Review of Application
for
LIHI Certification of the
Ashuelot and Lower Robertson Hydroelectric Project
Ashuelot River, Winchester, New Hampshire

Prepared by
Fred Ayer, Executive Director

Introduction and Overview

This report reviews the application submitted by Ashuelot Hydro Inc. ("Applicant") to the Low Impact Hydropower Institute (LIHI) for Certification of the Ashuelot (ASH) and Lower Robertson (ROB) Hydroelectric Projects

Project Description - Both projects have FERC Exemptions that were issued on July 31, 1986. The Lower Robertson Hydroelectric Project, operates under FERC Exemption No. 8235 and Ashuelot River Hydroelectric Project operates under FERC Exemption No. 7791. Both projects are small, low head, run-of-river hydro plants built in the mid 1980's at existing paper company dams. The Applicant purchased the projects in 2007 and has operated them ever since.

The run-of-river Lower Robertson Project consists of:

- an 18-foot-high by 125-foot-long Lower Robertson Dam with a spillway crest elevation of 384.6 mean sea level (msl);
- 1.5-foot-high flashboards which raised the normal maximum pool elevation to 386.1-feet msl;
- An impoundment with a surface area of 8.6 acres;
- An intake structure and powerhouse at the north end of the dam with 3 turbine generator units with a total installed capacity of 840 kw; and,
- a short tailrace.

The run-of-river Ashuelot Hydro Project consists of:

- an 18-foot-high by 144.5-foot-long timber cribbed Ashuelot Paper Company Dam with a spillway crest elevation of 335.4 mean sea level (msl);
- 3.5-foot-high flashboards which raised the normal maximum pool elevation to 338.9-feet msl;
- A small impoundment;
- An intake structure and powerhouse at the south end of the dam with 3 turbine generator units with a total installed capacity of 870 kW ; and,
- a 100-foot-long tailrace.

The FERC exemption orders require the Applicant to adhere 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 at all times. At the request of a previous project owner, FERC and those agencies approved a stream flow gauging plan by orders dated November 1, 1994 (ASH) and May 16, 1995 (ROB). Under the current ownership, both projects are operated as run-of-river facilities in compliance with the conditions in the FERC exemption orders.

Public comment. LIHI received two comment letters: one from The Connecticut River Watershed Council, Inc. (CRWC); and, the other from Ashuelot River Local Advisory Committee (ARLAC).

The Applicant did not formally respond to the CWRC letter, which had as its focus the USFWS target fish passage numbers. We are not even sure how the Applicant should respond to what is essentially CRWC's unhappiness with the USFWS position on trigger numbers to determine fish passage implementation. In their own words CRWC states, "…despite the fact that the USF&W set the target fish passage numbers for American shad at the Fiske Mill dam, the dam downstream of the two dams under consideration for LIHI certification, it seems at odds with good river management that these dams would be issued low impact certification from LIHI based on a condition for passage of 750 shad at the Fiske Dam before Ashuelot and Robertson must install upstream fish passage. That is not low impact in the opinion of the Watershed Council."

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.

***

The Applicant responded to the ARLAC letter and agreed to follow-up on Threatened and Endangered Species by reviewing the New Hampshire Natural Heritage Inventory for any state threatened or endangered species. In a response to ARLAC's request for "…better accommodation of recreational uses by the public, e.g. canoeing, kayaking, fishing and suggest working with groups such as the NH Appalachian Mountain Club Paddlers or the Merrimac Valley Paddlers to create safer access at the two dams."

The Applicant responded by saying, "We are paddlers ourselves and have no objections to portages taking place at our dams as long as the paddlers respect the property and take proper care." The Applicant also agreed to work with local paddlers to explore the feasibility of restoring "…an old portage route on the left bank at Ashuelot…if it can be done safely and practically." The Applicant noted that the "…slope was completely rebuilt with heavy rip rap by …" the previous owner after the flood of 2005, which will make the restoration challenging "…but we will do what we can to accommodate paddlers."

General conclusions -The project's design, location, topography, and geology have resulted in a project that appears to be consistent with LIHI criteria.

