

# **Review of Low Impact Hydropower Institute Application for Certification Worumbo Hydroelectric Project Androscoggin River, Lisbon Falls, Maine**

## **Introduction and Overview**

This report reviews the application submitted by the Miller Hydro Group (applicant) to the Low Impact Hydropower Institute (LIHI) for Low Impact Hydropower Certification for the Worumbo Hydroelectric Project (project or facility) on the Androscoggin River, Lisbon Falls, Maine. The Federal Energy Regulatory Commission (FERC) issued a 40-year license on December 24, 1985. FERC subsequently issued an “Order Approving and Modifying Minimum Flow Release Plan and Amending License” on January 26, 1994 and an “Order Amending License” on August 13, 1998 addressing the applicant’s request to raise the headpond elevation 1.5 feet and to allow headpond fluctuations of that amount. The project (FERC 3428-ME) has an installed capacity of 19.4 MW and inundates approximately 88 acres<sup>1</sup>. Non-reservoir facilities occupy 45,325 square feet.

## **Site Characteristics**

The project and the surrounding area are described in FERC’s 1998 Environmental Assessment<sup>2</sup> and the following descriptions are from that document.

The project is located on the Androscoggin River in the Towns of Lisbon and Durham, Androscoggin County, Maine. This part of southwestern Maine is a hilly, rural residential area that includes scattered farms and commercial establishments. Lands adjacent to the reservoir are primarily undeveloped upland habitat of hardwoods with softwoods understory.

The Androscoggin River flows 164 miles from its source at Umbagog Lake to tidewater at Brunswick Dam. The river drains a 3,450-square-mile area. Based on flows measured at the U.S. Geological Survey gauge at Auburn, Maine, Androscoggin River flows at the Worumbo Dam have ranged from 356 cfs to 142,000 cfs. The mean annual flow at the project is 6,296 cfs; the estimated 7-day average low flow that has a 1 in 10 year recurrence (7Q10) is approximately 1,680 cfs. Project flows are controlled primarily by the operation of two upstream hydropower facilities, the Gulf Island Project (approximately 19 miles upstream) and the Lewiston Falls Project (14.5 miles upstream).

The project impoundment supports populations of largemouth bass, smallmouth bass, pickerel, yellow perch, and assorted non-game species, including white sucker and spottail shiner. In addition, runs of anadromous fish, primarily American shad and alewives, use the project’s fishways. With one exception, no federally listed threatened

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<sup>1</sup> Pre-dam (1863) river surface area is unknown.

<sup>2</sup> FERC. 1998. Environmental Assessment: Application for Amendment of License. Worumbo Hydroelectric Project, FERC Project No. 3428-080, Maine. August 1998.

or endangered aquatic or wildlife species exist in the project area. The exception is Atlantic salmon, listed as endangered in 2000. Although the species is considered extirpated in the Androscoggin<sup>3</sup>, very small numbers of salmon stray into the river, are present in the project area, and use the project fishways.

The rebuilt Worumbo Mill is situated adjacent to the project powerhouse. The Worumbo Mill was listed in the National Register of Historic Places (NRHP); after a fire in 1987 destroyed the building, it was removed from the list.

### **Project Description**

As described by the applicant<sup>4</sup>, the Worumbo Project consists of a dam/spillway, consisting of a gated flood spillway, a concrete ogee spillway with crest elevation at 97 feet mean sea level (msl) with two-foot-high hinged flashboards, a center rock ledge section containing a concrete dike with a crest elevation at 97 feet msl with two-foot-high hinged flashboards, and a 520-foot-long rock-filled timber crib dam with a crest elevation at 97 feet msl with 1.5-foot-high pneumatically operated crest gates; an intake section; and an integral powerhouse equipped with two turbine-generator units having a rated total capacity of 19.4 MW at a net operating head of 30.5 feet. The crest gate/flashboard system is designed to fail when overtopped by two feet of water. The dam creates an impoundment with a surface area of 190 acres at a normal full pond elevation of 98.5 feet msl.

