June 21, 2010

Fred Ayer, Executive Director
Low Impact Hydropower Institute
34 Providence St.
Portland, ME 04103

Subject: Final Application Reviewer Report for the Massachusetts Water Resources Authority Hydroelectric Projects

Dear Fred:

Attached please find my final reviewer's report on the application by the Massachusetts Water Resources Authority for certification of the Oakdale, Loring Road and Cosgrove Hydroelectric Projects by the Low Impact Hydropower Institute (LIHI). Please contact me with any questions or concerns.

Sincerely,

Jackie Dingfelder

Attachment: as described.

Review of Low Impact Hydropower Institute Application for Low Impact Hydropower Certification: Oakdale, Loring Road and Cosgrove Hydroelectric Projects

Introduction and Overview

This report reviews the application submitted by Massachusetts Water Resources Authority (applicant) to the Low Impact Hydropower Institute (LIHI) for Low Impact Hydropower Certification for the Oakdale, Loring Road, and Cosgrove Hydroelectric Project (project or facility) located in three different locations respectively: There is no river associated with the facility. The Federal Energy Regulatory Commission (FERC) granted the applicant exemptions from the requirements of Part I of the Federal Power Act (FPA) for all three projects: Oakdale Hydro (FERC No. 10689), Loring Road (FERC No. 13400) and Cosgrove Hydro (FERC No. 10688).

Project Background.

The Massachusetts Water Resources Authority (MWRA) supplies wholesale water to local water departments in 50 communities, primarily in the Boston metropolitan area. On average, MWRA supplies approximately 200 million gallons per day to its water system customers. MWRA's water comes from the Quabbin Reservoir, about 65 miles west of Boston, and the Wachusett Reservoir, about 35 miles west of Boston (See Figure 1). Both Quabbin and Wachusett Reservoirs are man-made reservoirs, constructed for water supply purposes. More than 50% of the inflow into the Wachusett Reservoir is transferred from Quabbin Reservoir via the Quabbin Aqueduct/Tunnel. From Wachusett Reservoir, the Cosgrove Aqueduct conveys water to the John J. Carroll Treatment Plant (JJCWTP) in Marlborough. After treatment, water is sent eastward via the MetroWest Tunnel or Hultman Aqueduct (back-up).

Downstream of JJCWTP and close to its centers of demand, MWRA has recently constructed a new network of tanks to protect and store treated drinking water in compliance with the Federal Safe Drinking Water Act. The network of new tanks includes the Norumbega and Loring Road Covered Storage Facilities. From the tanks, water is then distributed to member communities.

The MWRA transmission system consists of over 100 miles of tunnels and aqueducts that transports water largely by gravity to points of distribution within the MWRA service area. There are three locations within this water transmission system where hydroelectric facilities are located. These include: Oakdale at the end of the Quabbin Aqueduct; the Cosgrove Intake to the Cosgrove Aqueduct, and at the Loring Road Covered Storage Facility (this facility is under construction and will become operational in fall, 2010).