Recommendation - Based on my review of information submitted by the applicant, my review of additional documentation, and my consultations with resource agency staff, I believe the Project meets all of the criteria to be certified and I recommend certification with the following non-standard condition.

Background - The projects were awarded a §401 Water Quality Certificate in 1985. However, these documents were vaguely worded, and the Applicant asked for a letter of compliance from the Water Quality division of the New Hampshire Dept. of Environmental Services (DES) in the spring of 2009. In response, DES asked the Applicant to collect water quality data during the summer of 2009 to demonstrate compliance with state standards. The DES provided the Applicant water quality monitoring recommendations "…designed to determine if the operation of the Lower Robertson Dam and the Ashuelot Paper Mill dam are impacting water quality in the adjacent sections of the Ashuelot River and if these waterbodies are meeting New Hampshire surface water quality standards."

The Applicant believes that because of the prolonged stretches of white water upstream and downstream of the projects, the resultant high dissolved oxygen levels, and the small size of the impoundments, he does not anticipate any problem proving that the projects meet water quality standards. During the summer of 2009, the Applicant collected half of the ten sets of water samples (each set consisting of 4-8 samples) required by DES. DES analyzed these samples. None of the samples indicated a water quality problem.

Because of the unusually heavy rain during the summer of 2009, the Applicant was unable to finish collecting water quality data. Without collecting data during the low flow high, temperature events which was impossible because of the record rainfalls, the applicant will not be able complete the water quality data collection until late 2010. Once it is completed the data will be submitted to the state water quality agency for a determination as to whether the Applicant's project meets state water quality standards.

Non-standard Condition- the certification will be suspended if, no later than December 31, 2010, the Applicant has not filed documentation with the Low Impact Hydropower Institute demonstrating that the Ashuelot River Project meets New Hampshire surface water quality standards.

LIHI Hydropower Certification Criteria

Goals, Standards and Applicant's Responses

The Low Impact Hydropower Institute certifies those hydropower facilities that meet its eight criteria:

A. River Flows:

***Goal**: The facility (dam and powerhouse) should provide river flows that are healthy for fish, wildlife, and water quality, including seasonal flow fluctuations where appropriate.*

***Standard**: For instream flows, a certified facility must comply with recent resource agency recommendations for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the "good" habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.*

A. Flows:

Criteria

1) **Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

YES

Yes. Article 2 of the 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 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 our ownership, the project is operated run-of-river and in conformance with those orders.

See relevant documents on LIHI's web site under Pending Applications at Appendix D - file names ROBxD & ASHxD, Flows.

NO *fail*
NOT APPLICABLE *go to A2*

2) If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards calculated using the Montana-Tennant method?

YES *go to B*
NO *If no, go to A3.*

3) If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?

NO *fail*
YES *go to B*

PASS/FAIL.

A. Flows – The Facility is in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement for both the reach below the tailrace and all bypassed reaches. FACILITY PASSES.

B. Water Quality:

Goal: *Water quality in the river is protected.*

Standard*: The water quality criterion has two parts. First, a facility must demonstrate that it is in compliance with state water quality standards, either through producing a recent (after 1986) Clean Water Act Section 401 certification, or demonstrating compliance with state water quality standards (typically by presenting a letter prepared for the application from the state confirming the facility is meeting water quality standards). Second, a facility must demonstrate that it has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d) (relating to water quality limited streams).*

---

1) Is the Facility either:
a) In compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the facility after December 31, 1986? Or

b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?

YES **Pending -** The projects were awarded 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 New Hampshire Dept. of Environmental Services this spring. In response, DES has asked ARH to collect water quality data during the summer of 2009 to demonstrate compliance with state standards. Because of the prolonged stretches of white water upstream and downstream of the projects, the resultant high dissolved oxygen levels, and the small size of the impoundments, the Applicant does not anticipate any problem proving that the projects meet water quality standards.

