APPENIDX A

"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 in stream flow variations) for both the reach below the tailrace and all bypassed reaches?"

The flow condition recommendation for Hunts Pond dam was issued before January 1, 1987. As part of the 2013 FERC Amendment process agency comments were sought and received. As part of the LIHI Certification process agency comments were separately sought and received. The only change requested included making the minimum flow "instantaneous" and the requirement for a flow monitoring plan to be submitted to the USF&W for review and approval.

The flow standard and mode of operation for the project is "instantaneous" run of river with minimum flow of 25 cfs or inflow, if less, requirement.

The Flow Monitoring Plan will be submitted in accordance to the FERC Amendment Orders and as requested by USF&W "…filed within three months of completion of construction and shall show documentation of consultation with the USF&WS and the MADF&W at least 30 days prior to filing."

The Facility is in Compliance with the flow release schedule.

Flow related responses are identified in the attached supporting documentation by box or tag.

Appendix A Flows - Index to Supporting Documents

A-1-1	**8/22/2013 FERC Amendment**
A-1-2	**Agency Comments Regarding Flow**
A-1-2-1	**USF&W Email dated 3/28/2013**
A-1-2-2	**MADF&W Email dated 4/23/2013**
A-1-2-3	**MADEP Letter dated 4/26/2013**
A-1-3	**Demonstration of Minimum Flows**
A-1-4	**Flow History & Duration Curve**

A-1-1 FERC Amendment dated 8/22/2013

20130822-3026 FERC PDF (Unofficial) 08/22/2013

144 FERC ¶ 62,155
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Winchendon Hydroelectric LLC — Project No. 8012-007

ORDER AMENDING EXEMPTION FROM LICENSING (5 MW OR LESS)

(Issued August 22, 2013)

1. On April 5, 2013, Winchendon Hydroelectric LLC, exemptee for the Hunts Pond Dam Hydroelectric Project No. 8012, filed an application to replace two cross-flow turbines with a total generator nameplate capacity of 320 kilowatts (kW) with a single double regulated Kaplan unit with a generator capacity of 100 kW. In addition, the exemptee is proposing to conduct repairs and maintenance as required by the Commission's Division of Dam Safety, and to temporarily draw down the head pond reservoir elevation for these repairs. The project is located on Millers River in Worcester County, Massachusetts.

Background

2. The exemption for the Hunts Pond Dam Hydroelectric Project was issued February 19, 1985, and amended June 27, 1991.[1] The project currently consists of: (a) the existing 16-foot-high, 184-foot-long, concrete Hunts Pond dam; (b) the impoundment having a surface area of 13 acres, a storage capacity of 120 acre-feet, and a normal water surface elevation of 954.4 feet National Geodetic Vertical Datum (NGVD); (c) an intake structure; (d) a powerhouse containing two generating units having a total authorized installed capacity of 320 kW;[2] (e) a 200-foot-long 4.16-kV transmission line; and (f) appurtenant facilities. The annual generation of the project was originally estimated to be 593,663 kWh.

3. The additional capacity authorized in the June 27, 1991 Order Amending Exemption was never installed due to changes in ownership and bankruptcy. The current exemptee operates the project and maintains the facility at its original exemption capacity of 120 kW, and the project operates in a run-of-river mode.

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[1] *Mason & Parker Manufacturing Company, Inc.*, 30 FERC ¶ 62,181 (1985); and, *Mason & Parker Manufacturing Company, Inc.*, 55 FERC ¶ 62,301 (1991).

[2] The June 27, 1991 Order Amending Exemption authorized a change in the project's total nameplate capacity, from 120 kW to 320 kW.

20130822-3026 FERC PDF (Unofficial) 08/22/2013

Proposed Action

4. As stated in their April 5, 2013 filing, the exemptee intends to replace the two cross-flow turbines with a combined authorized installed capacity of 320 kW, with one new double-regulated Kaplan turbine and a 100 kW nameplate generator. With the turbine replacement, the design hydraulic capacity value will be reduced from the existing units at approximately 172 cubic feet per second (cfs) to the new unit at approximately 110 cfs. The operation of the site will remain run-of-river after the construction is completed. The exemptee reports that the historical data shows the energy production to be approximately 305,000 kWh per year. The exemptee states that the new Kaplan turbine is estimated to produce an additional 201,000 kWh per year more than the existing installed units, resulting in an estimated new annual production value of 506,000 kWh.

5. In addition to the turbine replacement, the exemptee plans to address maintenance and repairs to spalled concrete and stoplog and needle beam replacement at the dam, as required by the Commission's Division of Dam Safety's New York Regional Office (D2SI New York Regional Office). The exemptee plans to begin construction in the summer of 2013, with the possible project completion date of December 2013, or summer of 2014 if there are any construction delays.

6. In order to accommodate the maintenance and repairs as described above, the exemptee plans to temporarily draw down the head pond reservoir from a normal operating elevation of 954.6 feet NGVD to below the crest of the dam, located at 948.2 feet NGVD, with a lower limit of 944.48 feet NGVD, which is the bottom of the intake channel. The exemptee states that flows through the project will be coordinated with river flows and rain events to maintain minimum flows or inflow at all times.

Consultation

7. Prior to filing the amendment application with the Commission, the exemptee consulted with U.S. Fish and Wildlife Service (FWS) and the Massachusetts Division of Fisheries and Wildlife (Massachusetts DFW). Both agencies stated they had no objections to the proposed changes, with the understanding that the hydraulic capacity and the minimum flow requirement were not being altered.

