New Home Dam Hydropower Facility Low Impact Hydropower Institute Certification Application FERC Project No. 6096



Prepared By Stephen Fisk, General Manager O'Connell Energy Group 2017-04-28

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Application For Low Impact Hydro Institute Certification New Home Dam Project FERC # 6096 Orange, MA

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Submittal Dates:

Final 2017-04-28

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Introduction

This document is an application to the Low Impact Hydropower Institute (LIHI) for Certification of the New Home Dam Hydroelectric Facility. This document reflects the comments of LIHI and its staff provided during the Pre-Application Consultation, Intake Review and changes to the Handbook and Sample Application since the beginning of the Application Process.

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Part I Appendix B Application Materials

Table B-1.	Facility Description Information for New Home Dam Project/P-6096-MA (LI	-11
#None Not	t a recertification (<u>NA – New Application</u>)).	

Information Type	Variable Description	Response(and reference to further details)		
B-1.1 Name of the Facility	Facility name (use FERC project name if possible)	New Home Dam Project/P-6096-MA		
	River name (USGS proper name)	Millers River (see Attachment B-1.11.2 USGS Map)		
	River basin name	Millers River (see Attachment B-1.11.5 River Basin Map)		
	Nearest town, county, and state	Orange, Franklin, MA		
B-1.2 Location	River mile of dam above next major river	Millers River mile 13.5 from confluence with Connecticut River (see Attachment B-1.7.1 Description of Millers Rivers' Dams & Attachment B-1.11.6 River Mile Schematic)		
	Geographic latitude	N 42.5894		
	Geographic longitude	W -72.3101		
	Application contact names (IMPORTANT: you must also complete the Facilities Contact Form):	Application Prepared by Its Operator: O'Connell Energy Group And William P Short, LIHI Consultant See Part IV Appendix B-4 Contact Form		
B-1.3 Facility	- Facility owner (individual and company names)	Mini-Watt Hydroelectric LLC		
Owner	 Operating affiliate (if different from owner) 	O'Connell Energy Group		
	- Representative in LIHI certification	For O'Connell Energy Group, contact Attn.: Stephen Fisk, General Manager <u>sfisk@oconnells.com</u> For William P Short, contact Attn.: William P Short <u>w.shortiii@verizon.net</u>		

	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates	The facility holds a FERC Exemption Number P-6096-MA issued 12/28/1984 and Amendment issued 8/02/2010. Expiration – None (see Attachment B-1.4.1 FERC Exemption)		
	FERC license type or special classification (e.g., "qualified conduit")	Exemption (see Attachment B-1.4.1 FERC Exemption)		
B-1.4 Regulatory Status	Water Quality Certificate identifier and issuance date, plus source agency name	The only WQC issued for the project was prepared for the construction of the project. There is no WQC issued for the operation of the Project and no WQC amendments were added to the Amended FERC Exemption in 2009. WQC Identifier: #83W-101 Issuance Date: September 27, 1983 Agency Name: Massachusetts Department of Environmental Quality Engineering (now MADEP) (See Attachment B-1.4.2 Water Quality Certificate) (Agency filings are CEII, Agency Approval of stream flow compliance plan is included in <i>Part III</i> <i>Attachment A-1.1</i> .)		
	Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.)	Hyperlinks to the facility FERC Records on FERC e-library website: <u>https://elibrary.ferc.gov/idmws/search/f</u> <u>ercgensearch.asp</u> Search P-6096		
B-1.5 Power Plant Character- istic	Date of initial operation (past or future for operational applications)	Initial Operation began with Original Dam around 1790 and was used for mechanical power at that time. See Attachment B- 1.5.1 Historical reference to construction date of first dam. Most recent configuration is 1940 with upgrades in 1980's, 2010 and 2016 and is used for electrical generation.		
	Total name-plate capacity (MW)	0.455 MW (455 kW)		
	Average annual generation (MWh)	1,738 MWh (see Attachment B-1.5.2 10 Year Energy Production Record with Average year Calculation)		

	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	Three (3) Turbines: One Turbine (T1) – Francis – 175 kW – 200cfs/80cfs One Turbine (T2) – Propeller – 120 kW – 156cfs/145cfs One Turbine (T3) – Kaplan – 160 kW – 195cfs/25cfs (See Attachment B-1.5.3 Turbine Performance Curves)
	peaking, pulsing, seasonal storage, etc.)	FERC Exemption)
B-1.5 Power Plant Character- istics (continued)	Dates and types of major equipment upgrades	1940's – Timber Cribbed dam replacement 1940's – T1 install included in the 1984 Exemption 1985 – New South Powerhouse 1985 – T3 install included in the 1984 Exemption 1995 – T2 install included in the 1984 Exemption 1995 - Switchgear and Controls 2010 – T3 Turbine/genset Replacement 2016 – T2 Runner Replacement 2016 – T1 Generator rewind 2016 - Safety improvements Switchgear and controls replacement 2016 – Dam repairs including Replacement of Marden style needle beams and stop logs, concrete repairs, and new bascule gate skin.
	Dates, purpose, and type of any recent operational changes	The Turners Falls Dam (non-related dam) on the Connecticut River (next dam downstream located within the Connecticut River Watershed of which the Millers River is a sub-basin) is now passing eels as a result of the installation of eel pass in 2015/16 (see Dr Slater MADFG email date 4/15/15 Part III Criterion C Upstream Fish Passage Attachment C-2.1 Agency Letters). The regulatory agencies expect to see eels at the New Home Dam in the near future.