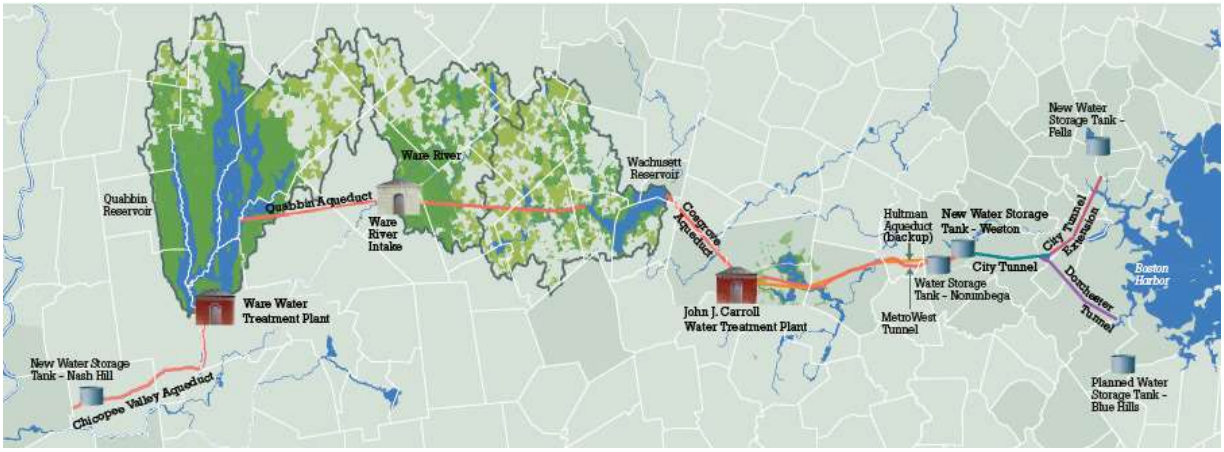

Figure 1

Oakdale Hydro (FERC No. 10689): The Oakdale hydroelectric facility is located at the outlet of the Quabbin Aqueduct just upstream of Wachusett Reservoir and near the mouth of the Quinepoxet River. Quabbin Aqueduct is a deep rock tunnel. The water enters the aqueduct at Quabbin Aqueduct Intake, Shaft 12 and travels over 24 miles to its terminus to the Oakdale transfer station in West Boylston Massachusetts. It is one of the locations in the MWRA water transmission system where MWRA currently captures energy in falling water as it is conveyed from higher elevations in the western portion of the MWRA system (Quabbin Reservoir) to lower elevations in the distribution area. Generation of hydropower is secondary to MWRA's primary objective of water supply, and is legally subordinate to MWRA's obligation to provide high quality drinking water. The Oakdale facility is operated and maintained by MWRA. The Oakdale station was constructed in 1929 as an outlet works of Quabbin Tunnel, and was initially operated solely as a water transfer station. In 1949, a hydropower generator was added. In 1990, FERC granted a conduit exemption for the Oakdale hydroelectric facility (FERC # 10689).

The project generated approximately 9,000 mWH in 2009. The hydropower generated is sold to West Boylston Municipal Lighting Plant. Revenues from the sale of power to West Boylston are used to offset the costs of operating the Massachusetts Department of Conservation and Recreation's (DCR) Watershed Protection Division. DCR and MWRA are partners in watershed protection and MWRA rate payers fund the DCR Watershed Protection Division.

Loring Road (FERC No. 13400): The Loring Road Small Conduit Hydroelectric Facility will be located in a valve chamber at the Loring Road Covered Storage Facility in Weston, Massachusetts. The hydroelectric facility, now under construction (projected completion is Fall, 2010) will generate power from fully treated potable water as it is transferred via a pipeline from one water supply storage tank in MWRA's water distribution system (Norumbega) to another storage tank (Loring Road). The Loring Road Hydroelectric Project consists of one generating unit having an installed capacity of 200 kW. The MWRA estimates that the project would have an average annual generation of 1,207,000 kW-hours that would be used on-site and any excess would be sold to a local utility. The Loring Road Hydroelectric Project is located within the MWRA's water distribution system. From Wachusett Reservoir (about 30 miles

northeast of the proposed project's location), water passes through the Cosgrove Aqueduct, to a water treatment plant, and then via the MetroWest Tunnel to the Norumbega Covered Storage Reservoir. The water continues through a branch of the Metro West tunnel to a underground valve chamber at Loring Road, where it runs through pressure-reducing valves to reduce the hydraulic pressure of the water. Under typical operation, the turbine generator will replace the function of the pressure reducing valves in the first valve chamber. After valve chamber one, the water flows through a second valve chamber that directs the flows to one of two storage tanks at Loring Road. From the tanks, the water discharges into downstream water pipelines. The turbine/generator will regulate flow and provide a constant pressure, in addition to energy recovery. FERC granted a conduit exemption for the Loring Road hydroelectric facility (FERC # 13400).