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8. The U.S. Department of the Interior (Interior), on behalf of the FWS, is requesting that Condition No. 2 of the August 24, 1984 mandatory terms and conditions for the project be modified as follows, to clarify that the mode of project operation should be instantaneous run-of-river:

> *The exemptee shall operate the project in an instantaneous run-of-river mode, whereby inflow to the project will equal outflow from the project at all times, and water levels above the dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the exemptee, or for short periods upon mutual agreement between the exemptee, the U.S. Fish and Wildlife Service, and the Massachusetts Division of Fisheries and Wildlife.*

9. The Interior is also requesting that, based on Condition No. 8 of the mandatory terms and conditions[3] for the project, the exemptee develop a compliance monitoring plan for its approval, within three months of completion of project construction.

Public Notice

10. On May 13, 2013, the Commission issued public notice that the amendment application was accepted for filing, and soliciting motions to intervene, protests, comments and terms and conditions. In response to the Commission's public notice, a filing was made by the Massachusetts DFW on May 31, 2013, stating it has no objection to the exemptee's proposal.

Administrative Conditions

Construction

11. To ensure a safe and adequate project, as shown in ordering paragraph (F), the exemptee must perform all turbine replacement work in consultation with the Commission's D2SI New York Regional Office. The exemptee shall not start any construction activities for the turbine replacement before receiving a prior authorization from the Commission's D2SI New York Regional Office.

12. In addition, as shown in paragraph (G), the exemptee shall conduct all maintenance and repairs to spalled concrete, stoplog and needle beam maintenance and replacement at the dam in coordination with the Commission's D2SI New York Regional Office. The exemptee shall not start any construction activities for the repairs and

[3] On February 4, 1985, the Interior added an eighth condition to the project's mandatory terms and conditions.

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maintenance required by D2SI, before receiving prior authorization from the Commission's D2SI New York Regional Office.

Discussion

13. Upon completion of the turbine replacement, the project will have a total installed capacity of 100 kW. The decrease in the generating capacity would not result in any additional adverse environmental effects. Therefore, the exemption will be amended, as stated in ordering paragraph (B), to show the project's total authorized nameplate capacity to be 100 kW.

14. In addition, the proposed drawdown for construction requested by the Commission's D2SI New York Regional Office will be authorized to occur for twelve weeks from the start of construction of the turbine replacement, along with maintenance and repairs to spalled concrete as required by D2SI. In ordering paragraph (C) we are granting a temporary drawdown to conduct the turbine replacement and necessary required repairs for twelve weeks from the start date of construction. In the event that the drawdown will need to last longer than twelve weeks, we are requiring the exemptee to file a request for an extension of time. Accordingly, ordering paragraph (H) of this order requires the exemptee to commence construction of the project works authorized in this order within 1 year of the issuance date of this order and shall complete construction within 2 years of the issuance date of this order.

15. The Interior's request to modify Condition No. 2 of the August 24, 1984 mandatory terms and conditions is within the scope of the Interior's right to modify the terms and conditions[4], and is set forth in Appendix A of this order and incorporated into the exemption by ordering paragraph (D). In ordering paragraph (D), the Commission requires that the exemptee operate the project in an instantaneous run-of-river mode at all times, as required by the FWS. In addition, if the run-of-river mode is modified for an operating emergency or upon mutual agreement with the agencies, we are requiring the exemptee to notify Commission within 10 days of each such incident. In ordering paragraph (E), the Commission is requesting that the exemptee submit a compliance monitoring plan, as required by Condition No. 8 of the Interior's terms and conditions, for Commission approval within 3 months of the completion of construction of the proposed project changes.

[4] As stated in Condition No. 6 of the Interior's mandatory terms and conditions, the Interior has the right to modify the terms and conditions as needed to protect fish and wildlife resources.

Conclusion

16. The exemptee's proposal to replace two cross-flow turbines with a total authorized capacity of 320 kW to a single double regulated Kaplan unit with a generator capacity of 100 kW would improve the efficiency of the project, while having no significant impact on the environment. In addition, the repairs to spalled concrete and stoplog and needle beam replacement at the dam are necessary and required by the Commission's D2SI New York Regional Office. The need to draw down the project head pond reservoir from a normal operating elevation is necessary to safely conduct the repairs and maintenance and to replace the turbines. The exemptee does not anticipate environmental impacts due to construction activities and has submitted all proposed activity to the FWS and Massachusetts DFW for review. Therefore, the amendment application will be granted, as considered herein.

The Director orders:

(A) The exemption for the Hunts Pond Dam Hydroelectric Project, FERC No. 8012, is amended as provided by this order, effective the day this order is issued.

(B) The project works as shown in paragraph (j) of Appendix A of the exemption are revised to the following:

> The project consists of: (a) the existing 16-foot-high, 184-foot-long, concrete Hunts Pond dam; (b) the impoundment having a surface area of 13 acres, a storage capacity of 120 acre-feet, and a normal water surface elevation of 954.4 feet National Geodetic Vertical Datum (NGVD); (c) an intake structure; (d) a powerhouse containing one generating unit having a total authorized installed capacity of 100 kW; (e) a 200-foot-long 4.16-kV transmission line; and (f) appurtenant facilities. The annual generation of the project is estimated to be 506,000 kWh.