The project is generally operated as a run-of-river facility, with outflow approximately equal to inflow on an instantaneous basis. The project is also operated to provide seasonally-varied minimum flow releases into the 850-foot-long bypassed river reach between the Durham-side dam and the end of the tailrace training wall. Current operation permits the impoundment to be drawn down by a maximum of 1.5 feet to allow the owner to maximize the energy and capacity of the project, to provide short-term reserve capacity to the interstate power grid, and to provide ancillary services (i.e., Automatic Generation Control) to the power grid. Minimum flow releases from the project are maintained at 1,700 cfs or inflow, whichever is less, during impoundment refilling.

### **Public Comments**

No public comments were provided to LIHI during the posted public comment period.

### **General Conclusions**

The project location, design, and operation have resulted in a facility that is consistent with LIHI criteria. The applicant conducted comprehensive agency consultations as part of applications in 1991 and 1998 to amend the project license. The resource agency staff

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<sup>3</sup> Department of Commerce (NOAA) and Department of Interior (USFWS). 1999. 50 CFR Part 17 – Endangered and Threatened Species; Proposed Endangered Status for a Distinct Population Segment of Anadromous Atlantic Salmon (*Salmo salar*) in the Gulf of Maine. Proposed Rule, notice of public hearing. November 17, 1999.

<sup>4</sup> Miller Hydro Group. 2004. Response to Low Impact Hydropower Questionnaire, Exhibit 12 – Project Description.

contacted by the Application Reviewer did not express concern about project operations or changes since the 1998 negotiations and license amendment. Agency staff are generally complimentary of the operator and the annual meeting process. The primary issues of ongoing interest are compliance with license-required bypass flows, flow fluctuations, and monitoring and reporting on bypass flows. Fish passage is an issue that will likely receive more agency attention should salmon and other anadromous fish populations warrant. The applicant and agencies are in the very early stages of discussing possible refinements to passage timing and operations. At present, however, the agencies agree that the applicant is providing suitable fish passage. If determined necessary by FERC, the Department of Interior, or state fish and wildlife agencies, the 1985 FERC Hydropower License (FERC Project No. 3428) contains provisions to require facilities for fish and wildlife (Article 15) and reserves the right “to require reasonable changes in the fish passage facilities and operation, to include the construction of additional facilities as may be found necessary to maintain anadromous fish migrations past the project” (Article 35).

### **Recommendations**

Based on review of information submitted by the applicant, including FERC Orders and agency letters, and conversations with resource agency staff, the review concludes that the Worumbo Hydroelectric Project meets all the certification criteria as described below and recommends certification.

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## **Low Impact Certification Criteria**

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### **A. Flows**

- 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 rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

**YES.**

On December 30, 1991, the applicant filed with FERC the results of an instream flow study and recommendations for changing the project’s minimum flow requirements. The study of minimum flows, including impacts of interim minimum flows to fish habitat in the 850-foot-long bypass reach between the Worumbo Dam and the powerhouse, was required by Article 32 of the 1985 FERC license. The applicant conducted the study, analyzed results, and developed recommended flows, in consultation with resource agencies. The applicant’s filing included a seasonal flow schedule and offsite mitigation in the form of an annual payment to the Maine Department of Inland Fisheries & Wildlife for a fisheries management program in the Lower Androscoggin River Basin. On January 26, 1994, FERC issued an “Order Approving and Modifying Minimum Flow

Releases and Amending License.” The Order contained the recommendations negotiated between by the applicant and participating resource agencies, as well as requirements to monitor flow releases and report annually. Agencies consulted included, the U.S. Fish and Wildlife Service, the Maine Department of Marine Resources, the Maine Department of Inland Fisheries & Wildlife, and the Atlantic Sea Run Salmon Commission.

