water/wmb/emd/index.htm or by contacting Melanie Cofrin at (603) 271-1152 or Melanie.Cofrin@des.nh.gov. In addition to water quality results, data on flow through the turbines, as well as power generation during the study period should also be provided.

2. Pond Fluctuation

Pond fluctuations due to operation of hydroelectric projects can negatively impact aquatic habitat and aquatic life. To determine the impact of pond fluctuations on aquatic life, the following information is requested:

a. A description and schematic of the project including the dam height, length, control structures and elevations, crest elevation, flashboard elevations, and impoundment depth, elevation, area and volume at full pool, normal and maximum drawdown elevations;
b. Timing, frequency, duration and magnitude of drawdowns
c. Historical water level fluctuations over the past 5 years
d. Map of fringing wetlands preferably delineated from high-resolution aerial photography

e. An estimate of the average and maximum percent of the littoral zone (preferably based on accurate bathymetry) that is dewatered as well as average and maximum duration of dewatering for each quarter of the calendar year

NHDES requests a statement from the applicant which identifies any changes to the information provided during the original LIHI certification process for the items listed above.

3. Minimum Flows

To determine if adequate flow to support aquatic life is provided downstream of the facility, the following is typically needed:

a. Minimum flow requirements through the penstock and bypass reach (if applicable);
b. Length of bypass reach (include pictures);
c. Information on how the minimum flows were determined:
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e. Documentation proving compliance with minimum flow requirements for the past five years.

NHDES requests a statement from ARH outlining any current minimum flow requirements that were established via LIHI certification, FERC regulations or any other source. NHDES also requests that ARH provide a statement from the U.S. Fish and Wildlife Service (USFWS) and New Hampshire Fish and Game (NHFG) that the current minimum flow requirements and the monitoring of minimum flows are adequate for the protection of aquatic life or if adjustment to the minimum flow requirements are recommended.

4. Fish Passage

To address fish passage concerns, DES requests an update from ARH of any fish passage requirements that have been established via the LIHI certification process and an update as to how any requirements were implemented. DES will also need notification from the New Hampshire Fish and Game Department (NHFG) and the U.S. Fish and Wildlife Service (USFWS) stating that they are satisfied with upstream and downstream fish passage provisions associated with the subject project. Copies of correspondence with NHFG and USFWS should be provided to DES. Contact information is provided below.

Carol Henderson and John Magee
NH Fish and Game Department
11 Hazen Drive, Concord, NH 03301
603-271-3511
carol.henderson@wildlife.nh.gov
john.magee@wildlife.nh.gov

Julianne Rosset
New England Field Office, U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541 - ext.15
julianne_rosset@fws.gov

Once all of the data has been submitted, NHDES will make a determination regarding compliance of the project with NH water quality standards. Should you have any questions regarding these recommendations or wish to arrange a meeting, please contact me at (603)271-2083 (ted.walsh@des.nh.gov).

Sincerely,

Ted Walsh, Surface Water Monitoring Coordinator
NHDES Watershed Management Bureau

Cc: Shannon Ames, LIHI
Maryalice Fisher, LIHI
Carol Henderson, NHFG
John Magee, NHFG
Julianne Rosset, USFWS
Sam Payne, ARH

The State of New Hampshire

Department of Environmental Services

Robert R. Scott, Commissioner

March 5, 2019

Robert E. King, P.E., Pres.
Ashuelot River Hydro, Inc.
42 Hurricane Road
Keene, NH 03431

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Sincerely,

Ted Walsh, Surface Water Monitoring Coordinator
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Cc: Shannon Ames, LIHI
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Sam Payne, ARH

96 FERC ¶ 62,060

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Algonquin Power (America) Inc. Project No. 7791-015

ORDER APPROVING DOWNSTREAM FISH PASSAGE FACILITY PLAN

(Issued July 20, 2001)

On July 19, 2001, Algonquin Power (America) Inc. (exemptee) filed a downstream fish passage facility plan and functional design drawings pursuant to article 2 of the exemption from license for the Ashuelot Generating Station. The project is located on the Ashuelot River, near Winchester, New Hampshire.

Background

Article 2 of the exemption from license, issued July 31, 1986, requires the exemptee to comply with any terms and conditions stipulated by federal or state resource agencies for the protection of fish and wildlife resources. By letters dated February 14 and June 14, 1985, the U.S. Fish and Wildlife Service (FWS) and the New Hampshire Fish and Game Department (FGD), respectively, stipulated that upstream and downstream fish passage facilities must be incorporated into the project when prescribed by the FWS or the FGD. By letter dated November 3, 1995, the FWS informed the previous exemptee that a downstream fish passage facility was required to safely pass Atlantic salmon smolts.

Exemptee's plan and drawings

The exemptee's plan includes a description of the project, the facility to be constructed, and a schedule and mitigative measures. The plan also includes two design drawings, showing the proposed facility as described in the plan.

The exemptee proposes to construct a downstream fish bypass on the bank side of the powerhouse that would consist of a collection box, located just behind an open section of trashrack. The box will connect to a 30-inch-diameter pipe, capable of discharging up to 40 cubic feet per second (cfs) of flow.

The exemptee proposes to install the facility during late July -August 2001. Construction duration is estimated at two weeks. To facilitate construction of the bypass, the project headpond will be drawn down from four to five feet, thereby eliminating the

need for construction of cofferdams. After completion of the facility, the exemptee would provide a minimum flow below the project equal to 0.5 cfs per square mile of drainage area during refilling of the impoundment.

Agency comments

By letter dated April 24, 2001, the FWS commented on the plans for the downstream fish bypass facility. The exemptee reported in its filing that the FGD had deferred to the FWS on specific concerns with the design of the bypass.

The FWS noted that the functional design plans for the subject project were essentially similar to the facility developed at the Lower Robertson Project (FERC No. 8235), also located on the Ashuelot River, and stated that they do not object . The only concern expressed by the FWS was that the pipe shown on one of the drawings ends before the first strut in the tailrace. The FWS recommends that the pipe should be extended to discharge between the struts in the tailrace in such a manner that fish are not injured by impacting a strut. The FWS also agreed with the exemptee that the drawdown is a necessary construction method that will expedite construction of the bypass.

Discussion

The exemptee's plan fulfills the requirements of the conditions of its exemption from license. The exemptee consulted with the appropriate agencies and designed a facility that is similar to another facility on the Ashuelot River and generally meets the requirements of the FWS. The exemptee should, however, consider extending the pipe to ensure that emigrating salmon smolts do not impact the struts in the tailrace upon discharge from the bypass pipe.

Environmental impacts from construction of the project are expected to be minor and of short duration. Construction of the facility is scheduled during the low flow time of year and the drawdown during a period of limited, if any, fish movement through the area. Refilling of the impoundment post construction has been designed to be least disruptive and to protect downstream resources. Operation of the bypass should facilitate the safe downstream passage of salmon and the salmon restoration program for the Connecticut River basin. Accordingly, the exemptee's plan, as modified, should be approved.

The Director Orders:

(A) The exemptee's proposed downstream fish passage plan, filed July 19, 2001, as modified in paragraphs B, C and D, is approved.

(B) The exemptee shall ensure that the bypass pipe discharges Atlantic salmon smolts safely into the tailrace of the project and that the smolts do not impact project structures. The Commission reserves the authority to require modifications in the structure or operation of the downstream fish passage facility to ensure effective and safe downstream fish passage.

(C) The exemptee shall, prior to the start of construction, submit the plans and specifications package and a quality control and inspection program to the Regional Director. Authorization to start construction activities will be given by the Regional Director after all preconstruction requirements are satisfied.

(D) The exemptee shall file, with the Commission for approval within 90 days of completion of the downstream fish passage facility, as-built drawings depicting the final specifications and locations of the completed fish passage facility.

(E) 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.

George H. Taylor
Group Leader
Division of Hydropower Administration
and Compliance

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

JUL 30 2001

FEDERAL ENERGY REGULATORY COMMISSION
NEW YORK REGIONAL OFFICE
19 WEST 34th STREET - SUITE 400
NEW YORK, NEW YORK 10001

Telephone No. (212) 273-5900

FAX No. (212) 631-8124

In reply refer to:
P-8235-NH

NATDAM # - NH00276

Downstream Fish Passage
Plan Review

January 8, 1999

Mr. Sean Fairfield
Algonquin Power Systems
2085 Hurontario Street, Suite 210
Mississauga, Ontario L5A 4G1

Dear Mr. Fairfield:

We received your letter of December 22, 1998 with attached plans for the construction of a downstream fish passageway at the Lower Robertson Project. From our review of the plans, it is our understanding that the construction will involve coring a hole through the downstream concrete wall of the right-most turbine intake bay to allow penetration of a 24-inch diameter pipe.

Based on our review, it has been determined the proposed construction as shown on the furnished plans would not affect the project from performing its intended function and is therefore acceptable. Authorization to perform the construction is granted upon obtaining approval from all required federal and local agencies, and obtaining the necessary permits.

It is assumed from our review of the plans that a cofferdam will not be required to perform the construction, nor will there be any ground-disturbance. Should a cofferdam be utilized or excavation be required, you must submit appropriate plans for our review prior to construction.

JAN 1 9 1999

Your cooperation in this matter and continue interest in dam safety is appreciated. Should you have questions, please contact Mr. Richard Deubert at (212) 273-5933.

Sincerely,

Anton J. Sidoti
Director

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Office
22 Bridge Street, Unit #1
Concord, New Hampshire 03301-4986

REF: FERC Nos. 7791 and 8235

October 15, 1998

Mr. Sean Fairfield
Algonquin Power Systems
2085 Hurontario Street, Suite 210
Mississauga, Ontario
Canada L5A 4G1

Dear Mr. Fairfield:

As we discussed at our September 23, 1998 meeting, we have had our Regional Engineering Office review the downstream fish passage plans developed in September 1996 by Lakeside Engineering for the Ashuelot Paper and Lower Robertson projects, located on the Ashuelot River, New Hampshire.

Our engineering comments and recommendations are attached. In general, Lakeside Engineering's September 1996 plans are acceptable, except for the amount of flow that must be passed through the fish bypass facilities. Current criteria for passage devices would require a fish bypass flow of 40 cfs at each project. To accommodate this flow, the size of the bypass weir opening and perhaps the collection box will need to be increased and the opening to the bypass pipe needs to be expanded as described in the attachment. Alternatively, a second bypass system could be installed across the other side of the intake.
We recommend that the September 1996 drawings be modified to reflect the recommended design changes and that you forward the revised drawings for our review and comment, prior to submittal to the FERC for approval.

We appreciate this opportunity to comment. If you have any questions, please contact me at (603) 225-1411.

Sincerely,

John P. Warner
Energy Coordinator
New England Field Office

Attachment

OCT 22 1998

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087

JUL 18 2006

REF: FERC Nos. 7791 and 8235
Algonquin Power

July 12, 2006

Sean Fairfield
Algonquin Power
2845 Bristol Circle
Oakville, Ontario
Canada L6H 7H7

Dear Mr. Fairfield:

This responds to the revised draft functional design drawings submitted to us by letter dated March 14, 2006. The revised plans are for upstream fish passage facilities at the Ashuelot and Lower Robertson Projects, located on the Ashuelot River in Cheshire County, New Hampshire. We have reviewed the plans and other issues raised in your letter and offer the following comments.