(C) The exemptee may temporarily reduce the head pond reservoir from a normal operating elevation of 954.6 feet NGVD to below the crest of the dam, located at 948.2 feet NGVD, with a lower limit of 944.48 feet NGVD. The drawdown is authorized for twelve weeks from the start of the project construction described above. If the temporary modification is to last longer than twelve weeks, a request must be filed with the Commission for an extension of time. In addition, a letter is to be filed with the Commission when normal operating conditions resume.

(D) The exemptee shall operate the project in an instantaneous run-of-river mode, subject to the conditions submitted by the U.S. Department of the Interior, as those conditions are set forth and modified in Appendix A to this order, whereby inflow to the project will equal outflow from the project at all times, and water levels above the dam are not drawn down for the purpose of generating power. Run-of-river operation may be

Flow Related Comment

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temporarily modified if required by operating emergencies beyond the control of the exemptee, or for short periods upon mutual agreement between the exemptee, the U.S. Fish and Wildlife Service, and the Massachusetts Division of Fisheries and Wildlife. If the run-of-river mode is modified, the exemptee is required to notify the Commission within ten days of each such incident.

(E) The exemptee shall file, for Commission approval, a compliance monitoring plan. The compliance monitoring plan shall be filed within three months of completion of construction and shall show documentation of consultation with the U.S. Fish and Wildlife Service and the Massachusetts Division of Fisheries and Wildlife at least 30 days prior to filing.

(F) The exemptee must perform all work regarding the turbine replacement in consultation with the Commission's Division of Dam Safety and Inspections New York Regional Office. The exemptee shall not start any construction activities for the turbine replacement before receiving a prior authorization from the Commission's New York Regional Office.

(G) The exemptee must perform all work regarding the spalled concrete repairs as required by the Commission's Division of Dam Safety and Inspections New York Regional Office. The exemptee shall not start any construction activities for the required repairs and maintenance before receiving a prior authorization from the Commission's New York Regional Office.

(H) The exemptee shall commence construction of the project works authorized in this order within 1 year of the issuance date of this order and shall complete construction within 2 years of the issuance date of this order.

(I) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2006), and the Federal Energy Regulatory Commission's regulations at 18 C.F.R. § 385.713 (2012). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The exemptee's failure to file a request for rehearing shall constitute acceptance of this order.

Kelly Houff
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance

Flow Related Comment

APPENDIX A

U.S. Department of the Interior on behalf of
the U.S. Fish and Wildlife Service
Section 30(c) Conditions of the Federal Power Act
Filed on March 27, 2013

Modified Condition No. 2

1. The exemptee shall operate the project in an instantaneous run-of-river mode, whereby inflow to the project will equal outflow from the project at all times, and water levels above the dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Exemptee, or for short periods upon mutual agreement between the Exemptee, the U.S. Fish and Wildlife Service, and the Massachusetts Division of Fisheries and Wildlife.

Flow Related Comment

A-1-2-1 USF&W Email dated 3/28/2013

Fisk, Steve

From: Grader, Melissa <melissa_grader@fws.gov>
Sent: Thursday, March 28, 2013 1:35 PM
To: Fisk, Steve
Cc: William P. Short (w.shortiii@verizon.net); Berry, Steve; Caleb Slater; Robert Kubit
Subject: Re: Winchendon Hydroelectric Improvements LIHI

Hi Steve,

I've had a chance to go through the Hunts Pond Project file and can offer the following comments regarding the LIHI consultation criteria you have requested our input on:

Project Details
Project features include an existing 16-foot-high dam comprised of a concrete weir topped with stoplogs, a slide gate leading to a powerhouse containing two turbines with an installed capacity of 120 kW (operating at flows from 8 cfs up to 172 cfs), and a 13 acre headpond. The project operates in a true run-of-river mode. There is a short 50-foot bypass reach with no flow requirement.

Project History

The project was issued an exemption on 2/19/85. By letter dated August 24, 1984, the U.S. Fish and Wildlife Service issued seven mandatory terms and conditions (T&Cs) for the proposed project. On February 4, 1985 the Department of the Interior added an eighth condition. Service conditions include: providing fish passage when prescribed by the Service and/or the Massachusetts Division of Fisheries and Wildlife; providing an instantaneous minimum discharge below the project of at least 25 cfs, or inflow, whichever is less; and requiring the Exemptee to submit a compliance monitoring plan to the Service within six months from the date of issuance of an exemption.

In 1991 the exemption was amended to increase capacity to 320 kW, however that upgrade never took place. In August of 1996 Behrens Energy Systems, Inc. sold the project to O'Connell Engineering & Financial Inc. (O'Connell). Upon acquiring the project, O'Connell automated the control system, including remote control capabilities. On March 12, 2013 O'Connell notified the FWS of its intent to undergo turbine replacement and dam maintenance/repair activities at the project. O'Connell proposes to replace the two crossflow turbines with one double regulated Kaplan unit. The new turbine/generator would have a nameplate rating of 100 kW and operate at flows from 10 cfs to 110 cfs. The Service is in the process of responding to this request.

A review of the project file and recent submittals on FERC Online indicates that there have been no documented compliance issues with the project (other than the below-noted flow monitoring plan).

LIHI Consultation Criteria
1. Endangered Species
There are no federally listed endangered species within the project area.