The plan, including minimum flows and mitigation funding, were also subject to agency review when the applicant requested another license amendment in 1998. That amendment was requested to raise the headpond 1.5 feet and allow headpond fluctuations of that amount to provide for marketing spinning reserve capacity or limited peaking operation. Comments related to flows were provided in April, 1998 by the Maine Department of Inland Fisheries & Wildlife, Maine Department of Environmental Protection, U.S. Fish and Wildlife Service, and Maine Department of Marine Resources. All of these agencies either concurred with, or did not object to, the requested amendment. No flow modifications were requested at that time and the license amendment was issued with the same terms as the flow plan approved by FERC in 1994. That is, bypass flows remained unchanged. Downstream release below the project (bypass and gate or turbine discharge combined) is required to be 1,700 cfs or inflow, whichever is less, during any headpond refill periods.

Recent conversations with agency staff involved in these proceedings, confirmed this history and the applicant’s continued compliance with flow requirements. Most pointed out that annual meetings with the applicant have worked well and that they are satisfied that project operations are consistent with previous agreements and the FERC license requirements.

**PASS.**

- 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?**

**NOT APPLICABLE. See response A1 (PASS).**

- 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?**

**NOT APPLICABLE. See response A1 (PASS).**

**B. Water Quality**

- 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 (B1a).**

The Maine Department of Environmental Protection issued a “Maine Waterway Development and Conservation Act and Water Quality Certification” for the project on July 13, 1998. The Certification identified the applicable state water quality standards and conditionally approved the project modification. In a letter to the applicant dated January 18, 2002, the Department’s Dana Murch provided a copy of the Compliance Status Report and confirmed project compliance with the 401 Water Quality Certification conditions. Follow up conversations with Dana Murch affirmed that the project remains in compliance with Section 401.

*If yes, go to B2.*

- 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.**

“Maine currently has a fish consumption advisory for all freshwaters due to the presence of elevated mercury levels in fish tissue, therefore, **all freshwaters are “listed”** due to this contamination problem.”<sup>5</sup> The State of Maine also identifies the Androscoggin River at Brunswick, downstream of the project, as Class C for PCBs and dioxins (Water-quality limited waters where enforceable control measures apply – attainment status pending follow-up monitoring). Finally, FERC’s 1998 Environmental Assessment notes that dissolved oxygen (DO) levels downstream of the project are frequently at saturation or supersaturation, well above the required Class C standard of 5 ppm.

*If yes, go to B3.*

- 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.**

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<sup>5</sup> Maine Department of Environmental Protection. 1998. Maine Section 303(d) Waters 1998. Web link at [www.mainerivers.org/pdf/dep\\_water\\_quality.pdf](http://www.mainerivers.org/pdf/dep_water_quality.pdf).

Dana Murch<sup>6</sup>, Maine Department of Environmental Protection, said that the project is not the cause of downstream water quality violations or nonattainment. FERC's 1998 Environmental Assessment noted that "[w]ater quality monitoring conducted by the licensee from 1990 to 1994 determined that project operation has not affected DO levels in the river below the project dam."

**PASS.**

### **C. Fish Passage and Protection**

#### **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?**

**NOT APPLICABLE.**

Project facilities include an upstream fish lift and a downstream fishway, which provide passage for migrating anadromous fish, including Atlantic salmon, American shad and alewives<sup>7</sup>. These fish passage facilities are part of the FERC license and were reviewed by the resource agencies again in 1991 and 1998 as part of license amendment processes. Fish passage efficiency studies were conducted annually from 1990 through 1995. The runs of alewives being studied were small, and study results were inconclusive. By Order dated November 12, 1998, FERC agreed that further studies should be discontinued until such time as needed<sup>8</sup>.

The U.S. Fish and Wildlife Service<sup>9</sup>, noted that the fish lift and fishway can operate effectively when the headpond elevations are between 97.0 and 98.5 feet msl and that the cycling operations proposed would be "infrequent during the peak upstream migration period (May – June), thus avoiding impacts to anadromous fish due to pulsed discharges." The Service suggested including discussion of frequency and timing of cycling operations in the annual meetings to determine whether there are any adverse effects on anadromous fish runs. The applicant continues to meet annually with the resource agencies<sup>10</sup>. In addition, the Maine Atlantic Salmon Commission<sup>11</sup> is working with the applicant to refine timing and operation of the fish lifts.