Because of the unusually heavy rain during the summer of 2009, the Applicant was unable to finish collecting water quality data. The Applicant believes that the data that was collected indicates and is consistent with the their opinion that "…Because of the prolonged stretches of white water upstream and downstream of the projects, the resultant high dissolved oxygen levels, and the small size of the impoundments, the Applicant does not anticipate any problem proving that the projects meet water quality standards." However without collecting data during the low flow high temperature events which was impossible because of the record rainfalls, the applicant will not be able complete the water quality data collection until late 2010. Once it is completed the data will be submitted to the state water quality agency for a determination as to whether the Applicant's project meets state water quality standards.

2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?

YES go to B3
NO *pass*

3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?

YES *pass*
NO *fail*

PASS Conditionally

B. Water Quality – The Facility is in Compliance conditionally with all conditions issued pursuant to a Clean Water Act §401 in the Facility area and in the downstream standards (including narrative andnumeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act. FACILITY PASSES

C. Fish Passage and Protection:

Goal: *The facility provides effective fish passage for riverine, anadromous and catadromous fish, and also protects fish from entrainment.*

Standard: *For riverine, anadromous, and catadromous fish, a facility must be in compliance with recent (after 1986) mandatory prescriptions regarding fish passage (such as a Fish and Wildlife Service prescription for a fish ladder) as well as any recent resource agency recommendations regarding fish protection (e.g., a tailrace barrier). If anadromous or catadromous fish historically passed through the facility area but are no longer present, the applicant must show that the fish are not extirpated or extinct in the area because of the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency.*

When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

1) Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?

YES go to C5
1) Yes. Article 2 of the Exemption requires adherence to conditions originally issued by New Hampshire Fish & Game and U.S. Fish and Wildlife that upstream and downstream fish passage be installed when those agencies deem it necessary. See relevant documents at Appendix F - file name xF, Fish Passage.

Downstream: 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.

Upstream: The Ashuelot River has been targeted for anadromous fish restoration. A dam downstream of the two dams operated by ARH, known as the Fiske Mill, is in the process of installing upstream passage. ARH agrees to construct fishways at both Ashuelot and Lower

Robertson projects in accordance with triggers and schedule that are described in this excerpt from the July 12, 2006 U.S. F&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, or (2) within four years of Fiske Mill passing 150 shad. (whichever occurs first).

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?

YES *Go to C6*

6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?

YES *Pass, go to D*

PASS

C. Fish Passage and Protection – The facility is in Compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986 - FACILITY PASSES.

D. Watershed Protection:

***Goal**: Sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.*

***Standard**: A certified facility must be in compliance with resource agency recommendations and FERC license terms regarding watershed protection, mitigation or enhancement. These may cover issues such as shoreline buffer zones, wildlife habitat protection, wetlands protection, erosion control, etc. The Watershed Protection Criterion was substantially revised in 2004. The revised criterion is designed to reward projects with an extra three years of certification that have: a buffer zone extending 200 feet from the high water mark; or, an approved watershed enhancement fund that could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1. and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.*

1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline

NO *go to D2*

2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?

NO *go to D3*

3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)

NO *Go to D4*

4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

YES 1) ASH) No. There is no formal buffer zone because the project impoundment is surrounded by an old highway on one side and private land and a railroad grade on the other side.
ROB) No. There is no formal buffer zone because the project impoundment is surrounded by an old paper mill and several residences.

2) Yes. We have not established a fund per se, but in December of 2008, ARH made a $15,000 donation to the Society for the Protection of New Hampshire Forests (SPNHF) to help them protect some 1700 acres in the basin. This important land conservation project, known as Ashuelot Headwaters, will be consummated in stages, probably beginning this year. A letter acknowledging our donation to SPNHF is included in Appendix G. Robert King, president and majority owner of ARH has participated directly in the protection of another 2300 acres in the Ashuelot basin in the last decade. Please see a brief article from Forest Notes (SPNHF's magazine) included in Appendix G - file name xG Watershed Protection. on LIHI's web site under Pending Applications

PASS

D. Watershed Protection – The facility is in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding Protection, mitigation, and enhancement of shorelands surrounding the Project - FACILITY PASSES

E. Threatened and Endangered Species Protection:

Goal*: The facility does not negatively impact state or federal threatened or endangered species.*

Standard: *For threatened and endangered species present in the facility area, the facility owner/operator must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and any requirements for authority to "take" (damage) the species under federal or state laws.*

Threatened and Endangered Species Protection:

1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?