2. Exemption terms and conditions
Bypass flow
The project has a short 50-foot-long bypass reach. Due to the short length of the reach and backwatering from the tailrace, no dedicated flow is required to be spilled over the dam.

1

Flow Related Comment

Impoundment Fluctuations
According to O'Connell, the project operates run-of-river, which means the headpond is not drawn down for the purposes of generation. The normal water surface elevation is at the top of the stoplogs. This mode of operation should minimize impoundment fluctuations.

Flow Monitoring Plan
The terms and conditions submitted by the FWS for the project (per letter of 2/4/1985) required the Exemptee to present a Flow Monitoring Plan to the Service for approval within six months from issuance of an exemption. Based on our file review as part of the LIHI consultation process for the Hunts Pond Project, we find no documentation that this flow plan was ever developed or approved by our office.

Fish Passage
The FWS terms and conditions require that the Exemptee provide fish passage facilities when prescribed by the FWS and/or MA DFW. To date, neither agency has triggered this fish passage requirement through the FERC process. As O'Connell is well aware, efforts are underway to implement passage for American eels at the first project on the river (O'Connell's New Home Project). However, we do not expect to trigger eel passage at the Hunts Pond Project (which is well upstream of New Home with a number of dams in between) within the term of any initial LIHI certification.

Flow Related Comment

Water Quality
We are aware of no data documenting that Class B Cold Water Fishery (BCWF) water quality standards are being maintained (or violated) within the project area.

Shoreland Management Plan
The Service, to date, has not required a Shoreland Management Plan pursuant to our statutory authority under Section 30(c) of the Federal Power Act.

Comments
Based on our review of the project file, it appears that the only outstanding issue regarding terms and conditions prescribed by this office for the project relate to developing a flow monitoring plan. Our files indicate that this requirement has not yet been fulfilled. Therefore, the Service recommends that LIHI certification only be granted if it contains a condition requiring the Exemptee to fulfill this obligation. O'Connell should provide a draft Operations and Flow Monitoring Plan for Service review and approval within three months of receiving LIHI certification.

We hope these comments have been responsive to your requests regarding Low Impact Hydropower Certification criteria. If you have any questions or require additional information please feel free to contact me.

Regards,
Melissa

On Wed, Mar 20, 2013 at 9:16 AM, Fisk, Steve <SFISK@oconnells.com> wrote:

Hello Melissa,

Attached are letters requesting comments for LIHI Application Appendices, A Minimum Flows; C Fish Passage; D Watershed Protection; and E Endangered Species. Please call me if you should have any question regarding the attached information.

A-1-2-2 MADF&W Email dated 4/23/2013

Fisk, Steve

From: Slater, Caleb (MISC) <caleb.slater@state.ma.us>
Sent: Tuesday, April 23, 2013 3:18 PM
To: Fisk, Steve
Cc: Cohen, Russ (MISC); Grader, Melissa
Subject: RE: Winchendon Hydro

Steve,

I have reviewed the information you sent me on the Hunts Pond project (FERC# 8012).

1) As the project operates as Run of River and has no significant bypass reach it is compliance with flow recommendations.

2) There are no current fish passage requirements, however we would like a commitment to upstream and downstream passage protections for American eel when determined to be necessary by the Division and/or USFWS.

3) The facility is not in violation of any state required shoreline management plan.

Caleb

Caleb Slater, PhD
Anadromous Fish Project Leader
Massachusetts Division of Fisheries and Wildlife PLEASE NOTE NEW FIELD HEADQUARTERS ADDRESS (Phones and Emails have not changed.) Mass. Division of Fisheries & Wildlife
100 Hartwell Street, Suite 230
West Boylston MA 01583
508-389-6331
www.mass.gov/masswildlife

Flow Related Comment

-----Original Message-----
From: Fisk, Steve [mailto:SFISK@oconnells.com]
Sent: Friday, April 19, 2013 1:33 PM
To: Slater, Caleb (FWE)
Subject: Winchendon Hydro
Importance: High

Hello Caleb,

It has been a busy week for me as well. I am just following up on my letters submitted to you on 3/21 regarding request for comment on various LIHI topics. Have you had a chance to review the submitted information and do you have any questions or comments? Thanks,

1

A-1-2-3 MADEP Letter dated 4/26/2013

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 627 Main Street, Worcester MA 01608 • 508-792-7650

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

RICHARD K. SULLIVAN JR
Secretary

KENNETH L. KIMMELL
Commissioner

Stephen J. Fisk, General Manager
O'Connell Energy Group
57 Suffolk Street, Suite 200
Holyoke MA 01040

April 26, 2013

Re: Application of Hunts Pond Project (FERC # P-8012) for Certification by the Low Impact Hydropower Institute 35-01

Dear Mr. Fisk,

In response to your request that the MA Department of Environmental Protection (the Department) provide you with a letter confirming that:

> 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, the Facility is 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.

The Hunts Pond exemption was issued in 1985 with no associated water quality certificate. Instantaneous run of river flow is an exemption condition, however, the Department has never required nor ever received flow records from the facility to verify that this condition has been met. As noted in the Millers River Watershed 2000 Water Quality Assessment Report, pulsing flows have been recorded at the USGS gauge for this river segment. Possible causes include reservoir operations at Lake Monomonac and Whitney Pond or operations at Hunts Pond and Tannery Pond hydroelectric facilities. We recommend that to ensure run-of-river operations, all dam operators install, calibrate and maintain a continuous streamflow monitoring gauge or determine some other method to ensure compliance with run-of-river operations.