Generally, the revised drawings incorporate most of the comments we provided to you in our April 21, 2004 letter. However, a few significant issues remain to be resolved.[1]

REVISED DESIGNS

Ashuelot Paper

The fish lift plans still do not conform to our standard design criteria for the target species:

- The lift should include a 3-foot-wide gated single entrance with a V-trap able to operate up to 30 cfs.
- The exit channel must be at least four feet deep at the point where the fish are dropped, and velocities in the exit channel must be at least 1.0-1.5 feet per second. This means that, if the exit channel remains six feet wide, a minimum of 24 cfs would have to flow through the channel to maintain a velocity of at least 1.0 f/s (at a depth of four feet).
- The transport flow intake screen is too small for the higher flow required through the exit channel. At the proposed transport flow of 10 cfs, the 40-square-foot screen would have a velocity of 0.25 f/s, which meets the criterion (velocity no greater than 0.5 f/s). However, increasing the transport flow to 24 cfs would necessitate enlarging the intake screen somewhat (approximately 8 square feet) in order to bring velocities down below 0.5 f/s.

---

[1] Please refer to the attached Memorandum from Curt Orvis, fish passage engineer at our Regional Office, for detailed comments on the design plans.

Lower Robertson

The Denil ladder plans conform to our standard design criteria, with the following exceptions:

- As proposed, one sidewall retains jagged sheet-pile facing. This will have to be replaced with a smooth vertical wall in order to accept the baffles.
- The turnpool should be four feet wide at all points. From the plans, it appears that the center wall should be extended into the turnpool to maintain a uniform width.
- The distance between baffles should be 2.5 feet rather than the 2.67 feet shown in the plans. This equates to a total of 55 baffles, or six more than in the proposed design.

STATUS UPDATE

In your March 14, 2006 letter you state, "It is anticipated that any decision to prescribe the construction of the upstream passages will be respective to the economic ramifications to the current operations and that no decision will be made based on the observance of inconsistent fish target numbers at the base of Fiske Mill dam." You also request the opportunity to re-evaluate other upstream fish passage technologies prior to any decision to mandate construction at the two facilities.

We are unclear what is meant by inconsistent target numbers. Regardless, the Service does consider the economics of fishway projects when reviewing passage design plans. However, passage facilities must meet minimum design criteria to ensure that the facility operates effectively. Service design criteria have developed over many years, based on experience and research. If new studies indicate an alternative design would be equally effective but cost less, we likely would allow its construction (assuming it had been adequately field tested).

By way of example, Algonquin earlier had proposed installing Alaska steeppass ladders instead of lifts or Denil ladders. Unfortunately, while one published study indicated decent passage of American shad through a steeppass, subsequent studies (using longer ladders with turnpools) have not yielded similar results. Therefore, we determined that a steeppass design would not work at the Ashuelot projects.

We encourage Algonquin to investigate cost-saving measures, such as using alternative building materials. However, both short- and long-term costs should be considered in choosing materials. A less expensive building material may cost more over time due to higher maintenance and replacement costs.

Regarding a construction schedule, upstream passage facilities at both projects will have to be constructed simultaneously, as there is little suitable habitat between the two projects. As you probably know, Fiske Mill is constructing their upstream Denil ladder this year. If construction stays on schedule, the fishway should be operational by spring of 2007. Passage will be triggered at the Algonquin projects based on the number of fish passing the Fiske Mill Project.

To derive trigger numbers for these projects, we consider the amount of suitable habitat available between the Fiske Mill Dam and the Ashuelot Paper Dam. There are approximately 10 acres of impounded habitat and 14 acres of free-flowing habitat in this section of river. Some of the free-flowing habitat is unsuitable for spawning due to excessive velocities. Therefore, we estimate

that there are 15 acres of usable shad habitat. Using a production rate of 50 shad/acre,[2] this reach would be expected to support a maximum population of 750 shad. At this level, the habitat is considered to be saturated. This level of passage indicates a substantial population of shad migrating to the Ashuelot and successful passage at the Fiske Mill fishway, at which time upstream passage would be needed immediately. Given time for construction and permitting, passage facilities would need to be operational two years after reaching this trigger.

Another method for establishing a passage construction trigger uses 20% of the estimated shad production for a given reach, but allows time for population expansion prior to passage implementation. For the Ashuelot projects, 20% of the 750 shad population target is 150. This method assumes that if at least 150 shad spawn successfully in the Fiske Mill to Ashuelot Paper reach, their progeny would be expected to produce a return of adults to the system (3-6 years later) that would saturate the habitat. At this level of returns, providing additional time for final design and construction, coupled with additional time for Ashuelot River stock development, would be reasonable. Therefore, the alternate passage trigger would be the installation of passage facilities within four years from the passage of 150 shad above Fiske Mill Dam.

In conclusion, based on the calculation method we used for establishing the trigger number, the facilities will need to be to be operational either (1) within two years of Fiske Mill passing 750 shad,[3] or (2) within four years of Fiske Mill passing 150 shad (whichever occurs first).

If you have any questions regarding these comments, please contact Melissa Grader of this office at (413) 548-9138, extension 18.

Sincerely,

William J. Neidermyer

William J. Neidermyer
Assistant Supervisor, Federal Projects
New England Field Office

Enclosure

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2 Typical production rates for American shad range from a high of 118/acre to a low of 50/acre. Because the Ashuelot is a smaller system and its production potential is untested, we have used the more conservative rate of 50/acre.

3 Two years allows sufficient time to secure the necessary permits and complete construction.

Ashuelot River Hydro, Inc.
P.O. Box 194
Sullivan, NH 03445
(603) 847-9798

The Secretary, FERC
888 First St. NE, Mail Code: PJ-12.3
Washington, D.C. 20426

July 27, 2008

RE: Upstream Fish Passage at FERC No. 8235 Lower Robertson and
No. 7791 Ashuelot Hydroelectric Projects

Dear Secretary:

We are in receipt of your letter dated June 6, 2008 regarding upstream fish passage at the referenced projects. In response we wish to express our interest and enthusiasm in installing upstream passage in the near future. Our understanding is that fish passage at our Ashuelot project should be operational a year after the sooner of 750 shad through Fiske Mill in a single year or 150 shad through Fiske for four years running. Lower Robertson should be installed a year after Ashuelot. Please correct us if we are misinformed. We note the Fiske Mill lift is supposed to be operational this October. The spring 2009 shad run through Fiske should give all of us important additional data on the urgency of passage at our dams.

We have examined the fish passage designs and operational procedures produced by our predecessors at Algonquin Power. These seem workable to us, though we would defer to the experts at Fish & Wildlife regarding many details should we all agree to build these systems as currently depicted in the preliminary plans.

We are also investigating another method for fish passage offered by PRAqua of British Columbia. Their Pescalator is being used at U.S. F&W hatcheries and other facilities in the pacific northwest. Representatives of those installations have indicated good success, though they note problems with crowding the fish into the Pescalator. And we acknowledge that shad running rivers are quite different from salmon navigating hatcheries. We intend to visit a Pescalator installation this August in Seattle.

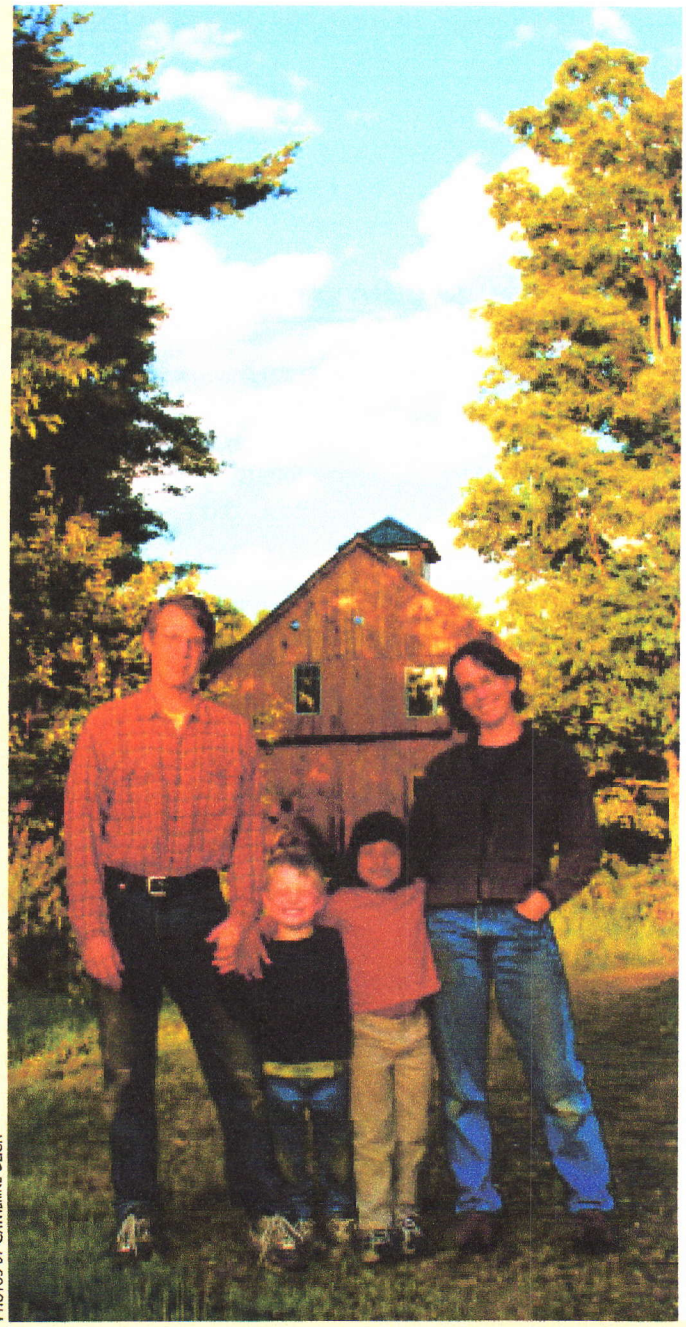
In preliminary discussions with John Warner of F&W, it is clear this system would not be accepted easily. Indeed we are not sure it is the best system. But we are considering alternatives that may have value at these sites as well as other sites throughout the region. We have calls into the Conte Lab about this alternative. Calls to the Keene, NH branch of NH Fish & Game were unanswered, though we will continue to try to reach that office. This fall, after visiting the Pescalator, we will ask for a meeting with representatives of the relevant agencies to discuss all the options. Please let us know if you have any questions.

Sincerely,

Robert E. King, President

Bringing Renewed Energy to Conservation

The reverberating effect of one couple's conservation ethic



PHOTOS BY CATHERINE BUCH

By Karen Finogle

Bob King and Annie Faulkner don't need to be convinced about the benefits of land conservation. They've built careers as champions of renewable energy and sustainability; framed their lifestyle choices around those concepts. And they've acquired land—sometimes for the sole purpose of making sure that it will remain undeveloped.