Cosgrove Hydro (FERC No.10688): The Cosgrove hydroelectric facility is located at the Cosgrove intake. The Cosgrove Intake and hydroelectric facility regulates the flow of water from the Wachusett Reservoir into the Cosgrove Aqueduct, which is an important transmission leg in the supply of water to the Boston Metropolitan area. There are two sections, the North and South intakes, and both intakes include a hydraulic turbine and two bypass lines. Each intake has three channels with traveling water screens. Each intake also has an upper intake sluice gate and lower intake sluice gate that allow operational flexibility to draw water from different levels of the reservoir. On the North intake, after this sluice gate, the water enters a common wet-well and from the wet well, flow is directed to either the turbine generator 1, bypass line 1 or bypass line 2 or a combination. Each of the bypass lines contains a sleeve valve, which is designed to regulate flows to the water supply transmission system over a range of flows. The configuration of the South intake parallels the North intake and flows entering the South intake are directed to either turbine generator 2, or bypass line 3 or bypass line 4.

Turbines are vertically oriented, full Kaplan type with six adjustable runner blades. The turbine generators were put into operation in 1969, and were recently rehabilitated and upgraded. These upgrades were necessary to integrate the turbines operation with a newly configured water supply system. The hydroelectric facility now operates at a head of approximately 55 feet, which flows through each turbine varying from 60 mgd to 280 mgd. Maximum output of each of the turbines is between 1000-1200 kW. Average annual power generation is 3 Gigawatt hours. Electricity is used on site as well as exported to the electrical grid (National Grid).

Public comment and agency letters.
LIHI received the following public comment on the Loring Road Project on 5/04/2010:

I am concerned about the risk of using potable water for small hydro facilities. Especially if the project is not designed prior to construction. Improper construction methods could put the entire system and the public at risk.

Dr. David Westerling, P.E.
Department of Civil Engineering
Merrimack College meghnac@bu.edu

MWRA Response to Dr. Westerling's comment: *MWRA agrees with Dr. Westerling that careful attention to design and proper construction methods are required for hydroelectric facilities using potable water. MWRA's priority is to ensure that the hydro unit is integrated into the water supply system in a manner that does not compromise the reliability and quality of water supply. During the feasibility, design, and now the construction phase of the project, top priority has been given to not compromising MWRA's water supply function.*

The consulting engineering firm that designed the Loring Road hydroelectric facility designer is well versed with MWRA's water system operations. During the design process, there were reviews at various junctures attended by the consulting engineer team and a team of MWRA staff from various divisions, including planning, design, construction, and field operations. Special meetings were also held to discuss design details, operating procedures, and constructability. Now that construction is underway, attention to proper construction methods and conformance with bid documents is a continued priority. Shop drawings pertaining to each element of construction are carefully reviewed, and construction progress meetings and special meetings are held frequently in the field so that every element of the project continues to receive careful evaluation.

USFWS raised the following concern about certifying the Loring Road Project before it is operational: *This is a recently FERC-permitted conduit project. Because the project has not been completed and therefore is not operational yet, we believe it is premature to determine whether it should receive LIHI certification. We recommend postponing certification until the project has been on-line for at least 6 months; if, after that operational period, MWRA provides documentation that the project has operated as permitted, then we would support LIHI certification.*

MWRA response to US Fish and Wildlife comments: *MWRA respectfully disagrees with USFWS recommendation re: the Loring Road hydroelectric project. As addressed further below, given the nature of the Loring Road hydropower, it can confidently be predicted and asserted that the project satisfies all LIHI's criteria. To delay certification until after six months of operation could deprive MWRA of the opportunity to earn Renewable Energy Credits for six months. Revenues received from hydro are used to reduce the water rate requirement for the cities and towns served by MWRA's water supply system.*

The Loring Road hydro facility, under construction, is a conduit facility located within an existing valve chamber that is part of the MWRA's water distribution system. The turbine/generator would be fed from a storage tank and discharge into the MWRA water distribution system rather than into a natural body of water. The facility would be driven by water demand in MWRA's Low Water Service area and would not influence or affect withdrawals from source reservoirs more than 30 miles away. Under current operation, sleeve valves in the Loring Road valve chamber are used to dissipate head, since water reaches Loring Road at a higher gradeline than the gradeline of the Low Service area and pressure must be reduced to protect the water distribution system downstream. Instead of wasting energy with the sleeve valves, the hydro turbine/generator would recover the energy. The hydro project's operation is secondary to and incidental to the primary purpose of the Loring Road facility (to establish the hydraulic gradeline of MWRA's Low Service system).