NO *Pass, go to F*

2) The U.S. Fish & Wildlife Service has indicated by email that there are no target species in the vicinity of these projects:

From: John_Warner , US FWS
To: Bob King Applicant
Date: 16-4-09

> 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 – John Warner, USFWS

ARLAC request:

> The Ashuelot River Local Advisory Committee (ARLAC) asked that in addition to documentation from USFWS regarding the lack of presence of threatened or endangered species in the area of the two dams, ARLAC asks that ARH also request a review by the NH Natural Heritage Inventory for any state threatened or endangered species.

The Applicant responded with the following:

> "…we looked at the NH Natural Heritage Inventory data base (using the buffered data) and found no instances of any state threatened or endangered species within the project bounds or impoundments."

YES *Pass, go to F*

PASS

E. Threatened and Endangered Species Protection – Except for the occasional transient no threatened or endangered species or their critical habitat listed under state or federal Endangered Species Acts are present in the Facility area. FACILITY PASSES.

F. Cultural Resource Protection:

Goal: *The facility does not inappropriately impact cultural resources.*

Standard: *Cultural resources must be protected either through compliance with FERC license provisions, or, if the project is not FERC regulated, through development of a plan approved by the relevant state, federal, or tribal agency.*

Criteria:

1) **If FERC-regulated, is the Facility in compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?**

YES *Pass, go to G*

Article 10 of the Exemption required of the original project owner certain conditions for cultural and historic preservation. To the best of the Applicants knowledge, these conditions were met. There have been no issues of this kind during the Applicant's ownership or, to their knowledge, in the decade before their ownership.

PASS

G. Cultural Resources – The Facility is in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC exemption - FACILITY PASSES.

G. Recreation:

Goal: *The facility provides free access to the water and accommodates recreational activities on the public's river.*

Standard: *A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a facility must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.*

Criteria:

1) **If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?**

YES

1) Article 2 of the Exemption requires adherence to conditions issued by agencies including the requirement to allow basic riverine access.

3) Yes. The project lands around the reservoir and downstream are neither fenced nor posted, and no fees or charges are applied to visitors. The actual power plant is fenced.

In a August 31, 2009 Comment letter from the Ashuelot River Local Advisory Committee (ARLAC), that organization asked the following:

> "The run of river between the two noted dams is well known for its recreational use by whitewater enthusiasts who begin their run upstream of the dams at the Ashuelot Covered Bridge and continue downstream to Hinsdale. Portage at the two dams can be difficult and dangerous due to steepness and the rocky nature of the banks.
>
> ARLAC sought the input of paddlers of this stretch of river who suggested improvements that could be made for safer use by the recreational user. Among them was installation of stairs with a railing, possibly constructed with a slide in the middle or to one side to allow canoes to be slid up and down. Also the reinstatement of a portage trail on river left (going downstream) at Ashuelot dam that existed prior to the bank washout in 2005.
>
> We would appreciate better accommodation of recreational uses by the public, e.g. canoeing, kayaking, fishing, and suggest working with groups such as the NH Appalachian Mountain Club Paddlers or the Merrimack Valley Paddlers to create safer access at the two dam sites."

The Applicant's response to the ARLAC request follows:

> "We are paddlers ourselves and have no objections to portages taking place at our dams as long as the paddlers respect the property and take proper care. I would be happy to speak with representatives upon receipt of a contact name and number. We were not aware of an old portage route on the left bank at Ashuelot, but we are willing to work with the paddlers to restore that path if it can be done safely and practically. We note that slope was completely rebuilt with heavy rip rap by Algonquin after the flood of 2005, so it may be challenging to cut a terraced trail, but we will do what we can to accommodate paddlers."

YES *Pass, go to H*

PASS

G. Recreation – The Facility is in Compliance with all requirements regarding Recreation protection, mitigation or enhancement included in the FERC exemption and allow access to the reservoir and downstream reaches without fees or charges - FACILITY PASSES.