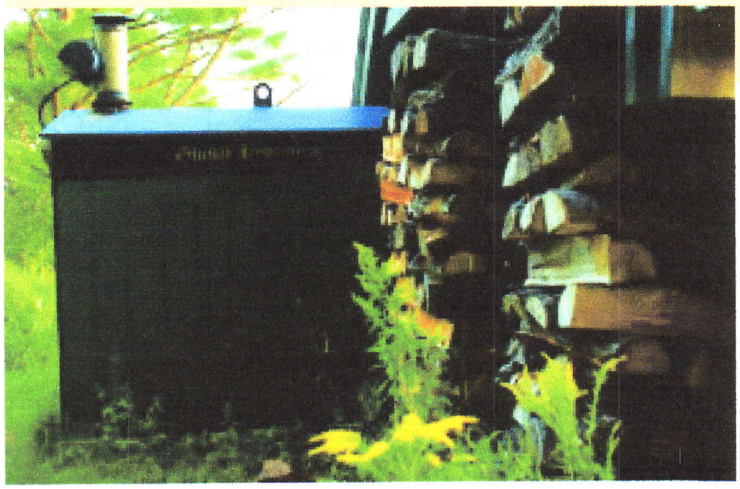
When an out-of-state landowner purchased a 645-acre parcel in Gilsum and Marlow, NH, not far from their home in Stoddard, King and Faulkner took notice—especially since it abuts the 11,200-acre Andorra Forest preserve, on which Faulkner's family had previously donated an easement to the Forest Society. They'd learned that the new landowner's past management practices elsewhere were less than sustainable—meaning that the forests were heavily cut and the land then proposed to be subdivided for potential development. So King and Faulkner made an unsolicited offer to buy the property.

"We got the land at a reasonable price," said King. "Initially, we just wanted to prevent the possible subdivision, which we saw coming. Previous landowners before us had drawn up 70-lot subdivision plans and things like this, and we really didn't want to see that happening. So we bought the land with that in mind."

To permanently protect the land, King and Faulkner subsequently donated a conservation easement on 641 acres to the Forest Society.

"The land was harvested hard by the previous landowner," said Brian Hotz, director of Land Protection for the Forest Society. "It was once a beautiful forest and it will be a beautiful forest again by managing it sustainably.

"The conservation value of the land is significant," Hotz said. "It falls within an identified priority conservation focus area of the New Hampshire Wildlife Action Plan, as well as within the Ashuelot River Land Conservation Plan and the Quabbin-to-Cardigan Conservation Plan. And it adds to a large, relatively



unfragmented landscape that provides critical habitat for moose, black bear, bobcat, fisher, snowshoe hare, ruffed grouse and numerous species of migratory songbirds." The easement also helps protect the water quality of the Ashuelot River, as two of the Ashuelot River's tributaries pass through the property.

Recent logging by past landowners has resulted in a mosaic of clear-cuts, regenerating hardwood areas and stands of mixed softwood. Most trees over 10 inches in diameter were removed. Once the forests have been allowed to recover, two-thirds of the land will be managed for sustainable forestry, ensuring the timber stand's long-term health and providing potential income for current and future owners. King and Faulkner also requested that one-third of the parcel, an area south of Trout Brook, be designated a Forever Wild natural area, which prohibits timber harvest, agriculture, road development or other more intensive uses.

"We talked about doing Forever Wild on the entire parcel, but on the other hand, we really like logging," King said. "I do a little bit of logging myself. We cut all our own trees for the barn we built. We have nothing against logging. We actually really admire all that it means; however, we believe in a balance, and on (this) parcel, it shook out as one-third wild and two-thirds managed."

King and Faulkner credit their land conservation ethic to having both grown up in families who spent a lot of time outdoors. Faulkner's family has a legacy of large easement donations in New England. Like many people, the couple sees the growing threat of unchecked development, of the conversion of more and more farmland to single-family housing or commercial establishments, as a call to action.

"We also were both pretty heavily touched by some friends we made in southern Chile who are doing huge scale wilderness conservation, on the millions of acres scale," King said. "It was actually after our honeymoon to Chile when we met these people that we really got fired up to start doing it ourselves. Since then, we've been back (to Chile) many times. I think they're up to 3 million acres that they've protected down there. That sort of gave us the kick in the pants to really start doing it ourselves."

King and Faulkner first donated land in 2001 to The Nature Conservancy of New Hampshire, and offered an easement on their property if the non-profit would also consider protecting two other properties in close proximity. The end result was 1,400 conserved acres. But King and Faulkner take their ethic beyond land conservation and extend it into every facet of their lives.

As Hotz put it, "Bob and Annie are leading by example—their conservation work and the way they manage their home and property speak volumes."

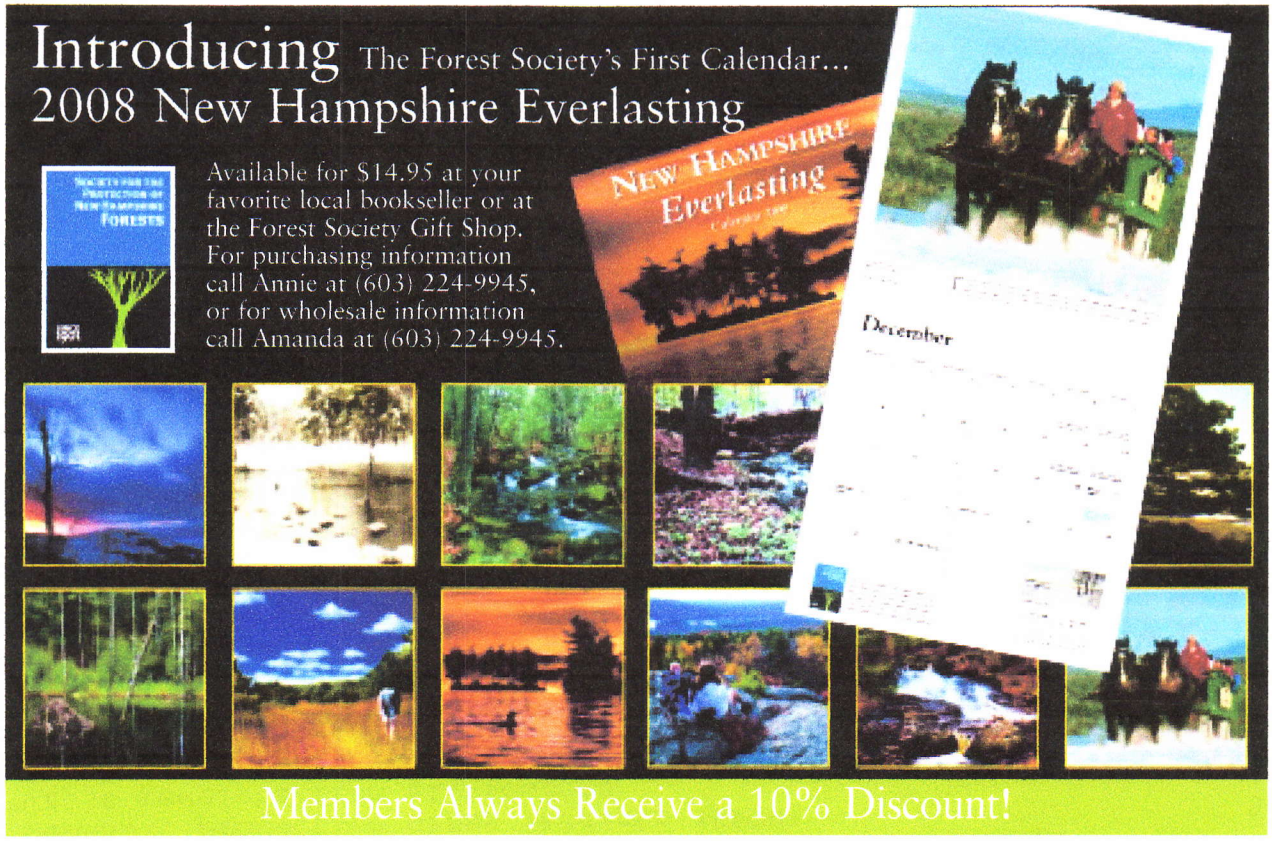
Their actions begin in their home, a barn structure made from timber harvested on Andorra Forest, milled and framed by local craftsmen. The stretch-skin paneled design of the building and air-to-air heat exchanger means it's well insulated with minimal heat loss. They use photovoltaic panels and a windmill to generate energy and harvest their own wood to burn in a high-energy boiler. Their bathrooms have composting toilets, and a biodiesel-powered car sits in their driveway.

King, a renewable energy professional in hydroelectricity, is also on the board of the Conservation Law Foundation of New Hampshire, and Faulkner, a writer, sits on the boards of the Northeast Wilderness Trust, a land conservation organization, and The Nature Conservancy of New Hampshire. The couple was also involved in the leadership of the Conc°erned Cheshire Citizens, a local group that formed to fight the proposed expansion of the Keene bypass and promote alternative designs that would have less impact on surrounding wetlands.

Having two small children now occupies much of their time, but King and Faulkner remain on the lookout for the next conservation easement project. After all, it's a win-win situation. They protect open space threatened by development and help ensure stressed habitats are allowed to recover. They have a few parcels in mind; ones that, like this last easement, extend interlocking layers of habitat for plants and wildlife.

"It's all about connectivity, it's all about joining existing protected lands with the newer protected lands," King said. "If we can do it in a way that involves a Forever Wild component in some areas, then we're going to do that."

KAREN FINOGLE, A FORMER FOREST SOCIETY STAFFER, IS A FREELANCE WRITER AND SENIOR EDITOR AT *AMC OUTDOORS* IN DURHAM, NH.



SOCIETY FOR THE PROTECTION OF NEW HAMPSHIRE FORESTS
SINCE 1901

54 Portsmouth Street
Concord, NH 03301
Tel. 603.224.9945
Fax 603.228.0423
info@forestsociety.org
www.forestsociety.org

December 29, 2008

Mr. Robert King
President
Ashuelot River Hydro
PO Box 194
Sullivan, NH 03445

Dear Bob:

Thank you very much for your recent donation of $15,000 to help us acquire 1,750 acres of forestland and streams located in the Ashuelot River Headwaters. Your generous contribution brings us one important step closer to achieving our fundraising goal of $1.53 million.

Situated in the southwestern corner of New Hampshire, the Ashuelot River runs sixty-four miles, from Pillsbury State Park in Washington to the Connecticut River in Hinsdale. Along its route, geological landmarks, American Indian sites, stone-arch bridges, and historic mills showcase the Ashuelot's dramatic role in shaping New Hampshire's diverse geography and cultural history.

An important stop along the path of migratory song birds, the Ashuelot River and its watershed also play a vital role in supplying drinking water to Keene, protecting valuable plant resources, and sheltering threatened wildlife such as the bald eagle, common loon, northern harrier, and dwarf-wedge mussel.