***If not applicable, go to C2.***

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<sup>6</sup> Dana Murch. 2004. Personal (telephone) communication with Jan Mulder. April 27, 2004.

<sup>7</sup> Maine Department of Environmental Protection. 1998. Maine Waterway Development and Conservation Act and Water Quality Certification. July 13, 1998.

<sup>8</sup> Maine Department of Environmental Protection. 1998. Letter with 401 Compliance Status Report from Dana Paul Murch, Dams & Hydro Supervisor, to Bearl S. Keith, Miller Hydro Group. January 18, 2002.

<sup>9</sup> U.S. Fish and Wildlife Service. 1998. Letter from Michael J. Bartlett, Supervisor, New England Field Office, to Mark Isaacson, Miller Hydro Group. April 27, 1998.

<sup>10</sup> Gordon Russell and Larry Miller. 2004. Personal (telephone) communication with Jan Mulder. April 29, 2004.

<sup>11</sup> Paul Christman. 2004. Personal (telephone) communication with Jan Mulder. May 4, 2004.

- 2) Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?**

**NO.**

There are historic records of anadromous fish movement through the facility area and anadromous fish are present and move through the passage facilities. While there is at least anecdotal evidence that Atlantic salmon were present historically, they are considered extirpated in the Androscoggin River<sup>12</sup>. However, a few “strays” are present most years and move through the facility<sup>13</sup>. The FERC license requires upstream and downstream fish passage which is in place. Fish passage was reviewed by resource agencies in 1991 and 1998 during consultation to amend the license. The applicant is working with the Maine Atlantic Salmon Commission to refine timing and operation of the fish lifts for the salmon.

*If no, go to C3.*

- a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?**

**NOT APPLICABLE. See response C2 (go to C3).**

- b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?**

**NOT APPLICABLE. See response C2 (go to C3).**

- 3) If, since December 31, 1986:**

- a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and**
- b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,**

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<sup>12</sup> Department of Commerce (NOAA) and Department of Interior (USFWS). 1999. 50 CFR Part 17 – Endangered and Threatened Species; Proposed Endangered Status for a Distinct Population Segment of Anadromous Atlantic Salmon (*Salmo salar*) in the Gulf of Maine. Proposed Rule, notice of public hearing. November 17, 1999.

<sup>13</sup> Paul Christman. 2004. Personal (telephone) communication with Jan Mulder. May 4, 2004.

- c) **Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?**

**NO.**

At time of project licensing, the applicant reached agreement on fish passage without agencies issuing a Mandatory Fish Passage Prescription<sup>14</sup>. The agencies recommended fish passage facilities as part of license consultation and negotiation during the licensing process which involved a major redevelopment project<sup>15</sup>. The written record and recent conversations with agency staff indicate that agencies were satisfied that the recommended fish passage facilities provided were sufficient. The resource agencies had chances in 1991 and 1998 to issue a Mandatory Fish Passage Prescription, but did not do so. The agency correspondence submitted by the applicant and the Application Reviewer's follow up discussions with agency staff indicate that the resource agencies are generally satisfied with the fish passage facilities provided and the annual project meetings which provide a forum for feedback and discussion of operational improvements. If determined necessary by FERC, the Department of Interior, or state fish and wildlife agencies, the 1985 FERC Hydropower License (FERC Project No. 3428) contains provisions to require facilities for fish and wildlife (Article 15) and reserves the right "to require reasonable changes in the fish passage facilities and operation, to include the construction of additional facilities as may be found necessary to maintain anadromous fish migrations past the project" (Article 35).

*If no, go to C5.*

**4) If C3 was not applicable:**

- a) **Are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? Or**
- b) **If the Facility is unable to meet the fish passage standards in 4a, has the Applicant demonstrated, and obtained a letter from the US Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource?**

**NOT APPLICABLE. See response C3 (go to C5).**

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<sup>14</sup> Mark Isaacson. 2004. Personal (telephone) communication with Jan Mulder. May 4, 2004.