H. Facilities Recommended for Removal:

Goal*: To avoid encouraging the retention of facilities that have been considered for removal due to their environmental impacts.*

Standard: *If a resource agency has recommended removal of a dam associated with the facility, certification is not allowed.*

1) Is there a Resource Agency recommendation for removal of the dam associated with the Facility?

NO *Pass, Facility is Low Impact*

PASS
FACILITY IS LOW IMPACT

RECORD OF CONTACTS WITH RESOURCE AGENCY STAFF

Date of Conversation:	11-04-09
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	Gregg Comstock, P.E., Supervisor, WQ Planning Section NHDES Watershed Management Bureau
Telephone/email:	603-271-2983 gcomstock@des.state.nh.us

5-19-09 – I called Gregg to explain what LIHI was about and how our criteria worked particularly for water quality. I was very interested to see if he was comfortable having the Applicant gather water quality data and the DES using that data to make a determination on whether or not the project met state water quality standards. It sounded like it would be possible, but that was contingent on the data being gathered in a way that satisfied the state. Gregg said he would be working with the applicant to provide him with monitoring recommendations.

11-04-09 - I spoke with Gregg about the water quality data that was collected by the applicant. He referred me to Ted Walsh, who was out of the office today, but would be in the remainder of the week. Gregg said he had not paid much attention to the monitoring effort, but would review when the information was provided to DES.

Date of Conversation:	11-05-09
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	Ted Walsh, Surface Water Monitoring Coordinator NH DES
Telephone/email:	603-271-2083 ted.walsh@des.nh.gov
Areas of Expertise:	Water Quality Sampling

I was hoping to get some clues about the water quality based on the limited monitoring that had taken place before the heavy rains forced a shutdown. Ted did not have much of the data so it looks like there is a problem with communicating data. Ted was able to say that the low numbers for chlorophyll were well within acceptable levels, that had a lot to do with the colder temperatures and heavy rains. He did say that he wouldn't be surprised to see higher DO levels because of the rapids and whitewater caused by a rocky and steeper gradient. Ted was comfortable with discontinuing sampling until 2010 with hopes that the sampling could be complete by end of September. I explained that I would be recommending certification with non-standard conditions related to completing water quality data gathering and a determination from DES that the Applicant's projects met NH water quality standards.

The applicant subsequently sent the following email to Ted Walsh at DES:

Hi Ted,

I hope you got my phone message earlier today. I understand Fred Ayer at LIHI has been in touch with you- he let me know you don't have all the water quality test results for our hydros.

Here is what I've got. The phosphorous data for 8/3 came from you via phone. The remainder of that data arrived from DES by mail. Note 8/13 is missing. I emailed you about the missing 8/13 data on 9/15 but have not heard back (see email below). The chlorophyll data came to me via Jody Connor in your limnology lab.

My understanding is that all of these data are well below DES levels of concern.

Also, in our last phone conversation on 9/11, you concurred with me that it was now too cold and flows remained too high to test Dissolved Oxygen. Therefore, we said we would finish the Phosphorous/Chlorophyll tests AND log D.O., per your requirements, next summer.

Water Quality Test Results

04ASH (Lower Robertson Hydro)

	Phosphorous mg/l	Chlorophyll A micro-g/l
8/3	.028	1.77
8/13		2.46
8/21	.022	0.33
8/27	.024	1.14
9/3	.023	0.747 (averaged w. REP)
9/3REP	.023	

03KASH (Ashuelot Hydro)

	Phosphorous mg/l	Chlorophyll A micro-g/l
8/3	.026	1.51
8/13		2.36
8/21	.022	0.49
8/27	.024	1.08
9/3	.024	0.645 (averaged w. REP)
9/3REP	.023	

Thank you.
Bob King, P.E., Pres.