By purchasing this property, the Forest Society will connect conserved lands in the Sunapee Region to Long Pond Town Forest and points west, including Long Pond, Sand Pond, and the summit of Silver Mountain. Not only does this link extend an important, unbroken wildlife corridor, it protects natural resources and provides recreational opportunities for people of all ages.

We are very grateful for your gift to help protect the Ashuelot River Headwater Project. On behalf of everyone at the Forest Society, thank you for your generosity.

For the forests,

Jane

Many thanks for this generous contribution! Happy New year!

Jane A. Difley
President/Forester

P.S. Your gift to the Forest Society is tax deductible. For federal income tax purposes, please be advised that we have not provided you with any valuable goods or services in exchange for your gift.

recycled paper

SOCIETY FOR THE PROTECTION OF NEW HAMPSHIRE FORESTS
SINCE 1901

54 Portsmouth Street
Concord, NH 03301

Tel. 603.224.9945
Fax 603.228.0423

info@forestsociety.org
www.forestsociety.org

January 26, 2010

Mr. Bob King
President
Ashuelot River Hydro
PO Box 194
Sullivan, NH 03445

Dear Bob:

Thank you very much for your generous donation of $5,000 to help us acquire 1,750 acres of forestland and streams located in the Ashuelot River Headwaters. Your generous contribution brings us one important step closer to achieving our fundraising goal of $2.18 million.

Situated in the southwestern corner of New Hampshire, the Ashuelot River runs sixty-four miles, from Pillsbury State Park in Washington to the Connecticut River in Hinsdale. Along its route, geological landmarks, American Indian sites, stone-arch bridges, and historic mills showcase the Ashuelot's dramatic role in shaping New Hampshire's diverse geography and cultural history.

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We are very grateful for your gift to help protect the Ashuelot River Headwater Project. On behalf of everyone at the Forest Society, thank you for your generosity.

For the forests,

Jane

Thanks, Bob, for all your effort for this project!

Jane A. Difley
President/Forester

P.S. Your gift to the Forest Society is tax deductible. For federal income tax purposes, please be advised that we have not provided you with any valuable goods or services in exchange for your gift.

recycled paper

Subject: Re: ashuelot headwaters
From: Brian Hotz <BHotz@forestsociety.org>
Date: Wed, 20 Aug 2014 12:07:24 +0000
To: Bob King <bking@gaw.com>
CC: Susanne Kibler-Hacker <skhacker@forestsociety.org>

Hi Bob

Wow, this is great thanks for your generosity! I'll forward this on to Susanne and we'll follow your instructions.

Thanks!

Sent from my iPhone

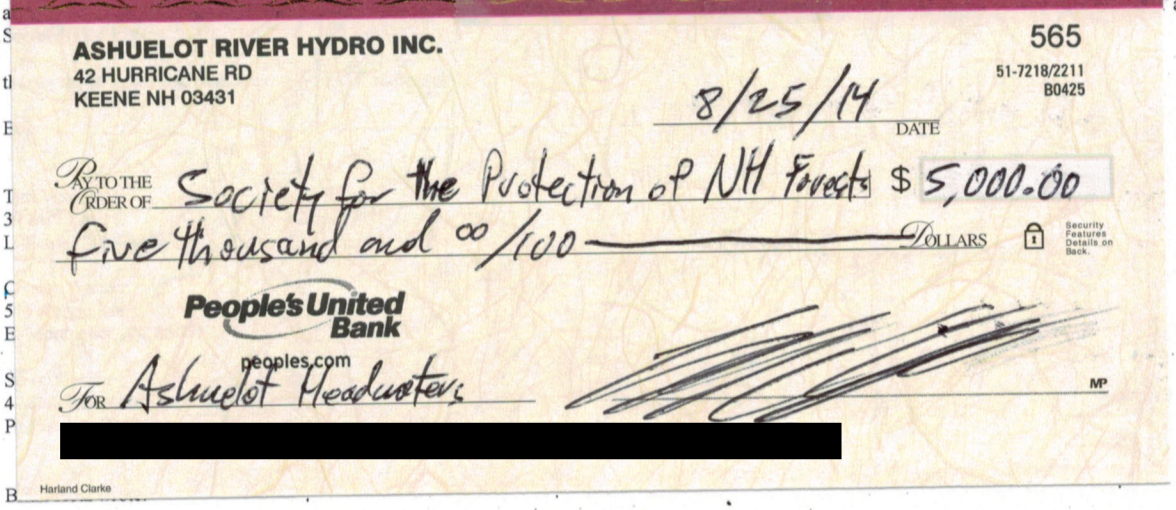
On Aug 20, 2014, at 7:19 AM, "Bob King" <bking@gaw.com> wrote:

Hey Brian,

Thanks for the update- super work on the corridor. Here's what I'd like to do: I'll pop in snail mail two checks:

$5000 from Ashuelot River Hydro, Inc. towards Headwaters. We like being credited in the Forest Notes business list, but no need to add us to mailing list, since Annie and I already get everything.

$1000 from myself for Mt Major. This donation is in honor of my buddies, the Wanzer Bros., who have a camp on Lockes Island on Winne. and always enjoy hiking around the area. If you can swing it, I'd like SPNHF to send each of them a very brief note and a copy of the Summer Forest Notes, with its excellent coverage of the [redacted] n. Please see the [redacted] add them to the


ASHUELOT RIVER HYDRO INC.
42 HURRICANE RD
KEENE NH 03431

565
51-7218/2211
B0425

8/25/14
DATE

PAY TO THE ORDER OF Society for the Protection of NH Forests $ 5,000.00
Five thousand and 00/100 DOLLARS

Security Features Details on Back.

People's United Bank
peoples.com

FOR Ashuelot Headwaters

MP

[redacted]

Harland Clarke

Hi Bob:

Nice to hear from you. I hope all is well with you, Annie and the kids.

Yes, we are working on another piece of the puzzle up there. John MacNeil has offered to sell us a 245-acre parcel of land at about half of its appraised value. This parcel will add to the two Farnsworth tracts we secured last year. The Ashuelot River Headwaters remains one of our top priorities and in particular the bridge area between Pillsbury/Sunapee State Parks and the Andorra Forest Easement. Actually, we are also completing an easement on the 640 acre Lempster Town Forest within a few weeks (See maps).

Our fundraising has been going well, we are over half way to our goal of $248,000 (which includes purchase price and expenses). We are hoping to complete our fundraising now in early September and close early October. We do have a few people who will help close a final gap if it's not too large so any contributions now are extremely welcomed.

Thanks for your interest and continued support. If you have any other questions feel free to call or email.

Brian J. Hotz
Vice President for Land Conservation
Society for the Protection of New Hampshire Forests
54 Portsmouth Street, Concord NH 03301
Phone: 603-224-9945 x 316
Fax: 603-228-0423
Email: bhotz@forestsociety.org

"Everybody Hikes Mt. Major! Conserving the Belknap Mountains and Trails" Campaign
We're almost at the summit! Learn how you can help at: forestsociety.org/mtmajor-belknaps?ac=MAJ146CT
Please forward this link to friends who may also want to help protect this New Hampshire icon. Thanks!

Subject: Re: LIHI cert for Ashuelot and Lower Rob
From: John_Warner@fws.gov
Date: Thu, 16 Apr 2009 13:16:13 -0400
To: Bob King <bking@gaw.com>

Bob -- I just verified with Susi vonOettingen of this office that there are no dwarf wedgemussels or any other federally listed threatened or endangered species in the areas of your Ashuelot Paper or Lower Robertson projects that are impacted by the projects -- JW

John P. Warner, Energy/Hydropower Coordinator
New England Field Office, U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541 - ext.15
(603) 223-0104 - FAX

www.fws.gov.northeast/newenglandfieldoffice
Bob King <bking@gaw.com>

Bob King
<bking@gaw.com>

04/15/2009 08:45 AM

Tojohn_warner@fws.gov
cc
SubjectLIHI cert for Ashuelot and Lower Rob

John, any thoughts on this yet? We're pretty anxious to get the LIHI process started.... tnx, Bob

Hi John,

Thanks for the time today on the phone. As I explained, we are seeking Low Impact Hydro certification for our Lower Robertson (8235) and Ashuelot (7791) projects. You know Fred Ayers will be interested in fish passage and water quality issues, but I am writing to you specifically about threatened or endangered species which may be found in our project areas (as a citizen of the upper Ashuelot basin, I'm well aware of the dwarf wedge mussel). For the purposes of LIHI certification, I ask you for an email (or letter if you prefer) confirming that the mussel and other threatened/endangered species have not been found in the vicinity of our projects. In less of course, this is not true, in which case we'd want to know that!

best,

Bob King, P.E., Pres.
Ashuelot River Hydro, Inc.
P.O. Box 194
Sullivan, NH 03445
(603) 847-9798

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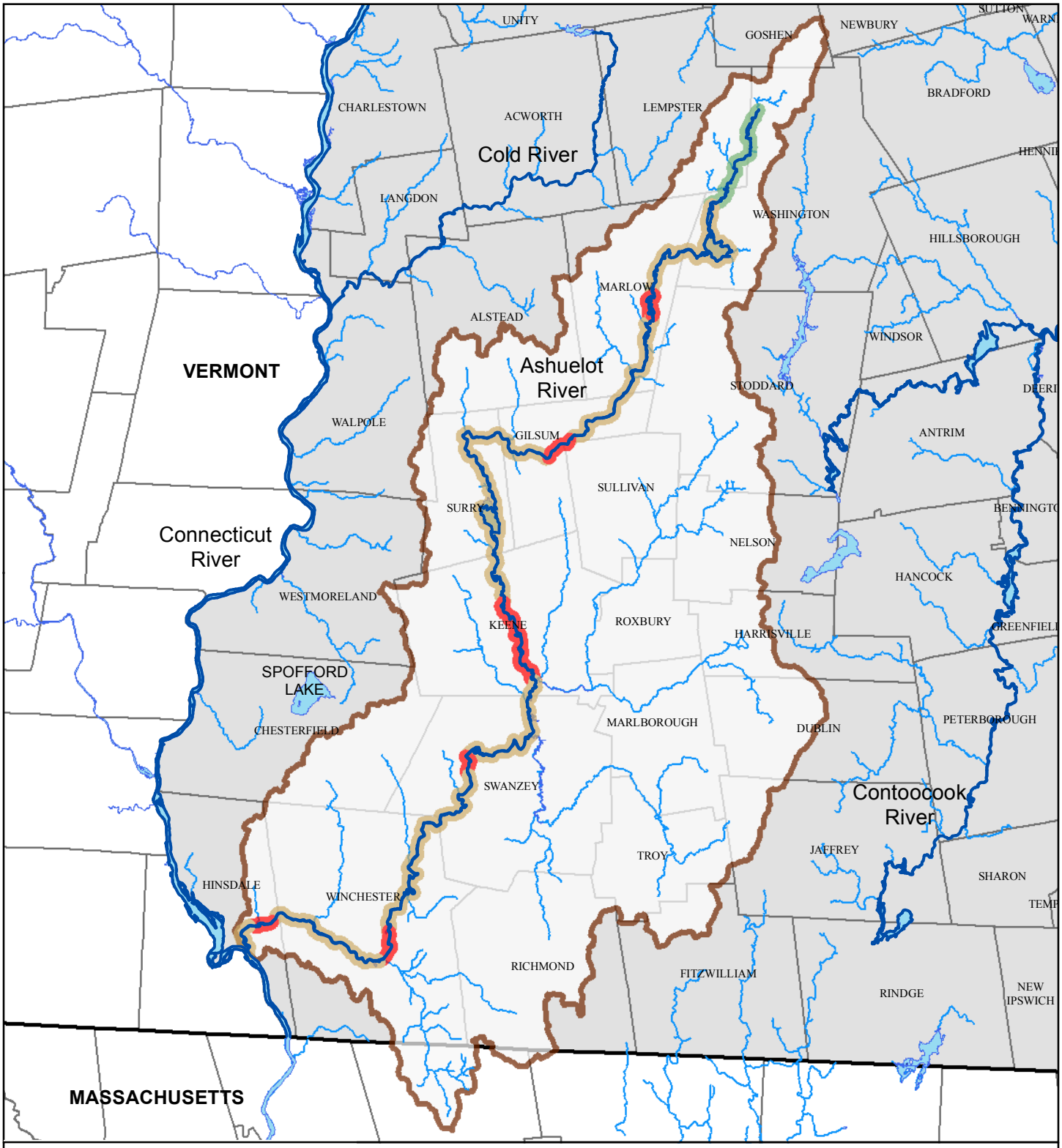
Ashuelot River Watershed Base Map