Note the Department relies on our sister agency, the MA Division of Fish & Wildlife, to determine adequate minimum flows from hydroelectric facilities.

This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TDD# 1-866-539-7622 or 1-617-574-6868
MassDEP Website: www.mass.gov/dep
Printed on Recycled Paper

Flow Related Comment

The Department has reviewed available information regarding water quality in the river segment where this facility is located and believes this facility does not cause nor contribute to water quality violations.

Please let me know if any additional information is needed. My phone number is 508-767-2854.

Sincerely,

Robert Kubit, P.E.

APPENDIX A-1-3

Winchendon Hydroelectric Project

Demonstration of Minimum Flows

The Facility is in compliance with resource agency recommendations regarding flow conditions for fish and wildlife protection, mitigation and enhancement. Reference documents included in following appendices:

Flow related responses are identified in the attached supporting documentation by box or tag.

Appendix A Flows - Index to Supporting Documents

A-1-1		**8/22/2013 FERC Amendment**
A-1-2		**Agency Comments Regarding Flow**
	A-1-2-1	**USF&W Email dated 3/28/2013**
	A-1-2-2	**MADF&W Email dated 4/23/2013**
	A-1-2-3	**MADEP Letter dated 4/26/2013**

Other Supporting Documentation

Appendix 1-6-4	**FERC Inspection Reports**
Appendix 1-6-3	**Exemptee Self-Reported Compliance Records**

On March 28, 2013 Melissa Grader of the US Fish and Wildlife Service wrote: "A review of the project file and recent submittals on FERC Online indicates that there have been no documented compliance issues with the project (other than the below noted flow monitoring plan)." Please refer to Appendix A 1-2-1 for the USFW document. The flow monitoring plan will be submitted in accordance with the FERC Amendment (Appendix 1-6-2) "… within three months of completion of the project construction."

On April 23, 2013 Caleb Slater of the MADFW wrote: "1. As the project operates as Run of River and has no significant bypass reach it is compliance with flow recommendations." Please refer to Appendix A 1-2-2 for the MADFW document.

On April 26, 2013 Robert Kubit of the MADEP wrote: "Note the Department relies on our sister agency, the MA Division of Fish & Wildlife, to determine adequate minimum flows from hydroelectric facilities." Please refer to Appendix A 1-2-3 for the MADEP document.

APPENDIX A-2-2-b

AGENCY CORRESPONDENCE – USF&W EMAIL March 28, 3013

Fisk, Steve

From:	Grader, Melissa <melissa_grader@fws.gov>
Sent:	Thursday, March 28, 2013 1:35 PM
To:	Fisk, Steve
Cc:	William P. Short (w.shortiii@verizon.net); Berry, Steve; Caleb Slater; Robert Kubit
Subject:	Re: Winchendon Hydroelectric Improvements LIHI

Hi Steve,

I've had a chance to go through the Hunts Pond Project file and can offer the following comments regarding the LIHI consultation criteria you have requested our input on:

Project Details
Project features include an existing 16-foot-high dam comprised of a concrete weir topped with stoplogs, a slide gate leading to a powerhouse containing two turbines with an installed capacity of 120 kW (operating at flows from 8 cfs up to 172 cfs), and a 13 acre headpond. The project operates in a true run-of-river mode. There is a short 50-foot bypass reach with no flow requirement.

Project History

The project was issued an exemption on 2/19/85. By letter dated August 24, 1984, the U.S. Fish and Wildlife Service issued seven mandatory terms and conditions (T&Cs) for the proposed project. On February 4, 1985 the Department of the Interior added an eighth condition. Service conditions include: providing fish passage when prescribed by the Service and/or the Massachusetts Division of Fisheries and Wildlife; providing an instantaneous minimum discharge below the project of at least 25 cfs, or inflow, whichever is less; and requiring the Exemptee to submit a compliance monitoring plan to the Service within six months from the date of issuance of an exemption.

In 1991 the exemption was amended to increase capacity to 320 kW, however that upgrade never took place. In August of 1996 Behrens Energy Systems, Inc. sold the project to O'Connell Engineering & Financial Inc. (O'Connell). Upon acquiring the project, O'Connell automated the control system, including remote control capabilities. On March 12, 2013 O'Connell notified the FWS of its intent to undergo turbine replacement and dam maintenance/repair activities at the project. O'Connell proposes to replace the two crossflow turbines with one double regulated Kaplan unit. The new turbine/generator would have a nameplate rating of 100 kW and operate at flows from 10 cfs to 110 cfs. The Service is in the process of responding to this request.

A review of the project file and recent submittals on FERC Online indicates that there have been no documented compliance issues with the project (other than the below-noted flow monitoring plan).

LIHI Consultation Criteria
1. Endangered Species
There are no federally listed endangered species within the project area.

2. Exemption terms and conditions
Bypass flow
The project has a short 50-foot-long bypass reach. Due to the short length of the reach and backwatering from the tailrace, no dedicated flow is required to be spilled over the dam.

1

Impoundment Fluctuations
According to O'Connell, the project operates run-of-river, which means the headpond is not drawn down for the purposes of generation. The normal water surface elevation is at the top of the stoplogs. This mode of operation should minimize impoundment fluctuations.