<sup>15</sup> Gordon Russell. 2004. Personal (telephone) communication with Jan Mulder. May 27, 2004.

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

**NOT APPLICABLE.**

The project facilities include an upstream fish lift and a downstream fishway. According to correspondence from the Maine Department of Inland Fisheries & Wildlife<sup>16</sup>, fish passage is not required for inland (freshwater) fisheries.

*If not applicable, 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?**

**NOT APPLICABLE.**

There are no agency recommendations for fish protection, such as tailrace barriers.

**PASS.**

**D. Watershed Protection**

**1) Is the Facility in Compliance with Resource Agency Recommendations, or, if none, with license conditions, regarding protection, mitigation or enhancement of lands inundated by the Facility or otherwise occupied by the Facility, and regarding other watershed protection, mitigation and enhancement activities?**

**YES.**

The 1998 FERC License Amendment required the licensee to monitor the reservoir shoreline for evidence of erosion due to the periodic 1.5-foot reservoir drawdowns. These studies were completed January 16, 2002.

**PASS.**

**E. 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?**

**YES.**

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<sup>16</sup> Maine Department of Inland Fisheries & Wildlife. 1998. Letter from Frederick B. Hurley, Jr., Deputy Commissioner, to Mark Isaacson, Miller Hydro Group. April 15, 1998.

According to the 1998 FERC Environmental Assessment, there were no federally listed threatened or endangered aquatic or wildlife species in the project area, nor any state-protected wildlife habitat. Subsequently, Atlantic salmon were listed as endangered in November 2000. As part of their status review for the proposed rule, the Departments of Commerce and Interior noted that “[h]istorically, the Androscoggin River delimited the range of the DPS [distinct population segment] to the south, but populations south of the Kennebec River have been extirpated.”<sup>17</sup> Nonetheless, Atlantic salmon are present in the facility area, though agency contacts interviewed by the Application Reviewer said that Atlantic salmon are very rare in the Androscoggin River.

*If yes, got to E2.*

- 2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?**

**NOT APPLICABLE.**

Because Atlantic salmon are considered extirpated in the Androscoggin River, there is no recovery plan.

*If not applicable, go to E3.*

- 3) If the Facility has received authority to incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) Obtaining an incidental Take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?**

**NOT APPLICABLE.**

Atlantic salmon are considered extirpated in the facility area.

*If not applicable, go to E5.*

- 4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:**
- a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or**

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<sup>17</sup> Department of Commerce (NOAA) and Department of Interior (USFWS). 1999. 50 CFR Part 17 – Endangered and Threatened Species; Proposed Endangered Status for a Distinct Population Segment of Anadromous Atlantic Salmon (*Salmo salar*) in the Gulf of Maine. Proposed Rule, notice of public hearing. November 17, 1999.

- b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or**
- c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or**
- d) The recovery plan under active development will have no material effect on the Facility's operations?**

**NOT APPLICABLE. See response E3 (go to E5).**

- 5) If E2 and E3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?**

**YES.**

Atlantic salmon in the Androscoggin River are extremely rare. The agencies who commented in 1998 did not express concerns about fish passage for Atlantic salmon and no concerns were identified in recent discussions. The Atlantic salmon present can, and do, pass through the passage facilities. The applicant meets annually with resource agencies to discuss project operations, including fish passage, and has begun working with the Maine Atlantic Salmon Commission to refine timing and operation of the fish lifts for the salmon. As discussed in Section C – Fish Passage, the FERC License contains provisions, including reserved authority in Article 35, to require that fish passage facilities be added or modified if FERC, the Department of Interior, or state fish and wild agencies determine that circumstances warrant.