LEGEND

Designated River Classification

Quarter Mile Buffer

- Natural
- Rural
- Rural-Community
- Community

- Watershed Boundary
- Major Lakes and Ponds
- Rivers
- Designated Reach
- New Hampshire Towns
- Town Boundaries

3 1.5 0 3 Miles

N W E S

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Source: The data layers are derived from DES data and are under constant revision. DES is not responsible for the use or interpretation of this information. Not intended for legal use. Watershed Management Bureau, June 2012.

Atlas of the Ashuelot River

and the Ashuelot River Watershed

Published by

The Ashuelot River Local Advisory Committee

with support from the
Connecticut River Joint Commissions Partnership Program

2 0 2 4 Miles

Scale = 1:150,000 1 inch = 2.4 miles

The Ashuelot River flows 64 miles from its origin at Butterfield Pond in Pillsbury State Park in Washington, NH through nine other southwest New Hampshire towns to join the Connecticut River in Hinsdale, NH.

Ashuelot River Watershed

The Ashuelot's watershed collects water from 425 square miles across 25 towns in southwestern New Hampshire and two Massachusetts towns. The watershed begins with Cherry Brook on the south slope of Mount Sunapee. The eastern border ranges south through the Monadnock Highlands, including the western slope of Mount Monadnock and reaches Mount Grace in Massachusetts.

Hiking & Biking Trails

The Ashuelot Rail Trail follows the River from Hinsdale to Keene. The Cheshire Rail Trail crosses the watershed parallel to NH Route 12. The Monadnock-Sunapee Greenway and Metacomet Trails follow the eastern watershed boundary. There's Hiking and Biking throughout State Parks, State Forests and other Public Lands.

Flatwater Boating

Easy boating from the Cheshire Turnpike Bridge, Keene to Ashuelot Village with short portages at the Colony, Homestead and Winchester Dams and a section of Class 2 water at Westport Village

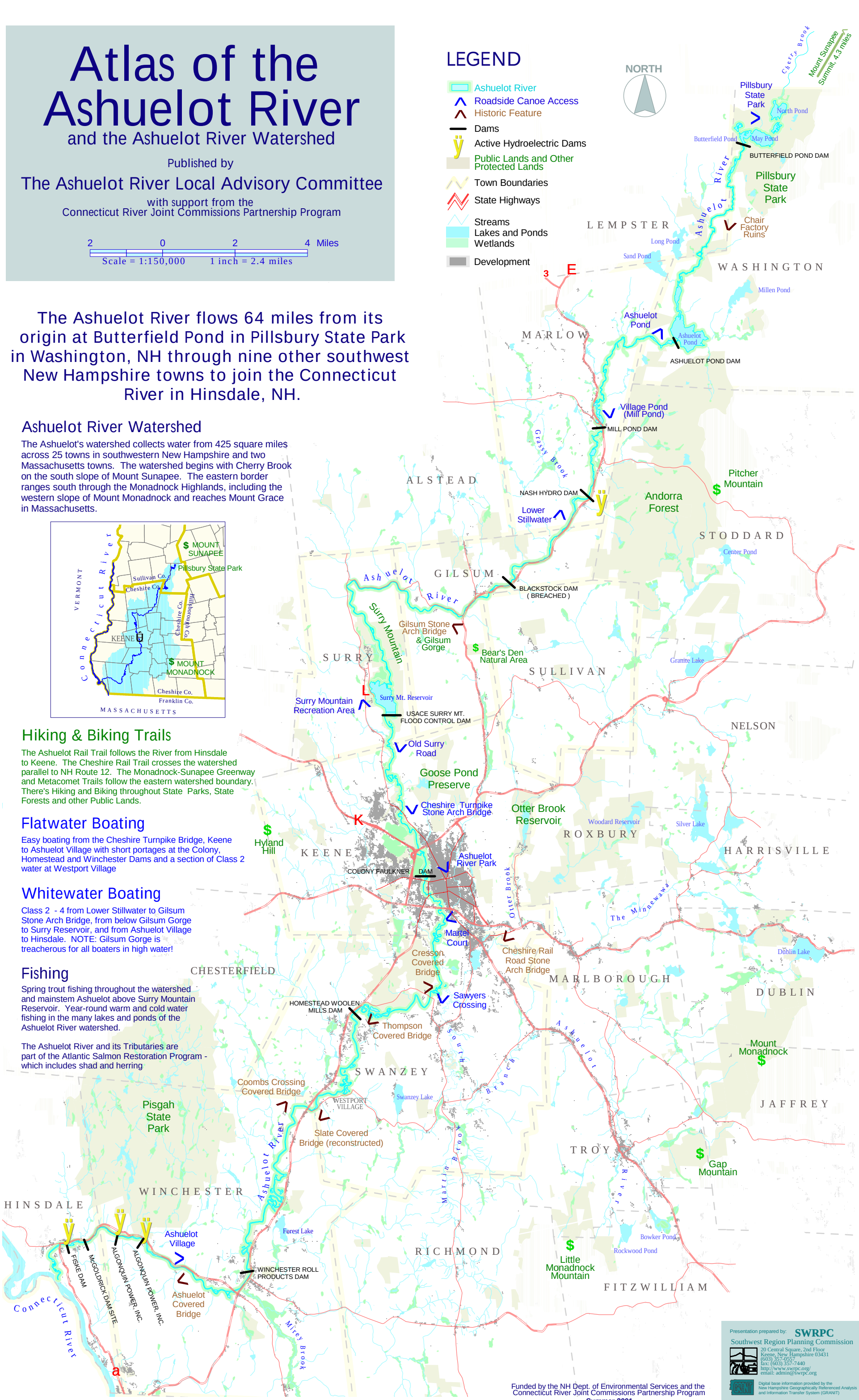
Whitewater Boating

Class 2 - 4 from Lower Stillwater to Gilsum Stone Arch Bridge, from below Gilsum Gorge to Surry Reservoir, and from Ashuelot Village to Hinsdale. NOTE: Gilsum Gorge is treacherous for all boaters in high water!

Fishing

Spring trout fishing throughout the watershed and mainstem Ashuelot above Surry Mountain Reservoir. Year-round warm and cold water fishing in the many lakes and ponds of the Ashuelot River watershed.

The Ashuelot River and its Tributaries are part of the Atlantic Salmon Restoration Program - which includes shad and herring



Funded by the NH Dept. of Environmental Services and the Connecticut River Joint Commissions Partnership Program
Summer 2001

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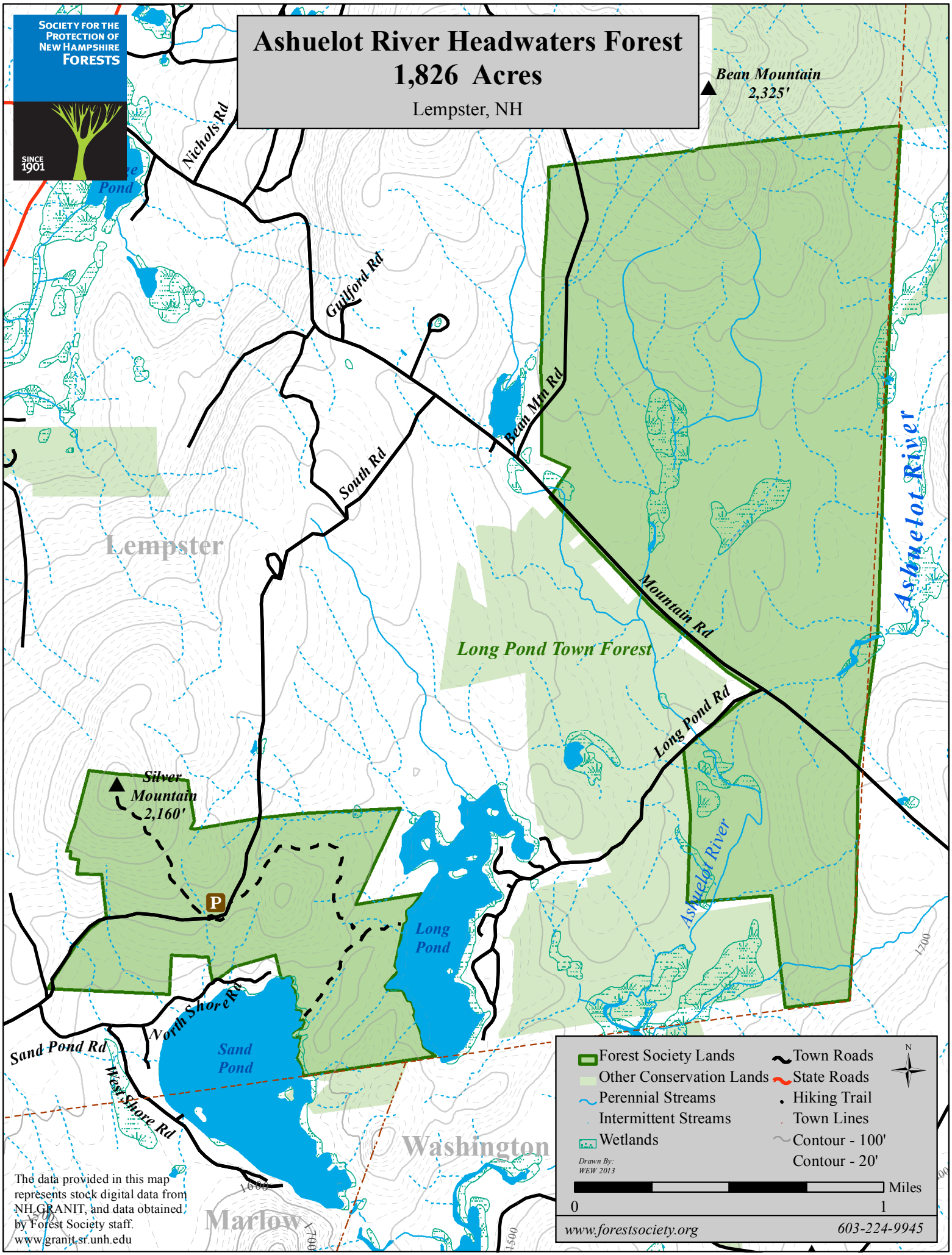
Digital base information provided by the New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT)