Ted,

Thanks for helping with the questions below. I spoke with Wendy at Water Lab and Jody at Limnology and there appears to be a gap in the data. Wendy has no information on phosphorous prior to 8/20. Earlier today, you gave me values of .028 and .026 for 04-ASH and 03K-ASH for samples collected 8/3. Do you have phosphorous results for 8/13? (Jody had chloro A results for 8/13 and all other days)

tnx,

Bob

Date of Communications:	9-09 through 10-09
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	John Warner, Hydro Coordinator US Fish and Wildlife Service
Telephone/email:	(603) 223-2541 john_warner@fws.gov
Areas of Expertise:	Hydro/Energy/Fish

John and I had spoken about the Applicants projects on several occasions and it was clear that John's focus was on the Applicant's commitment to providing fish passage in a timely fashion and keyed to trigger numbers that had been provided to the previous Applicant in 2006. There had been confusion about what the specified trigger numbers were and unfortunately, LIHI added to the confusion by posting an earlier draft version for the Applicant's fishery Appendix, which unfortunately had an incorrect description of the trigger numbers and start of construction for the upstream passage facilities. John had also expressed concerns that the Applicant had not actually committed to implement fish passage for the Project. Recent discussions with John and the Applicant have satisfied any concerns I have about the Applicant's commitment. The following excerpt from two e-mails hopefully puts this issue to rest:

e-mail from John Warner to the Applicant 6-12-09
Bob -- In general, I think we can agree on the approach you propose -- That you state your agreement to construct a lift at Ashuelot Paper and Denil at Lower Robertson unless when we get to the trigger numbers of fish passing Fiske Mill that we agree on alternative structures at the sites. But, we note that the correspondence in our files does not indicate we concluded concurrence to specific plans. Rather, Algonquin prepared plans which we commented on, then they prepared modified plans that we also commented on. The revised plans were not modified again after that back-and-forth.

So - in your proposal, I would recommend that you identify your agreement to construct fishways at your projects within 2 years after 750 American shad are passed at the downstream Fiske Mill Dam or within 4 years after 150 shad pass Fiske Mill, whichever comes first. The fishways would be designed based on the plans developed by Algonquin Power dated March 14, 2006, with modifications described in a letter from the Fish and Wildlife Service to Algonquin Power dated July 12, 2006 . If in the future, you and Service agree on alterative fishway designs, you agree to construct these alternative fishways according to the agreed to trigger and construction schedule.
Let me know if you have any questions – JW

e-mail from Bob King (Applicant) to John Warner 6-9-09

Thanks for clarifying the trigger numbers. We are happy to adhere to those. The issue on which I'm not clear is having "fishway plans agreed to and approved now" since so much can change between now and the time we build upstream passage. Would you be willing to sign off on our willingness to build to the Algonquin denil for Lower Rob and lift for Ashuelot UNLESS some better solution can be agreed to in the period of time before actual construction. It doesn't seem appropriate to me to finalize a design when there are still unknowns. I hope you understand we are not trying to evade our responsibilies. But shouldn't we all keep options open in case a better solution comes along. Bob King (Applicant)

Finally, I also have discussed with both the Applicant and John Warner about the consequences for a LIHI certificate holder not complying with the certificate requirements. For example if the Applicant did not implement fish passage in line with the trigger numbers, LIH would most likely suspend or rescind LIHI certification.

Date of Communications:	5-29-09 through 6-1-09
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	Gabe Gries, Fisheries Biologist II Warmwater Project Leader New Hampshire Fish & Game Department
Telephone/email:	603-352-9669 gabe.gries@wildlife.nh.gov

5-29-09 - This communication was between Gregg Comstock and Gabe Gries and was initiated by Gregg with the following e-mail question:

Gabe, I would just like confirmation from Fish and Game that you are satisfied that sufficient requirements are in place for upstream and downstream fish passage at Bob King's (Applicant) 2 hydros on the Ashuelot River. Per Bob, they already have downstream fish passage and they are required to construct upstream fish passage a year after trigger numbers of shad pass the next dam downstream dam (Fiske Mill). Bob further states that John Warner does not expect upstream fish passage will be required before 2012.

Is this an accurate representation of the fish passage requirements and are they satisfactory to Fish and Game?

6-1-09 - Gabe's answer:

In answer to your questions, yes and yes. I rely mainly on John Warner's opinions and suggestions related to these issues and if he is satisfied with these projects, we are as well.