Flow Monitoring Plan
The terms and conditions submitted by the FWS for the project (per letter of 2/4/1985) required the Exemptee to present a Flow Monitoring Plan to the Service for approval within six months from issuance of an exemption. Based on our file review as part of the LIHI consultation process for the Hunts Pond Project, we find no documentation that this flow plan was ever developed or approved by our office.

Fish Passage
The FWS terms and conditions require that the Exemptee provide fish passage facilities when prescribed by the FWS and/or MA DFW. To date, neither agency has triggered this fish passage requirement through the FERC process. As O'Connell is well aware, efforts are underway to implement passage for American eels at the first project on the river (O'Connell's New Home Project). However, we do not expect to trigger eel passage at the Hunts Pond Project (which is well upstream of New Home with a number of dams in between) within the term of any initial LIHI certification.

Water Quality
We are aware of no data documenting that Class B Cold Water Fishery (BCWF) water quality standards are being maintained (or violated) within the project area.

Shoreland Management Plan
The Service, to date, has not required a Shoreland Management Plan pursuant to our statutory authority under Section 30(c) of the Federal Power Act.

Comments
Based on our review of the project file, it appears that the only outstanding issue regarding terms and conditions prescribed by this office for the project relate to developing a flow monitoring plan. Our files indicate that this requirement has not yet been fulfilled. Therefore, the Service recommends that LIHI certification only be granted if it contains a condition requiring the Exemptee to fulfill this obligation. O'Connell should provide a draft Operations and Flow Monitoring Plan for Service review and approval within three months of receiving LIHI certification.

We hope these comments have been responsive to your requests regarding Low Impact Hydropower Certification criteria. If you have any questions or require additional information please feel free to contact me.

Regards,
Melissa

On Wed, Mar 20, 2013 at 9:16 AM, Fisk, Steve <SFISK@oconnells.com> wrote:

Hello Melissa,

Attached are letters requesting comments for LIHI Application Appendices, A Minimum Flows; C Fish Passage; D Watershed Protection; and E Endangered Species. Please call me if you should have any question regarding the attached information.

APPENDIX A-2-2-c

AGENCY CORRESPONDENCE – MDF&W EMAIL April 23, 3013

Fisk, Steve

From: Slater, Caleb (MISC) <caleb.slater@state.ma.us>
Sent: Tuesday, April 23, 2013 3:18 PM
To: Fisk, Steve
Cc: Cohen, Russ (MISC); Grader, Melissa
Subject: RE: Winchendon Hydro

Steve,

I have reviewed the information you sent me on the Hunts Pond project (FERC# 8012).

1) As the project operates as Run of River and has no significant bypass reach it is compliance with flow recommendations.

2) There are no current fish passage requirements, however we would like a commitment to upstream and downstream passage protections for American eel when determined to be necessary by the Division and/or USFWS.

3) The facility is not in violation of any state required shoreline management plan.

Caleb

Caleb Slater, PhD
Anadromous Fish Project Leader
Massachusetts Division of Fisheries and Wildlife PLEASE NOTE NEW FIELD HEADQUARTERS ADDRESS (Phones and Emails have not changed.) Mass. Division of Fisheries & Wildlife
100 Hartwell Street, Suite 230
West Boylston MA 01583
508-389-6331
www.mass.gov/masswildlife

-----Original Message-----
From: Fisk, Steve [mailto:SFISK@oconnells.com]
Sent: Friday, April 19, 2013 1:33 PM
To: Slater, Caleb (FWE)
Subject: Winchendon Hydro
Importance: High

Hello Caleb,

It has been a busy week for me as well. I am just following up on my letters submitted to you on 3/21 regarding request for comment on various LIHI topics. Have you had a chance to review the submitted information and do you have any questions or comments? Thanks,

APPENDIX A-2-2-d

AGENCY CORRESPONDENCE – MADEP Letter April 26, 3013

MassDEP

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 627 Main Street, Worcester MA 01608 • 508-792-7650

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

RICHARD K. SULLIVAN JR
Secretary

KENNETH L. KIMMELL
Commissioner

Stephen J. Fisk, General Manager
O'Connell Energy Group
57 Suffolk Street, Suite 200
Holyoke MA 01040

April 26, 2013

Re: Application of Hunts Pond Project (FERC # P-8012) for Certification by the Low Impact Hydropower Institute 35-01

Dear Mr. Fisk,

In response to your request that the MA Department of Environmental Protection (the Department) provide you with a letter confirming that:

> 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, the Facility is 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.

The Hunts Pond exemption was issued in 1985 with no associated water quality certificate. Instantaneous run of river flow is an exemption condition, however, the Department has never required nor ever received flow records from the facility to verify that this condition has been met. As noted in the Millers River Watershed 2000 Water Quality Assessment Report, pulsing flows have been recorded at the USGS gauge for this river segment. Possible causes include reservoir operations at Lake Monomonac and Whitney Pond or operations at Hunts Pond and Tannery Pond hydroelectric facilities. We recommend that to ensure run-of-river operations, all dam operators install, calibrate and maintain a continuous streamflow monitoring gauge or determine some other method to ensure compliance with run-of-river operations.

Note the Department relies on our sister agency, the MA Division of Fish & Wildlife, to determine adequate minimum flows from hydroelectric facilities.

This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TDD# 1-866-539-7622 or 1-617-574-6868
MassDEP Website: www.mass.gov/dep
Printed on Recycled Paper

The Department has reviewed available information regarding water quality in the river segment where this facility is located and believes this facility does not cause nor contribute to water quality violations.