Society for the Protection of New Hampshire Forests
Since 1901
Ashuelot River Headwaters Forest
1,826 Acres
Lempster, NH
Bean Mountain
2,325'
Nichols Rd
Pond
Guilford Rd
South Rd
Bean Mtn Rd
Lempster
Mountain Rd
Ashuelot River
Long Pond Town Forest
Long Pond Rd
Silver
Mountain
2,160'
P
Long
Pond
Ashuelot River
North Shore Rd
Sand Pond Rd
Sand
Pond
West Shore Rd
Washington
Marlow
1700
1600
1500
Forest Society Lands
Other Conservation Lands
Perennial Streams
Intermittent Streams
Wetlands
Town Roads
State Roads
Hiking Trail
Town Lines
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Drawn By:
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www.forestsociety.org
603-224-9945
The data provided in this map represents stock digital data from NH GRANIT, and data obtained by Forest Society staff.
www.granit.sr.unh.edu

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FEDERAL ENERGY REGULATORY COMMISSION
Washington, D.C. 20426

OFFICE OF ENERGY PROJECTS

Project No. 7791-022 -- New Hampshire
Ashuelot Paper Project

Project No. 8235-020 -- New Hampshire
Lower Robertson Project
HDI Associates III

August 29, 2005

Mr. Sean Fairfield
Algonquin Power Systems, Inc.
2845 Bristol Circle
Oakville, Ontario L6H-7H7
CANADA

Subject: Upstream fish passage at Ashuelot Paper and Lower Robertson projects

Dear Mr. Fairfield:

This letter concerns your progress in providing upstream fish passage at the Ashuelot Paper and Lower Robertson projects on the Ashuelot River, New Hampshire. In a March 2, 2004 letter to you, we requested quarterly progress reports regarding upstream fish passage at these projects. The most recent report we have received was dated April 29, 2005.

Article 2 of the orders exempting the two projects from licensing require compliance with any terms and conditions set by federal or state resource agencies. The U.S. Fish and Wildlife Service (FWS) required that fish passage facilities be provided at the projects when prescribed. In a letter dated September 13, 2001, the FWS indicated that final upstream fish passage plans were required for the two projects. You are currently in the process of planning the required facilities in coordination with federal and state agencies.

In our March 2, 2004 letter, we requested that your progress reports, to the extent possible, (1) summarize progress in upstream fish passage planning, (2) contain copies or summaries of resource agency consultation, and (3) include estimated schedules regarding final installation of upstream fish passage facilities.

In your April 29, 2005 progress report, you informed us that, in order to address recent issues raised by the FWS, you would undertake assessments at the project in either May or June 2005, depending on river flows. You anticipated that the assessments would result in reports to the New Hampshire Fish and Game Department (NHFGD) and the

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FWS by the end of August 2005. You noted that, at the time of your writing, it was impossible to predict the installation timing of the passage facilities.

You also included a copy of an April 29, 2005 letter from the New Hampshire Division of Historical Resources. That agency indicated that, in accordance with Section 106 of the National Historical Preservation Act, and in accordance with the federal Advisory Council on Historic Preservation regulations, it had reviewed your proposed undertaking, and found that it would have "no adverse effect" on any properties or districts that are listed in, or may be eligible for, the National Register, nor on properties of known or potential architectural, historical, archaeological, or cultural significance. The agency stated that your duties under Section 106 were fulfilled, unless additional impacts are identified or any follow-up actions should be necessary.

We appreciate your work towards providing upstream fish passage at the Ashuelot Paper and Lower Robertson projects. Please provide us with your next progress report within 30 days of the date of this letter, and include the following material in that report.

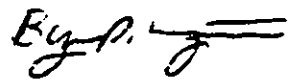
1. Copies of your most recent correspondence to and from the resource agencies regarding upstream fish passage. This should include any information on the assessments referenced in your April 29, 2005 report.

2. Copies of the most current plans for the passage designs for the two projects. If these have already been filed with the Commission, please indicate the date of the filing.

3. A schedule that includes predicted dates for: (a) filing, for Commission approval, upstream fish passage facilities plans, to include operation and maintenance components, accompanied by copies of resource agency comments; (b) construction start and completion dates for the facilities at the two projects; and (c) dates for the start of operation of the facilities at the two projects.

We appreciate your continued cooperation in this matter. If you have any questions, please contact me at (202) 502-6129.

Sincerely,



B. Peter Yarrington
Fisheries Biologist
Division of Hydropower Administration
and Compliance

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cc: Melissa Grader
U.S. Fish and Wildlife Service
c/o Conn. River Coordinator's Office
103 East Plumtree Road
Sunderland, MA 01375

William Ingham, Jr.
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301-3421

ENVIRONMENTAL INSPECTION REPORT
(ELECTRONICALLY SUBMITTED)
FEDERAL ENERGY REGULATORY COMMISSION

New York Region

Date of Inspection September 27, 2011

Name Lower Robertson Project No. 8235-NH

Exemptee Ashuelot River Hydro, Inc. Exemption Type Case-Specific

Exemption Issued July 31, 1986 Exemption Expires N/A

Location Ashuelot River (Waterway) N/A (Reservation)

Cheshire (County) New Hampshire (State)

Inspector John Mark

Exemptee Representative Bob King, P.E., President

Other Participants Jeff Blaney, P.E., Civil Engineer IV, and Brian Desfosses, Civil Engineer, of the New Hampshire Department of Environmental Services

Summary of Findings

By letter dated November 28, 2011, the exemptee was requested to file a revised Public Safety Plan depicting the public safety devices installed at the project and their location. A "Danger Dam Keep Back" sign installed on the left bank to warn boaters of the dam ahead does not appear on the plan.

Based on a file review and field observations, the exemptee appears to be in compliance with all exemption requirements.

Submitted November 30, 2011

John Mark
Environmental Protection Specialist

A. Inspection Findings

REQUIREMENTS	DATE OF REQUIREMENT	FOLLOW-UP NEEDED	PHOTO NO(s).
CULTURAL RESOURCES			
Article 10 requires the exemptee, after consultation with the New Hampshire State Historic Preservation Officer (SHPO), to implement a cultural resources management plan to: (1) construct project facilities in accordance with the Secretary of the Interior's Standards for Historic Preservation Projects so as to be consistent with the historical character of Ashuelot Village; and (2) photo-document the historic features of Lower Robertson Dam that will be affected by project construction.	**O**: July 31, 1986	No	
National Park Service (NPS) requires the exemptee to insure that photographic documentation of the dam and related facilities, which are of local historical interest and will be impacted by the proposed renovations, is made.	July 15, 1985 letter		
FISH AND WILDLIFE RESOURCES			
Article 2 requires the exemptee to comply with the terms and conditions prepared by federal or state fish and wildlife agencies to protect fish and wildlife resources.	**O**: July 31, 1986	No	

- U.S. Fish and Wildlife Service (FWS) requires the exemptee to provide an instantaneous minimum discharge below the project of at least 203 cubic feet per second (cfs) or inflow to the project, whichever is less, to protect downstream aquatic resources	Dec. 12, 1984 letter	No	1 - 2
- FWS requires the exemptee to provide fish passage facilities when prescribed by the FWS and/or the New Hampshire Fish and Game Department (NHFGD)	**AO**: May 1, 2001		3 - 4
- FWS requires the exemptee to file a plan for monitoring instantaneous flow releases at the project.	**AO**: Apr. 16, 1992 **AO**: May 16,1995		
- NHFGD requires the exemptee to provide an instantaneous minimum discharge below the project of at least 203 cfs or inflow to the project, whichever is less.	Dec. 14, 1984 letter		
- NHFGD requires the exemptee to provide fish passage facilities at the project when required to do so by the NHFGD and FWS.	**AO**: May 1, 2001		
- NHFGD requires the exemptee to present a plan for monitoring instantaneous flow releases at the project.	June 14, 1985 letter **AO**: Apr 16, 1992 **AO**: May 16, 1995		
PUBLIC SAFETY			
Public Safety Device Installation – Public Safety Plan 18CFR	July 8, 1993	Yes	5 - 8
RECREATION RESOURCES			
FWS requires the exemptee to allow public access to the project area for utilization of public resources, subject to reasonable safety and liability limitations	Dec. 12, 1984 letter	No	9

- NHFGD requires the exemptee to allow public access to the project area for reasonable utilization of public resources as is consistent with safety and liability aspects. - NHFGD requires the exemptee to provide reasonable access to the river for fishermen at the project.	Dec. 14, 1984 letter June 14, 1985 letter	No	
National Park Service requires the exemptee to allow public access to the project area for utilization of the resources for recreation purposes, subject to reasonable safety and liability limitations, and such access should be permanently and prominently posted so that its availability is made known to the public.	July 15, 1985 letter	No	
OTHER ENVIRONMENTAL RESOURCES			
Article 9 requires the exemptee to, before commencing any ground-disturbing or spoil-producing activities, in consultation with Federal, state, and local agencies, prepare a plan to control erosion and dust, stabilize slopes, and minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project.	**O**: July 31, 1986 filed October 22, 1986	No	

O=Order **AO**=Approval/Amending Order **18 CFR**=Title 18 Code of Federal Regulations

Comments and Follow-up Action

Cultural Resources: Article 10 of the exemption requires the exemptee to consult with the New Hampshire SHPO during the course of construction or development of any project works or associated facilities for the protection of significant or historic resources. The Lower Robertson Dam and related facilities are of local historical interest. The original exemptee, Hydroelectric Development, Inc., was required to consult with the New Hampshire SHPO and photo-document the historical features of the dam prior to construction of the project. The current exemptee, Ashuelot River Hydro, Inc., proposes to replace the flashboards and stoplogs at a section of the spillway with an Obermeyer

crest gate system. During the inspection, the exemptee was directed to consult with the New Hampshire SHPO prior to the start of any construction and installation of the new Obermeyer crest gates. The exemptee appears to be in compliance with its requirements with regard to cultural resources.