**PASS.**

#### **F. Cultural Resource Protection**

- 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.**

The Facility is FERC regulated. The State Historic Preservation Officer notified the applicant that the 1998 proposed operating regime would not exacerbate erosion of any archeological sites located above the pool elevation; consequently, the proposed undertaking would not affect properties of historic, architectural, or archeological significance<sup>18</sup>.

**PASS.**

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<sup>18</sup> Earle G. Shettleworth, Jr. 1998. Letter to Mark Isaacson, Miller Hydro Group. April 17, 1998.

- 2) If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or Native American Tribe, or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility?**

**NOT APPLICABLE. See response F1 (go to G).**

**G. Recreation**

- 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.**

The applicant developed a boat launch facility and picnic area at the mouth of the Sabattus River which provide access to the project reservoir. These facilities were subsequently deeded to the Town of Lisbon and the Town of Lisbon charges no fees for their use. The applicant developed and maintains a canoe portage around the project. Seasonal bank fishing from both the Durham and Lisbon shores is permitted and encouraged. The applicant provided an easement across project land to the next downstream hydroelectric project to further promote bank fishing and access to the Pejepscot reservoir. The applicant is a sponsor of an annual canoe race event in conjunction with the Town of Lisbon "Moxie Days."

*If yes, go to G3.*

- 2) If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation?**

**NOT APPLICABLE. See response G1 (go to G3).**

- 3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?**

**YES.**

The applicant charges no fees for use of the project facilities described above.

**PASS.**

**H. Facilities Recommended for Removal**

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

**NO.**

There have been no recommendations for removal of the Facility.

**PASS.**

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**FACILITY IS LOW IMPACT**

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**RECORD OF CONTACTS WITH RESOURCE AGENCY STAFF**

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Date of Conversation: April 26, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Person contacted: Steve Timpano  
Maine Department of Inland Fisheries & Wildlife  
Telephone/email: Telephone call  
Areas of Expertise: Inland (freshwater) fisheries and habitat, instream flows, water quality

Mr. Timpano mentioned that he has a long project history and is very familiar with the project. He was involved in the 1991 and 1998 agency meetings and negotiations to amend the FERC license. He has participated in the annual meetings and thinks the project is being implemented appropriately and as proposed. Flows in the bypass reach were his agency's primary concern. The applicant has planned periodic flow deviations during appropriate times (from a fisheries standpoint) and has notified agencies in advance.

In response to my question about not seeing involvement of the Atlantic Salmon Commission in 1998, he said that their staff resources are spread very thin and that the Androscoggin River is not a priority for salmon recovery. He suggested I call Norm Dube (207.941.4453) at the Salmon Commission as he is also very familiar with the project.

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Date of Conversation: April 27, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Person contacted: Dana Murch  
Maine Department of Environmental Protection  
Telephone/email: Telephone call  
Areas of Expertise: Water Quality Certification and compliance

Mr. Murch said that, yes, the applicant is in compliance with their 401 Water Quality Certification conditions as stated in his letter of January 18, 2002 and the referenced Compliance Status Report. Water quality standards are being met and there's been no change in compliance status.

In response to my question about whether the river in the vicinity of the facility and downstream met water quality standards (applicant had answered "yes" to B2, other information indicated it should be "no"), he said that the river did not meet water quality standards. In fact, few in Maine did. In this case the history of heavy industry and acid rain, both contribute to this situation. But, in response to question B3, he said that the facility is not the cause of the water quality violations.

Date of Conversation: April 29, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Persons contacted: Gordon Russell and Larry Miller  
U.S. Fish and Wildlife Service  
Telephone/email: Telephone call  
Areas of Expertise: Fisheries, instream flow, fish passage, and habitat

Mr. Russell and Mr. Miller are both familiar with the project, although Mr. Miller is currently the most directly involved in project implementation and the annual meetings. Their agency was involved in negotiating instream flows and supported the off-site mitigation fund. Fish passage is fine right now, though they continue to discuss with the applicant the details of implementation. The applicant has coordinated with the agencies and they meet annually and review project operations. Nothing has changed since 1998.