Re: LIHI criteria:

- *Water quality in rivers and streams is unaffected by Loring Road's operation.*
- *Fish passage is not applicable to the facility, and there have been no fish passage prescriptions for the facility.*
- *The facility does not affect watersheds; during the FERC process, there were no resource agency recommendations related to watershed protection, mitigation, and enhancement.*

- *The facility does not negatively impact state or federal threatened or endangered species; there are no threatened or endangered species in the project area.*
- *The facility does not inappropriately impact cultural resources; there were no FERC license/exemption provisions related to cultural resources.*
- *The facility is located within an underground vault chamber and criteria related to recreational facilities on the public' river are inapplicable. There were no FERC terms related to recreation access, accommodation, and facilities. For security reasons, access by the public to the vault is prohibited. However, public access is provided elsewhere on the Loring Road site.*
- *Dam removal is inapplicable to the Loring Road conduit facility.*

USFWS raised the following concern about certifying the Oakdale project:
This conduit project also has been operational for many years. Review of the project file indicates that this station (pre- and post-FERC permit) has had a history of fishery impacts. In a letter from the MA DFW to the MWRA back in November of 1992, the issue of turbine mortality at the plant was discussed in detail. Apparently, lake trout residing in Wachusett Reservoir were attracted to the turbine's discharge and became entrained in the unit. This problem was identified back in the 1970s, and subsequently the Fish and Wildlife Service assisted the State with designing protective fish screens, which were installed in the early 1980s.

At some point those screens were removed, and on November 4, 1992 (two years after the FERC permit was issued) MA DFW staff observed over 100 dead lake trout at the Oakdale outlet. In its November 17, 1992 letter, MA DFW requested that MWRA reinstall the tailrace racks to prevent further fish kills. We have no further correspondence in our file since the date of that letter.

Based on this information, the FWS would only recommend that this project receive LIHI certification if (1) the MWRA commits to installing and maintaining the tailrace screens, or, (2) the MWRA provides evidence that those screens are no longer needed.

MWRA response to US Fish and Wildlife comments:
The screens were temporarily taken out around 1992 for repairs, and were then reinstalled by MWRA. They have been in place ever since.

LIHI received a comment letter from the **Massachusetts Department of Environmental Protection, Division of Watershed Management.** Their letter indicated that they had reviewed the operations of the three hydroelectric facilities and believed they all meet LIHI criteria.

General conclusions.
Oakdale: This conduit project has been operational for many years and has a history of fishery impacts. It appears that the concerns raised by USFWS have been addressed and the violations from 1992 have been mitigated. This project meets the current criteria for Low Impact Hydropower Certification.

Loring Road: The challenge presented by the application of the Loring Road Project is whether the project will meet LIHI certification criteria once it is up and running as noted by the USFWS representative. The Loring Road Project is not yet operational and it is expected to go on line late Fall of 2010. FERC issued an Order granting a conduit exemption on August 7, 2009 and Section 30 (c) of the Federal Power Act requires the Commission to include in its conduit exemptions terms and conditions outlined by the federal and state fish and wildlife agencies to prevent impacts to fish and wildlife resources. No federal or state fish and wildlife agency submitted terms and conditions for this exemption. The key question for LIHI is what to do

about certifying a project that is not yet in operation, and as a result certain critical conditions on which certification could rise or fall are not yet proposed or approved by agencies whose approval may well make a big difference in LIHI's decision-making. The problem with delaying certification until the project is operating and has fulfilled these conditions is that once hydro operations begin, compliance could take up to several months. However, the problem with granting a full 5-year certification before a project has even begun operating is that once a certification has been received, LIHI will have provided a certification that is, essentially, nothing more than a prediction: a prediction that an as-yet non-operating project, with no track record of operation, will indeed be operated in a manner that is low impact.