Fish and Wildlife Resources: The project is operated in a strict run-of-river mode while maintaining a continuous instantaneous minimum flow of 203 cubic feet per second (cfs) below the project. The exemptee maintains a pressure transducer in the headpond to monitor the elevation of the reservoir (Photo No. 1). The project, typically unmanned, is visited daily by a traveling operator who records the headpond elevation in a logbook. The project utilizes a Sensaphone Supervisory Control and Data Acquisition (SCADA) 3000 system to record flow and generation data at 15-minute intervals (Photo No. 2). A programmable logic controller (PLC) monitors the headpond levels and flows and automatically alerts the traveling operator and/or supervisors when the elevation or minimum flow deviates from the requirements. The exemptee files an annual report certifying compliance with its minimum flow requirement. Project flow and operations records are maintained on-site in the powerhouse. The exemptee maintains facilities for the downstream passage of fish resources, primarily Atlantic salmon, shad, and herring. The downstream fish passage facilities consist of angled trashracks, a fish entrance below the trashracks, a collection box, and a discharge pipe in the tailrace (Photo Nos. 3 and 4). The downstream fish passage facilities appeared to be in good condition and functioning as designed. The exemptee is required to install facilities for the upstream passage of fish after the passage of a certain “trigger number” of American shad at the downstream Fiske Mill Project No. 8615. The exemptee developed a conceptual design for a Denil fish ladder which has been approved by the New Hampshire Fish and Game Department. The exemptee appears to be in compliance with its requirements with regard to fish and wildlife resources.

Public Safety: The exemptee maintains chain link fences, locked gates, deck lights, motion-activated lighting, and warning signs to protect the public from the hazards of project operations (Photo Nos. 5 through 7). The public safety devices appeared to be in good condition and well maintained. The exemptee seasonally installs and removes (May 20 and October 1, respectively) a boat restraining barrier to warn boaters of the dam ahead. On the day of the inspection, the boat restraining barrier was broken due to Hurricane Irene and several barrels were washed-up along the right shoreline (Photo No. 8). The exemptee will repair and re-install the boat restraining barrier prior to the 2012 recreation season. The exemptee’s Public Safety Plan, filed June 1, 1993, depicts the public safety devices installed at the project and their location. During the inspection and by environmental inspection follow-up letter dated November 28, 2011, the exemptee was requested to file a revised Public Safety Plan to include the “Danger Dam Keep Back” sign on the left bank. The exemptee appears to be in compliance with its requirements with regard to public safety.

Recreation Resources: There are few opportunities for recreational facilities at the project. The project structures along the right bank and the steep and rocky slopes preclude any recreational development. On the left bank, industrial development restricted any formal recreational facilities. However, the industrial buildings are now abandoned and are primarily in ruins after a fire. The exemptee allows access for fishermen along the left shoreline and to canoeists/kayakers to portage around the dam (Photo No. 9). The exemptee appears to be in compliance with its requirements with regard to recreation resources.

Other Environmental Resources: There are no requirements with regard to other environmental resources.

B. Exhibits and Photographs

The following are provided to show the location of the project and to illustrate project features: One Photo Location Map and 9 photographs.

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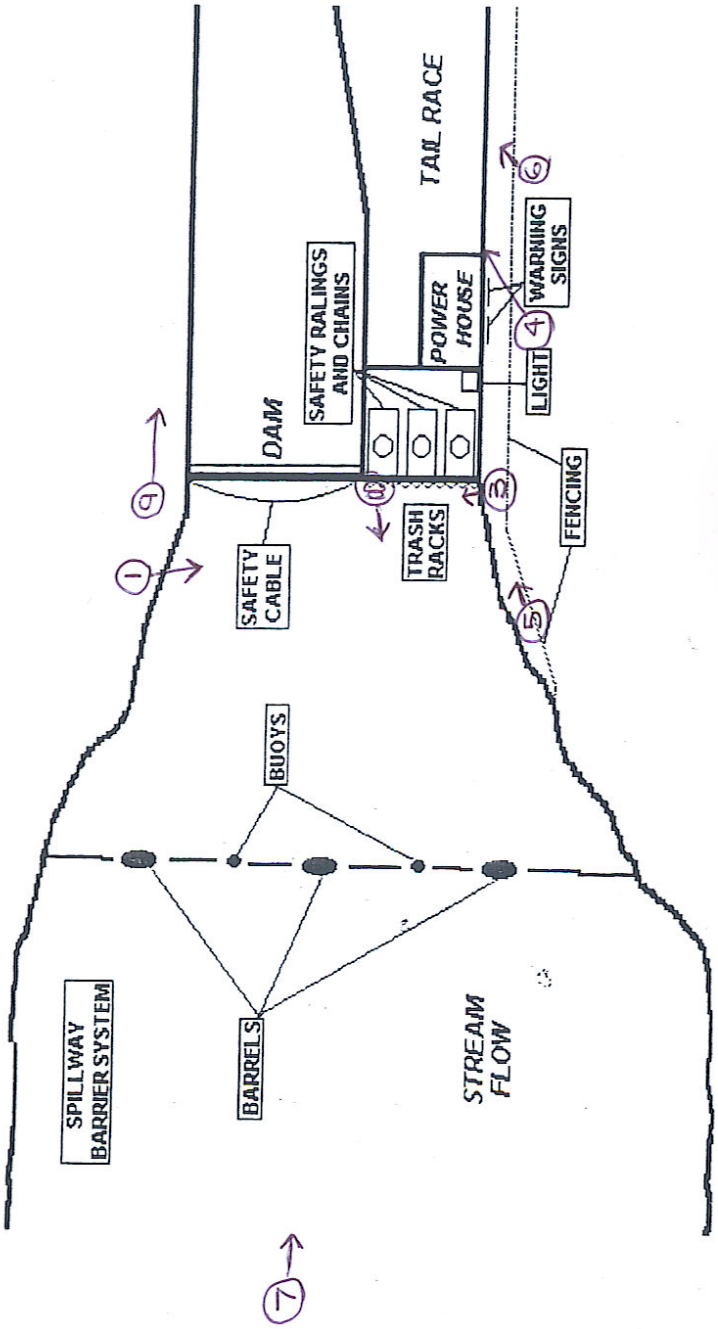
DHAC eLibrary MARK



Project No. 8235-NH, Lower Robertson

Photo Location Map

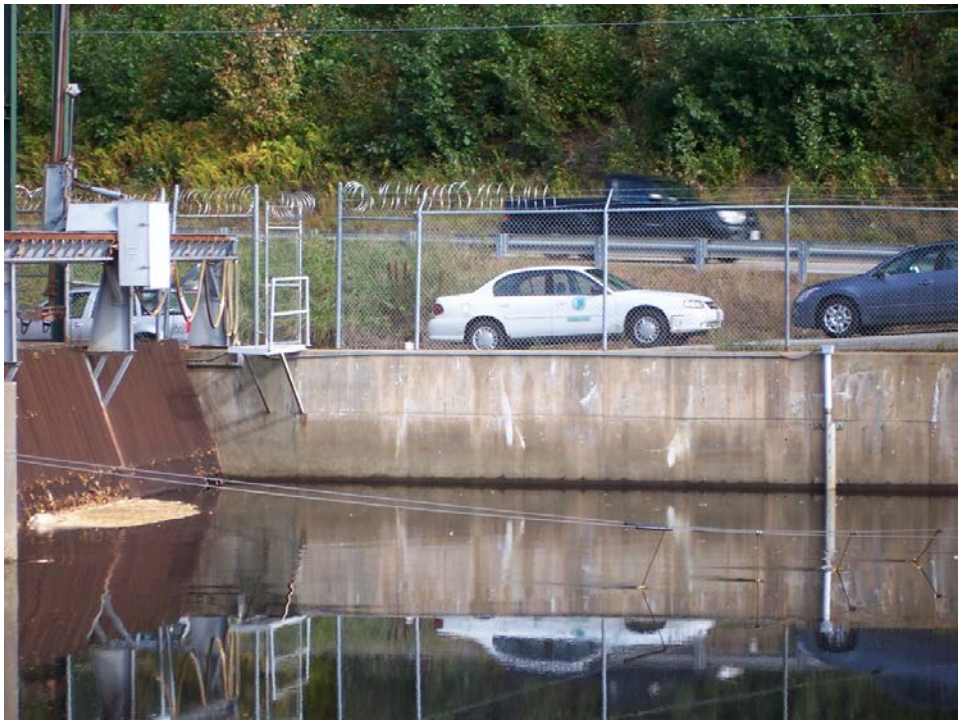


Photo No. 1 - View of the headpond pressure transducer mounted on the wall immediately upstream of the trashracks and intake.

Photo No. 2 - View of the control panel in the powerhouse. Note digital readout displaying the elevation of the headpond. (Not shown on Photo Location Map)

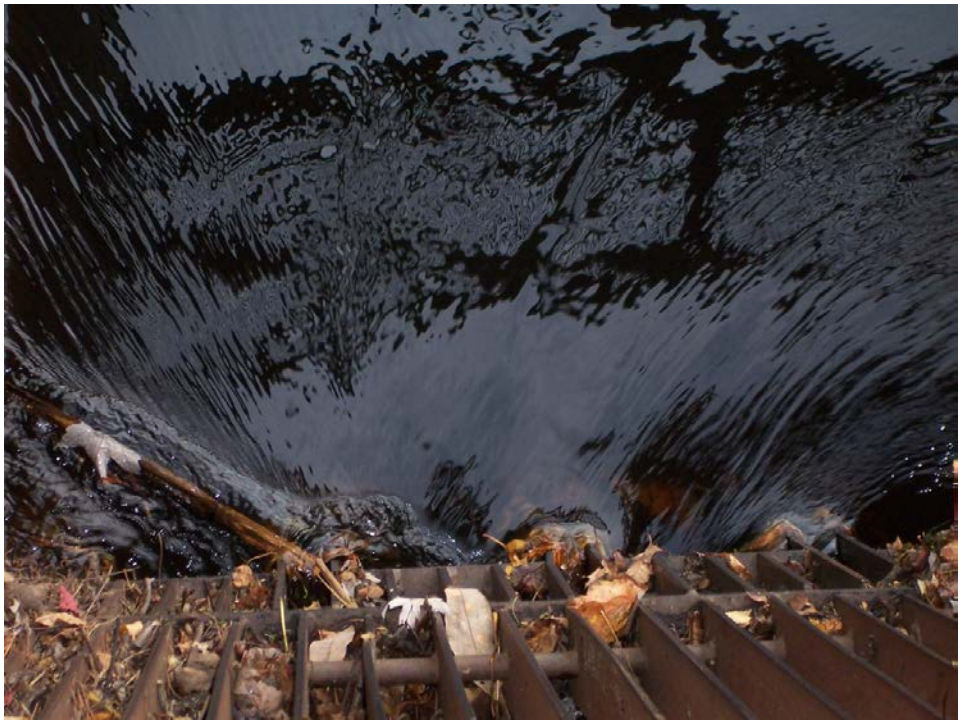


Photo No. 3 - View of the trashracks and entrance to the downstream fish passage facility.

Photo No. 4 - View of the downstream fish passage pipe discharging into the tailrace of the project.

Photo No. 5 - View of the fence and gate with barbed ribbon wire along the forebay to the project.

Photo No. 6 - View of the fence with barbed wire along the length of the tailrace.

Photo No. 7 - View of the “Danger Dam Keep Back” warning sign on the left bank upstream of the dam and project.

Photo No. 8 - View of three barrels from the broken boat restraining barrier along the right shoreline.