I asked about calling Benedicto Rizzo in USFWS' Hadley office and whether he would have any different information and/or perspective. They said no, that Mr. Rizzo is most familiar with technical issues related to the fish passage. They don't think he'd provide new information.

Mr. Russell and Mr. Miller pointed out that this project's success depends on implementation and operation, and compliance with license requirements and previous agreements. The current operator is doing a good job. Given that, they wondered about the certification and whether a facility could be certified "low impact" and then be sold to someone less focused on project compliance. I explained the annual review process and that continued certification is dependent on operating as certified. They seemed comfortable with that information.

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Date of Conversation: April 30, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Person contacted: Thomas Squiers  
Maine Department of Marine Resources  
Telephone/email: Telephone call  
Areas of Expertise: Anadromous fisheries and fish passage

Mr. Squiers is familiar with the project and has participated in the annual meetings. Fish passage studies are on hold, based on insufficient stock. However, the applicant is working with the agencies and prepared to proceed when it makes sense.

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Date of Conversation: May 4, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Person contacted: Paul Christman  
Maine Atlantic Salmon Commission  
Telephone/email: Telephone call  
Areas of Expertise: Atlantic salmon

Mr. Christman wasn't around during the initial negotiations, but is familiar with the project and the fish passage facilities. He said that the Commission is in the early stages of working with the applicant to refine the timing and operation of the lifts. He was able to clarify the status of Atlantic salmon. Atlantic salmon were historically present in the Androscoggin River, though the evidence that he is aware of is largely anecdotal and there is no information about size and extent of runs. While the species is listed, it is classified as extirpated on the Androscoggin. However, "strays" appear most years and move through the project area. In response to my question about the cause of extirpation, he said it would be difficult to put a finger on one cause. Certainly the very long history of heavy industry, including numerous dams, likely contributed.

As I'd also left a message for Norm Dube, but knew he was busy, I asked Mr. Christman about calling Mr. Dube. Mr. Christman thought that while Mr. Dube had a long project history, he did not think Mr. Dube would provide new information.

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Date of Conversation: May 27, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Persons contacted: Norm Dube  
Maine Atlantic Salmon Commission  
Telephone/email: Telephone call  
Areas of Expertise: Atlantic salmon, fish passage, project history

I called Mr. Dube for clarification about the history of the license-required fish passage facilities, how those were arrived at, and why there was no Mandatory Fish Passage Prescription. Mr. Dube said he did not recall the details and suggested calling Gordon Russell.

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Date of Conversation: May 27, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Persons contacted: Gordon Russell  
U.S. Fish and Wildlife Service  
Telephone/email: Telephone call  
Areas of Expertise: Fisheries, instream flow, fish passage, and habitat

I followed up with Mr. Russell for clarification about the history of the license-required fish passage facilities, how those were arrived at, and why there was no Mandatory Fish Passage Prescription. Mr. Russell said that the agencies recommended the fish passage facilities as part of license consultation and negotiation during the licensing process which involved a major redevelopment project. There was no need to pursue a Mandatory Fish Passage Prescription

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### **RECORD OF CONTACTS WITH APPLICANT**

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Date of Conversation: May 4, 2004  
Application Reviewer: Jan Mulder, Environmental Science Associates  
Person contacted: Mark Isaacson  
Miller Hydro Group  
Telephone/email: Telephone call  
Areas of Expertise: Project information and application documentation

I asked Mr. Isaacson about the Mandatory Fish Passage Prescription. He said that basically they never got to that point with the agencies because they reached agreement first on how to address fish passage. I asked him about any information that might document the cause of extirpation of Atlantic salmon on the Androscoggin River. Mr. Miller doesn't think much exists as he believes that the species has not been present in the Androscoggin for over one hundred years. The river is heavily industrialized and there are approximately 20 dams on the main stem. The lowest three dams, of which Worumbo is the highest, all provide fish passage. The dam immediately upstream of Worumbo was recently relicensed. Fish passage was not required there as that facility is sited at a natural barrier that precluded historic migration.