Please let me know if any additional information is needed. My phone number is 508-767-2854.

Sincerely,

Robert Kubit, P.E.

APPENDIX A-2-3

Flow History & Duration Curve

The following flow parameters are from 92-93 years of United States Geological Survey ("USGS") (1915-2009) records from hydrologic gaging station No. 01162000 located approximately 2 miles downstream of the Hunts Pond Dam site on the Millers River at Near Winchendon, Massachusetts. A copy of the 2009 USGS Annual Report is included in Appendix A-2-3-1. The drainage area at this gage is 81.8 square miles.

The drainage area at the hydropower project site is 54 square miles. The site specific statistics are calculated based upon the ration of the drainage area of the site compared to the drainage area of the USGS Gage (54 SM (Hunts Pond drainage area)/81.8 SM (USGS Gage drainage area)) as follows:

The mean annual flow at the project is 97 cfs (147 cfs at the gage) with a minimum historical discharge of 0 cfs, recorded in September 20, 1918 and a maximum historical discharge of 8,500 cfs, recorded in September 22, 1938, respectively. Additional flow parameters for the Millers River related to the project area are as follows:

- high flow: approximately 224 cfs (approximately 339 cfs at the Gage No. 01162000); flow exceeded 10 percent of the time;[1]
- low flow: approximately 13 cfs (approximately 19 cfs at the Gage No. 01162000); flow exceeded 90 percent of the time;[2]
- 7Q10 flow: 19 cfs (the 7Q10 flow refers to the minimum 7-day average flow rate expected to occur once every 10 years and is based on 0.36 cfs per square mile of drainage area).

The project specific Flow Duration Curve of the USGS Gage Millers River Near Winchendon is provided in Appendix A-2-3-2.

[1] USGS Water Data Report 2009 for 01162000 Millers River Near Winchendon, MA
[2] Id.

Appendix A-2-3-1 USGS Water-Data Report 2009
for
01160000 Millers River Near Winchendon, MA

USGS
science for a changing world

Water-Data Report 2009

01162000 MILLERS RIVER NEAR WINCHENDON, MA

CONNECTICUT RIVER BASIN
MILLERS RIVER SUBBASIN

LOCATION.--Lat 42°41'03", long 72°05'02" referenced to North American Datum of 1927, Worcester County, MA, Hydrologic Unit 01080202, on right bank 20 ft downstream from Nolan Bridge, 0.3 mi downstream from Tarbell Brook, 2 mi west of Winchendon.

DRAINAGE AREA.--81.8 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Discharge: June 1916 to current year. March to May 1917, monthly discharge only, published in WSP 1301. Water-quality records: Water years 1957, 1965-66, 1994-95.

REVISED RECORDS.--WSP 451: 1916. WSP 1051: 1919, 1920-21(M), 1922-24, 1928(M), 1933-34.WDR MA-RI-84-1: Drainage area. WDR MA-RI-01-1: (M).

GAGE.--Water-stage recorder with satellite telemeter. Concrete control since Oct. 6, 1933. Datum of gage is 826.66 ft above National Geodetic Vertical Datum of 1929. Prior to July 27, 1916, non-recording gage at bridge at same datum.

COOPERATION.--Massachusetts Department of Conservation and Recreation, Water Resources Commission; Massachusetts Department of Environmental Protection, Office of Watershed Management; and Massachusetts Executive Office of Energy and Environmental Affairs.

REMARKS.--Records fair except those for estimated daily discharge, which are poor. Flow regulated by power plant and by Lake Monomonac and other reservoirs upstream, by waste-water treatment plant 500 ft upstream, and infrequent backwater from U.S. Army Corps of Engineers Flood-Control Project at Birch Hill Dam.