Cosgrove: This conduit project has been operational for many years. Review of the FERC documents and project file shows no indication of compliance violations or concerns by agencies regarding impacts to fishery resources or water quality. This project meets the current criteria for Low Impact Hydropower Certification.

Recommendations.

Oakdale: 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 Oakdale Hydroelectric Project meet all of the criteria to be certified and I recommend certification for the full five years.

Loring Road: 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 Loring Road Hydroelectric APPEARS TO MEET all of the criteria to be certified, and I therefore RECOMMEND that the project be certified for a term of EIGHTEEN MONTHS, WITH SAID CERTIFICATION EXTENDED FOR AN ADDITIONAL FORTY-TWO MONTHS SHOULD THE APPLICANT DEMONSTRATE TO LIHI THAT IT HAS COMPLIED WITH THE CONDITIONS CONTAINED IN THE FERC EXEMPTION.

Cosgrove: 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 Cosgrove Hydroelectric Projects meet all of the criteria to be certified and I recommend certification for the full five years.

Low Impact Certification Criteria for Loring Road (FERC No. 13400)

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?

NOT APPLICABLE.

If YES, go to B.
If NOT APPLICABLE, go to A2.
If NO, project fails.

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: The Facility is located in a conduit that does not discharge into a river.

If YES, go to B
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?

If YES, go to B
If NO, project fails.

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

If YES, go to B2.
If NO, project fails.

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?

NO

If YES, go to B3.
If NO, go to C.

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?

If YES, go to C.
If NO, project fails.

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.

If YES, go to C5.
If NOT APPLICABLE, go to C2.
If NO, project fails.

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)?

NOT APPLICABLE: Facility is within the water distribution system.

If YES, go to C2a.
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?

If YES, go to C2b.
If NOT APPLICABLE, go to C2b.
If NO, project fails.

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?

If YES, go to C5.
If NOT APPLICABLE, go to C3.
If NO, project fails.

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,**
- **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?**

NOT APPLICABLE.

If NO, go to C5.
If NOT APPLICABLE, go to C4.
If YES, project fails.

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 4.a., 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.

If YES, go to C5.
If NO, project fails.

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

NOT APPLICABLE.

If YES, go to C6.
If NOT APPLICABLE, go to C6.
If NO, project fails.

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

NOT APPLICABLE.

If YES or NOT APPLICABLE, go to D
If NO, project fails.

PASS.

D. Watershed Protection

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

NOT APPLICABLE.

If YES = Pass, go to E and receive 3 extra years of certification
If 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?

NOT APPLICABLE.

If YES = Pass, go to E and receive 3 extra years of certification
If 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)

NOT APPLICABLE.

If YES = Pass, go to E
If 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.

NOT APPLICABLE.

If YES = Pass, go to E
If No = Fail

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?

NO.

If YES, go to E2.

If NO, go to F.

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.

***If YES or NOT APPLICABLE, go to* E3.**
If NO, project fails.

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.

If YES, go to E4.
If NOT APPLICABLE, go to E5.
If NO, project fails.

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

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?

If YES, go to F
If NO, project fails.

5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

If YES, go to F.
If NO, project fails.

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.

If YES, go to G.
If NOT APPLICABLE, go to F.2

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?

If YES, go to G.
If NO, project fails.

PASS.

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.

If YES, go to G3.
If NOT APPLICABLE, go to G2.
If NO, project fails.

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?

If YES, go to G3.
If NO, project fails.

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

NOT APPLICABLE.

If YES, go to H.
If NO, project fails.

PASS.

H. Facilities Recommended for Removal

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

NOT APPLICABLE: There is no dam associated with the Facility.

If NO, facility is low impact.
If YES, the project fails.

PASS.

FACILITY IS *CONDITIONALLY* LOW IMPACT

Low Impact Certification Criteria for Oakdale Hydro (FERC No. 10689)

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?

NOT APPLICABLE.

If YES, go to B.
If NOT APPLICABLE, go to A2.
If NO, project fails.