Photo No. 9 - View of a section of the informal portage trail along the left bank downstream of the dam and project. Note abandoned building to the left.

20030930-0503 Issued by FERC OSEC 09/29/2003 in Docket#: P-7791-000

ENVIRONMENTAL INSPECTION REPORT
(ELECTRONICALLY SUBMITTED)
FEDERAL ENERGY REGULATORY COMMISSION

New York Region

Date of Inspection – July 9, 2003

Name Ashuelot Paper Co. Dam **Project No.** 7791-NH

Exemptee HDI Associates III **Exemption Type** Case-specific

Exemption Issued July 31, 1986 **Exemption Expires** N/A

Location Ashuelot River (**Waterway**) None (**Reservation**)
Cheshire (**County**) New Hampshire (**State**)

Inspector Joseph Enrico **Date** July 9, 2003

Exemptee Representative Messrs. John Webster, for the Exemptee and Peter Kimball, Operator.

Other Participants Ms. Brittnay Schoenen, Environmental Prot. Specialist, DHAC-WO

Summary of Findings

This minor project has little potential for recreation and public use due to limited access and project lands. As a condition of the Exemption, downstream fish passage is provided since the Asheuleot River is a component stream of the Connecticut River Anadromous Fishery Restoration Program. All project features including safety measures were adequate. There were no follow-up actions as a result of this inspection.

Submitted **September 29, 2003**

Joseph G. Enrico
Environmental Protection Specialist

A. INSPECTION FINDINGS

Requirements*	Date of Requirement	Follow-up Needed	Photo Nos.
CULTURAL RESOURCES			
None			
FISH AND WILDLIFE RESOURCES			
Standard Article 2 requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined are appropriate to prevent loss or damage to fish and wildlife resources. US Fish and Wildlife Service letter of 2-14-85 and NHF&G letter dated 6-14-85 requires the Exemptee to provide a streamflow monitoring plan. **C-017**	**O:** 7-31-86 **Ap:**11-1-94	No	
Standard Article 2 requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined are appropriate to prevent loss or damage to fish and wildlife resources. USDOI letter dated 7-15-85 and NHF&G letter dated 6-14-85 requires the Exemptee to install fish passage facilities when required. Functional design drawings for downstream facilities were filed on 7-19-01.**C-026**	**O:** 7-31-86 **Ap:**7-20-01	No	1,2
Standard Article 2 requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined are appropriate to prevent loss or damage to fish and wildlife resources. USDOI letter dated 7-15-85 and NHF&G letter dated 6-14-85 requires the Exemptee requires 205 cfs minimum flow at the dam. **C-089**	**O:** 7-31-86	No	
PUBLIC SAFETY			
Facilities and measures to assure public safety (18 CFR, Part 12). Plan submitted June 11, 1993 . **C-218**	**Ap:** 9-8-93	No	3-5
RECREATION RESOURCES			
Standard Article 2 requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined are appropriate to prevent loss or damage to fish and wildlife resources. USDOI letter dated 7-15-85 requires public access to the project. **C-110**	**O:** 7-31-86	No	
OTHER ENVIRONMENTAL RESOURCES			
None	**O:** 7-31-86	No	

O:=Order **C**=OEP-IT Code **18CFR**=Title 18 Code of Federal Regulations , **Ap**=Approved

20030930-0503 Issued by FERC OSEC 09/29/2003 in Docket#: P-7791-000

COMMENTS AND FOLLOW-UP ACTION

The project is an unmanned station that is visited daily by an operator who also is responsible for several other of the Exemptee's projects. The project operates automatically in a run of river mode using a SCADA system that records flows and other data every 15 minutes. The system matches unit generation to flow and can shut down the unit if flow levels drop below a setpoint. Inflow will then discharge over the spillway. A dial out alarm system notifies the system operator of any problems.

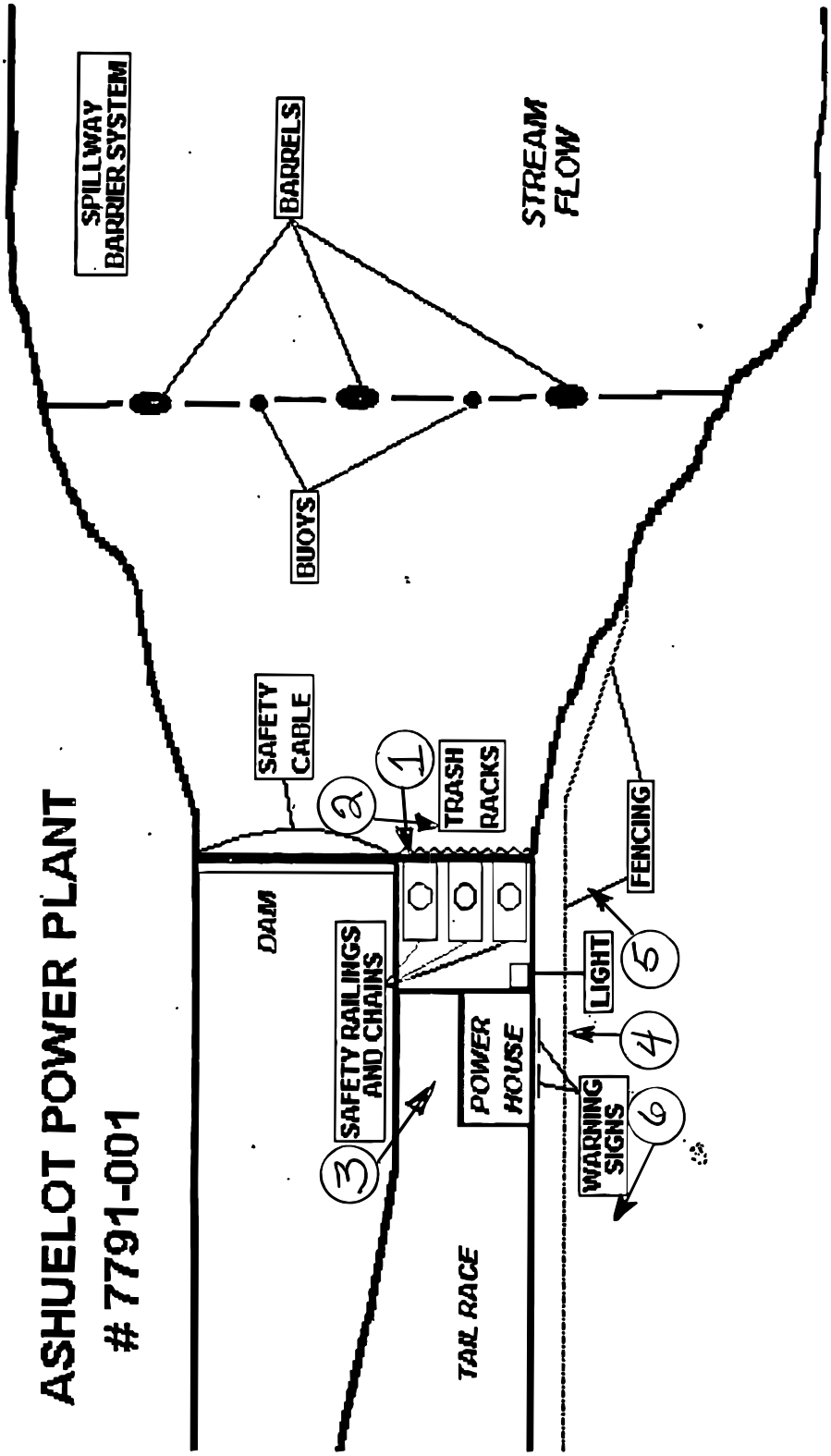
The downstream fish passage facility was in place but closed at the time of inspection. It appeared to be in conformance with submitted plans. There were no issues that required follow up as a result of this inspection.

B. EXHIBITS AND PHOTOGRAPHS

The following are provided to show the location of the project and to illustrate project features: Five photographs and photo location map.

OEP/DHAC Enrico, J./di
NYRO DHAC DOCKETS ENRICO

20030930-0503 Issued by FERC OSEC 09/29/2003 in Docket#: P-7791-000



PROJECT NO. 7791-NH, ASHEULOT PROJECT
PHOTOGRAPH LOCATION MAP

20030930-0503 Issued by FERC OSEC 09/29/2003 in Docket#: P-7791-000

Photo No.1 - View of fish collection box for downstream fish passage facility. Intake is located at top of photograph.

Photo No.2 - View of angled trashracks, part of downstream fish passage.

20030930-0503 Issued by FERC OSEC 09/29/2003 in Docket#: P-7791-000

Photo No.3 - View of downstream fish discharge pipe.

Photo No.4 - View of perimeter fencing at powerhouse and intake area.

Photo No.5 - View of perimeter fencing continued along intake area.

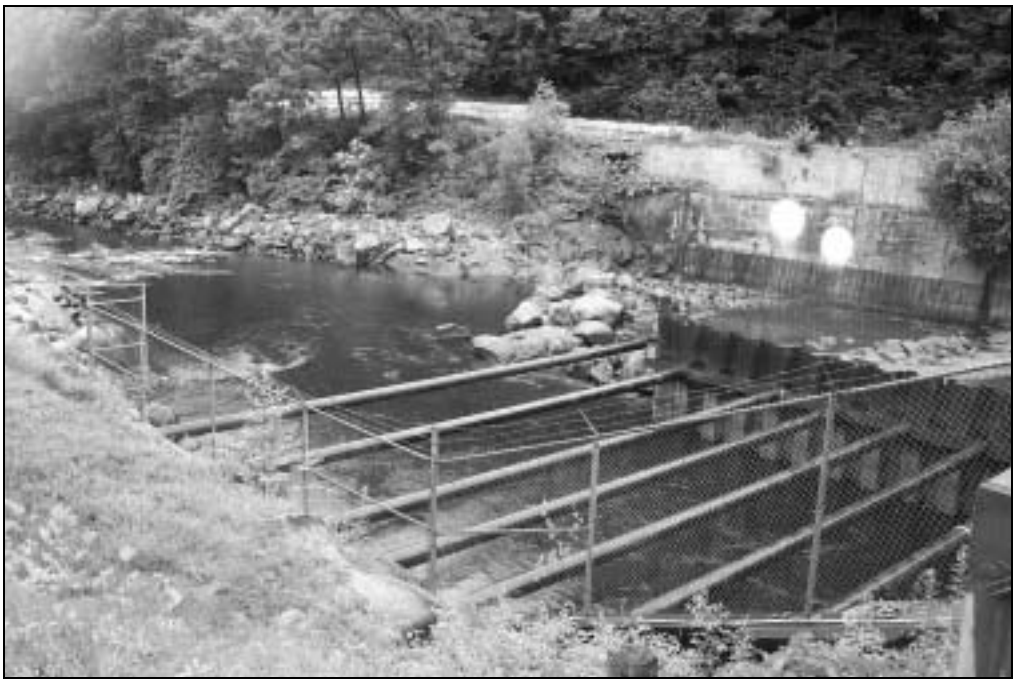


Photo No.6 - View of perimeter fencing continued along tailrace.