U.S. Department of the Interior
U.S. Geological Survey

01162000 MILLERS RIVER NEAR WINCHENDON, MA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e130	e134	e263	e379	e171	267	366	64	84	203	541	203
2	e103	e123	e311	e332	e161	258	349	57	67	276	494	152
3	e85	e114	e306	e302	e151	284	353	53	54	359	383	116
4	e72	e108	e275	e277	e145	e217	436	49	44	336	301	88
5	e64	e109	e234	e264	e141	e190	425	51	34	275	236	70
6	e59	e115	e203	255	e137	e179	395	72	31	205	196	60
7	e56	e124	e185	242	e137	196	488	265	27	185	150	48
8	e53	e131	e176	244	e143	256	468	369	24	221	108	40
9	e52	e140	e180	231	e145	300	418	314	27	201	82	34
10	e51	e140	e214	e232	e148	284	368	315	34	176	68	28
11	e49	e130	e356	e232	155	323	345	285	34	139	62	29
12	e47	e123	807	e232	196	378	317	233	180	139	56	43
13	e45	e123	1,010	e224	232	347	279	172	242	106	54	48
14	e44	e135	803	e217	217	321	244	136	439	74	50	44
15	e43	e155	656	e217	205	306	153	154	559	58	44	38
16	e43	e181	671	e211	193	302	125	138	481	46	38	35
17	e43	e192	636	e213	181	299	98	145	371	40	33	32
18	e43	e186	570	e219	171	304	81	146	286	203	29	28
19	e43	e166	513	e230	178	335	71	120	399	190	27	26
20	e41	e142	471	e235	179	349	61	98	445	140	24	24
21	e39	e123	443	e235	167	332	114	100	396	110	26	22
22	e39	e113	442	e226	162	310	200	87	357	171	55	20
23	e41	e114	443	e203	161	292	239	64	349	164	141	18
24	e49	e132	431	e185	150	271	240	52	330	467	203	18
25	e73	e174	537	e169	145	229	212	43	304	777	166	17
26	e156	e233	510	e160	136	209	181	36	264	776	133	20
27	e213	e250	472	e163	151	235	151	48	227	530	94	31
28	e230	e233	498	e166	279	253	118	71	187	377	74	36
29	e226	e215	557	e174	---	278	98	84	182	301	217	39
30	e191	e218	528	e181	---	345	77	107	185	270	291	38
31	e156	---	483	e181	---	386	---	100	---	309	261	---
Total	2,579	4,576	14,184	7,031	4,737	8,835	7,470	4,028	6,643	7,824	4,637	1,445
Mean	83.2	153	458	227	169	285	249	130	221	252	150	48.2
Max	230	250	1,010	379	279	386	488	369	559	777	541	203
Min	39	108	176	160	136	179	61	36	24	40	24	17
Cfsm	1.02	1.86	5.59	2.77	2.07	3.48	3.04	1.59	2.71	3.09	1.83	0.59
In.	1.17	2.08	6.45	3.20	2.15	4.02	3.40	1.83	3.02	3.56	2.11	0.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	98.1	122	148	144	141	260	371	181	116	64.5	53.5	66.3
Max	520	416	500	385	510	931	788	412	515	261	249	752
(WY)	(1956)	(1956)	(1997)	(1996)	(2008)	(1936)	(1960)	(1967)	(1984)	(1938)	(1928)	(1938)
Min	11.6	15.7	30.7	13.3	24.4	39.0	75.2	44.7	14.1	8.17	8.24	5.75
(WY)	(1948)	(1979)	(1979)	(1981)	(1980)	(1965)	(2006)	(1999)	(1964)	(1965)	(1965)	(1964)

01162000 MILLERS RIVER NEAR WINCHENDON, MA—Continued

SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1916 - 2009	
Annual total	94,679		73,989			
Annual mean	259		203		147	
Highest annual mean					231	1956
Lowest annual mean					38.5	1965
Highest daily mean	1,010	Dec 13	1,010	Dec 13	6,130	Sep 22, 1938
Lowest daily mean	24	Sep 2	17	Sep 25	3.1	Oct 4, 1930
Annual seven-day minimum	27	Aug 29	20	Sep 20	4.5	Sep 24, 1939
Maximum peak flow			1,080	Dec 12[f]	[a]8,500	Sep 22, 1938
Maximum peak stage			8.26	Dec 12[f]	[b]21.55	Sep 22, 1938
Instantaneous low flow			16	Sep 25[e]	[c]0.00	Sep 20, 1918[d]
Annual runoff (cfsm)	3.16		2.48		1.79	
Annual runoff (inches)	43.06		33.65		24.38	
10 percent exceeds	567		397		339	
50 percent exceeds	186		176		90	
90 percent exceeds	44		40		19	

[a] From rating curve extended above 2,000 ft³/s, on basis of computation of peak flow over dam.

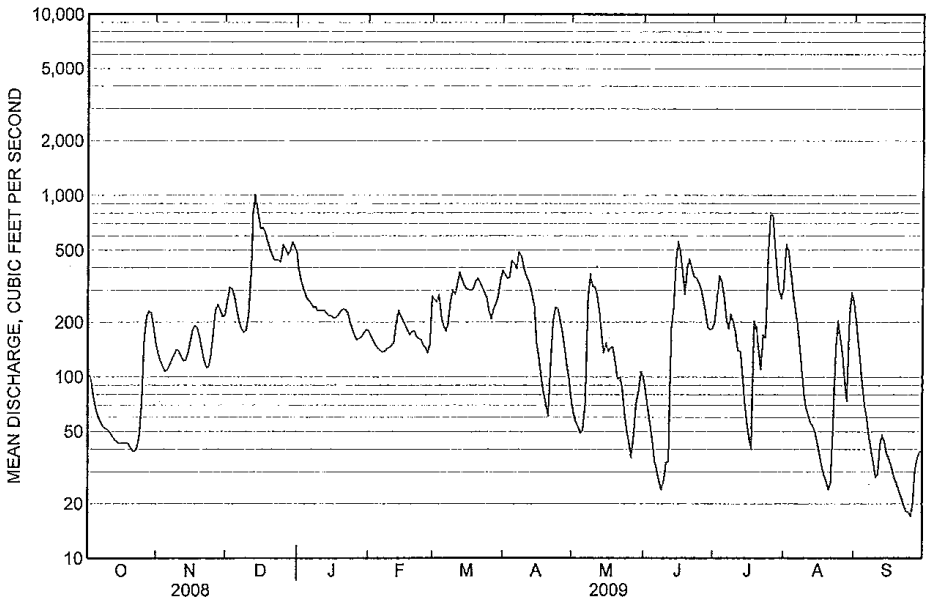
[b] From floodmarks.

[c] Caused by regulation.

[d] Also occurred on Jan. 14, 1925.

[e] Also occurred on Sept. 26, 2009.

[f] Also occurred on Dec. 13, 2008.



Appendix A-2-3-2 Flow Duration Curve for Winchendon Hydro