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: The facility is associated with a conduit/tunnel used to transfer water from one water supply reservoir to another. There are no bypassed reaches and there is no flow release schedule associated with the FERC approval. USFWS did not provide flow recommendations related to the facility tailrace or bypassed reaches.

If YES, go to B
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?

NOT APPLICABLE: The facility is located in a conduit facility.

If YES, go to B
If NO, project fails.

PASS.

B. Water Quality

2) Is the Facility either:
c) 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
d) 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.

If YES, go to B2.
If NO, project fails.

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?

NO.

If YES, go to B3.
If NO, go to C.

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?

NOT APPLICABLE.

If YES, go to C.
If NO, project fails.

PASS.

C. Fish Passage and Protection

3) 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.

If YES, go to C5.
If NOT APPLICABLE, go to C2.
If NO, project fails.

4) 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.

If YES, go to C2a.
If NO, go to C3.

c) 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.

If YES, go to C2b.
If NOT APPLICABLE, go to C2b.
If NO, project fails.

d) 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.

If YES, go to C5.
If NOT APPLICABLE, go to C3.
If NO, project fails.

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,**
- **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?

NOT APPLICABLE.

If NO, go to C5.
If NOT APPLICABLE, go to C4.
If YES, project fails.

4) If C3 was not applicable:
- **c) 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**
- **d) If the Facility is unable to meet the fish passage standards in 4.a., 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: The facility is not associated with a dam.

If YES, go to C5.
If NO, project fails.

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

NOT APPLICABLE.

If YES, go to C6.
If NOT APPLICABLE, go to C6.
If NO, project fails.

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

NOT APPLICABLE.

If YES or NOT APPLICABLE, go to D
If NO, project fails.

PASS.

D. Watershed Protection

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

YES: There is an extensive watershed protection program in place that includes preservation of watershed lands surrounding MWRA reservoirs. The MA Department of Conservation and Recreation Division of Water Supply Protection is responsible for watershed management. Watershed protection activities are funded by MWRA.

If YES = Pass, go to E and receive 3 extra years of certification
If 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?

YES.

If YES = Pass, go to E and receive 3 extra years of certification
If 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)

YES.

If YES = Pass, go to E
If 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.

NOT APPLICABLE.

If YES = Pass, go to E
If No = Fail

PASS.

E. Threatened and Endangered Species Protection

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

YES.

If YES, go to E2.
If NO, go to F.

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.

***If YES or NOT APPLICABLE, go to* E3.**
If NO, project fails.

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.

If YES, go to E4.
If NOT APPLICABLE, go to E5.
If NO, project fails.

4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:

e) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or

f) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or

g) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or

h) The recovery plan under active development will have no material effect on the Facility's operations?

YES.

If YES, go to F
If NO, project fails.

5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

YES.

If YES, go to F.
If NO, project fails.

PASS.

F. Cultural Resource Protection

3) 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.

If YES, go to G.
If NOT APPLICABLE, go to F.2

4) 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?

If YES, go to G.
If NO, project fails.

PASS.

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. There were no recreational access and facilities conditions in the FERC exemption. There is a public access plan that addressed the project area. The plan allows for public enjoyment and shore-line fishing and passive recreation, including hiking, walking, nature study, bird watching and snow shoeing

If YES, go to G3.
If NOT APPLICABLE, go to G2.
If NO, project fails.

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?

If YES, go to G3.
If NO, project fails.

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

YES. A Public Access Plan delineates what activities are permitted and what activities are not allowed. Boating is not allowed in the project vicinity due to threats to water supply.

If YES, go to H.
If NO, project fails.

PASS.

I. Facilities Recommended for Removal

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

NOT APPLICABLE: The facility is a conduit and there are no dams associated with it.

If NO, facility is low impact.
If YES, the project fails.

PASS.

FACILITY IS LOW IMPACT

Low Impact Certification Criteria for Cosgrove Hydro (FERC No. 10688)

A. Flows

2) 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?

NOT APPLICABLE.

If YES, go to B.
If NOT APPLICABLE, go to A2.
If NO, project fails.

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: The facility is associated with a conduit used to convey water from a water supply reservoir to a water treatment plant . There are no bypassed reaches, and there is no flow release schedule associated with the FERC approval. USFWS did not provide flow recommendations related to the facility tailrace or bypassed.

If YES, go to B
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?

NOT APPLICABLE: The facility is a conduit facility.

If YES, go to B
If NO, project fails.

PASS.

B. Water Quality

3) Is the Facility either:
e) 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
f) 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.

If YES, go to B2.
If NO, project fails.

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?

NO.

If YES, go to B3.
If NO, go to C.

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?

If YES, go to C.
If NO, project fails.

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.

If YES, go to C5.

If NOT APPLICABLE, go to C2.
If NO, project fails.

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.

If YES, go to C2a.
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?

If YES, go to C2b.
If NOT APPLICABLE, go to C2b.
If NO, project fails.

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?

If YES, go to C5.
If NOT APPLICABLE, go to C3.
If NO, project fails.

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,**
- **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?**

NOT APPLICABLE.

If NO, go to C5.
If NOT APPLICABLE, go to C4.
If YES, project fails.

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 4.a., 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: The facility is not associated with a dam.

If YES, go to C5.
If NO, project fails.

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

NOT APPLICABLE.

If YES, go to C6.
If NOT APPLICABLE, go to C6.
If NO, project fails.

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

YES

If YES or NOT APPLICABLE, go to D
If NO, project fails.

PASS.

D. Watershed Protection

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

YES. There is an extensive watershed protection program in place that includes preservation of watershed lands surrounding MWRA reservoirs. The MA Department of Conservation and Recreation Division of Water Supply Protection is responsible for watershed management. Watershed protection activities are funded by MWRA.

If YES = Pass, go to E and receive 3 extra years of certification
If 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?

YES.

If YES = Pass, go to E and receive 3 extra years of certification
If 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)

If YES = Pass, go to E
If 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.

If YES = Pass, go to E
If No = Fail

PASS.

E. Threatened and Endangered Species Protection

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

YES.

If YES, go to E2.
If NO, go to F.

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.

***If YES or NOT APPLICABLE, go to* E3.**
If NO, project fails.

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.

If YES, go to E4.
If NOT APPLICABLE, go to E5.
If NO, project fails.

4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:

i) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or

j) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or

k) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or

l) The recovery plan under active development will have no material effect on the Facility's operations?

If YES, go to F
If NO, project fails.

5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

YES.

If YES, go to F.
If NO, project fails.

PASS.

F. Cultural Resource Protection

5) 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.

If YES, go to G.
If NOT APPLICABLE, go to F.2

6) 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?

If YES, go to G.
If NO, project fails.

PASS.

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?

NOT APPLICABLE. There were no recreational access and facilities conditions in the FERC exemption. The hydroelectric facility is located in the Wachusett Reservoir water supply intake zone and access in the immediate area is restricted. There is Wachusett Reservoir Public Access plan

that provides for passive recreation elsewhere in the watershed. The plan allows for public enjoyment and shore-line fishing and passive recreation, including hiking, walking, nature study, bird watching and snow shoeing.

If YES, go to G3.
If NOT APPLICABLE, go to G2.
If NO, project fails.

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?

If YES, go to G3.
If NO, project fails.

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

YES. A Public Access Plan delineates what activities are permitted and what activities are not allowed. Public access is not allowed in the delineated Intake Protection Zone, but is allowed elsewhere on the Reservoir without fees or charges.

If YES, go to H.
If NO, project fails.

PASS.

H. Facilities Recommended for Removal

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

NOT APPLICABLE: The facility is a conduit and there are no dams associated with it.

If NO, facility is low impact.
If YES, the project fails.

PASS.

FACILITY IS LOW IMPACT

RECORD OF CONTACTS

Date of Conversation: 4/23/2010
Application Reviewer: Jackie Dingfelder, Consultant
Person Contacted: Robert Kubit, Division of Watershed Management, DEP
Telephone/email: Email: see below
Areas of Expertise: Water Quality

Hi Jackie,

I will be sending the attached letter out today indicating we believe all three projects meet LIHI criteria.

Bob

Robert Kubit
MassDEP
Division of Watershed Management
627 Main Street
Worcester MA 01608
Telephone: (508) 767-2854
Email: robert.kubit@state.ma.us
Fax: (508) 791-4131

Mr. Fred Ayer, Executive Director April 23, 2010
Low Impact Hydropower Institute
34 Providence Street
Portland ME 04103

Re: Loring Road (FERC #13400), Oakdale Hydro (FERC #10689) and Cosgrove Hydro (FERC #10688) Comments
LIHI Certification

Dear Mr. Ayer,

The Massachusetts Department of Environmental Protection (the Department) is the state agency responsible for issuing the 401 Water Quality Certificate for hydroelectric projects.

We have reviewed the operations of these three hydroelectric facilities and believe they all meet LIHI criteria.

Thank you for the opportunity to comment on this project. If you have any questions, please call me at 508-767-2854.

Sincerely,
Robert Kubit, P.E.

Date of Conversation:	5/5/2010
Application Reviewer:	Jackie Dingfelder, Consultant
Person Contacted:	Caleb Slater, MA Department of Fisheries and Wildlife
Telephone/email:	508-389-6300 x6331/ caleb.slater@state.ma.or
Areas of Expertise:	Wildlife and Fisheries

Mr. Slater responded to my email phone message and indicated that the MA Department of Fisheries and Wildlife had no issues or concerns with the MWRA conduit projects.

Date of Conversation:	6/4/2010
Application Reviewer:	Jackie Dingfelder, Consultant
Person Contacted:	Melissa Grader, US Fish and Wildlife Service
Telephone/email:	Melissa_Grader@fws.gov
Areas of Expertise:	Fish and Wildlife

Hello Ms. Dingfelder,

I have had a chance to review the files for the three conduit projects currently seeking LIHI certification. Below is our assessment and recommendation concerning each project:

1. Loring Road
This is a recently FERC-permitted conduit project. Because the project has not been completed and therefore is not operational yet, we believe it is premature to determine whether it should receive LIHI certification. We recommend postponing certification until the project has been on-line for at least 6 months; if, after that operational period, MWRA provides documentation that the project has operated as permitted, then we would support LIHI certification.

2. Cosgrove Intake
This conduit project has been operational for many years. Review of the project file shows no indication of compliance violations or impacts to fishery resources (the project withdraws water from the Wachusett Reservoir). Based on the information in our files and consultation with MA DFW staff, we would have no objection to this project receiving LIHI certification.

3. Oakdale Station
This conduit project also has been operational for many years. Review of the project file indicates that this station (pre- and post-FERC permit) has had a history of fishery impacts. In a

letter from the MA DFW to the MWRA back in November of 1992, the issue of turbine mortality at the plant was discussed in detail. Apparently, lake trout residing in Wachusett Reservoir were attracted to the turbine's discharge and became entrained in the unit. This problem was identified back in the 1970s, and subsequently the Fish and Wildlife Service assisted the State with designing protective fish screens, which were installed in the early 1980s.

At some point those screens were removed, and on November 4, 1992 (two years after the FERC permit was issued) MA DFW staff observed over 100 dead lake trout at the Oakdale outlet. In its November 17, 1992 letter, MA DFW requested that MWRA reinstall the tailrace racks to prevent further fish kills. We have no further correspondence in our file since the date of that letter.

Based on this information, the FWS would only recommend that this project receive LIHI certification if (1) the MWRA commits to installing and maintaining the tailrace screens, or, (2) the MWRA provides evidence that those screens are no longer needed.

Please feel free to contact me if you have any questions or require further information.

Sincerely,
Melissa Grader
~~~~~~~~~~~~~~~~~~~~~~~~~
Melissa Grader
Fish and Wildlife Biologist
US FWS/New England Field Office
c/o CT River Coordinator's Office
103 East Plumtree Road
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413-548-8002, x124
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