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B-1.5 Power Plant Character- istics (continued)		The Project has had eel passage since 2008 installed on the south side of the river but no eels were passed during its period of operation from 2008 through 2010. For a period of July to October 2011 the USGS and USFW operated an eel trap on the north side of the river but no eels were trapped. It is the opinion of the agencies that too much leakage through the structure was causing nuisance flows that distracted any eels from finding the eel pass or the trap. The operational change of decreasing distraction flows and adding a concentrated attraction flow near the new eel ladder in combination of the documented passage of eels at the next downstream dam will hopefully yield eels finding the new passage proposed for installation in 2017. 2016 – repair structures to reduce nuisance/distraction flows. 2016 – add notch in flashboards adjacent to new eel pass to place attraction flows as near as possible to proposed north side eel pass 2017 – install new eel pass on north side of river adjacent to attraction flow notch Future – determine size of eels when they arrive at the New Home Dam Project and have agencies select substrate that is suitable for eel size and install for eel use
	Plans, authorization, and regulatory activities for any facility upgrades	None
	Date of construction	Original Dam 1790 See Attachment B- 1.5.1 Historical reference to construction date of first dam; Most Recent configuration 1940

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	Dam height	Nine (9) feet (See Attachment B-1.6.1 Updated FERC Pertinent Data Sheet)		
	Spillway elevation and hydraulic capacity	Spillway Elevation at Bascule Gates 497.3 msl and 493 msl at Marden Needle Beams and stop logs; IDF In & Outflow 2,490 cfs		
	Tailwater elevation	Varies with river flows approximately 489 to 495 msl; design point 490.33 msl		
B-1.6 Character- istics of Dam, Diversion, or Conduit	Length and type of all penstocks and water conveyance structures between reservoir and powerhouse	There is approximately a 100 foot long open channel conveyance structure from the dam to the south powerhouse intake. The river bank side is a concrete flood wall (not part of the project), the river side is primarily comprised of needle beams and stop logs in a concrete structure founded on bedrock that are intended to be used only for extreme flood conditions (never been used since the installation of the upstream ACOE flood control projects (1941 & 1949)). The downstream end of the channel is the intake structure to the powerhouse. There is approximately a 108 foot long open channel conveyance structure from the dam to the north powerhouse intake. The river bank, river side and bottom are concrete. The downstream end of the		
	Dates and types of major, generation- related infrastructure improvements	2016 – Bascule Gate Repairs, Marden Needle Beams and Stop Logs		
	Designated facility purposes (e.g., power, navigation, flood control, water suppy, etc.)	Power		
	Water source	Millers River		
	Water discharge location or facility	Millers River		
B-1.7 Characte- ristics of	Gross volume and surface area at full pool	Gross Reservoir Volume: 530 Acre-feet Surface Area: 106 Ac See Attachment B-1.6.1 Updated FERC		
Reservoir		Pertinent Data Sheet		

and Watershed	Maximum water surface elevation (ft. MSL)	Pool Elevation (feet, msl) Maximum: 502.30 (with Flashboards) Normal: 502.30 (with Flashboards) See Attachment B-1.6.1 Updated FERC Pertinent Data Sheet
	Maximum and minimum volume and water surface elevations for designated power pool, if available	Reservoir Storage (acre-feet) Maximum: 530 Normal: 530 See Attachment B-1.6.1 Updated FERC Pertinent Data Sheet
	Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile	See Attachment B-1.7.1 Description of Dams & Tributaries on Millers River; See Attachment B-1.11.6 River Mile Schematic
	Downstream dam(s) by name, ownership, FERC number (if applicable), and river mile	None
	Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation Area inside FERC project boundary, where	None
	appropriate	
	Average annual flow at the dam	653 cfs See Attachment B-1.8.1 Annual River Flow Data
	Average monthly flows	See Attachment B-1.8.2 Monthly River Flow Data
B-1.8 Hydrologic Setting	Location and name of relevant stream gauging stations above and below the facility	Upstream USGS Gage: USGS 01164000 MILLERS RIVER AT SOUTH ROYALSTON, MA LOCATIONLat 42° 37'47", long 72° 09'03", Worcester County, Hydrologic Unit 01080202, on right bank 500 ft downstream from King Street bridge in South Royalston, 0.4 mi downstream from Beaver Brook, 1.7 mi downstream from Birch Hill Dam, and at mile 25.5. DRAINAGE AREA189 mi2 Downstream USGS Gage (used for all river flow discussions See attachment B-1.8.3): 01166500 MILLERS RIVER AT ERVING, MA LOCATIONLat 42° 35'51", long 72° 26'19", Franklin County, Hydrologic Unit 01080202, on right bank 75 ft downstream from bridge at Farley, 0.6 mi

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B-1.8 Hydrologic Setting (continued)	Location and name of relevant stream gauging stations above and below the facility Watershed area at the dam	upstream from Mormon Hollow Brook, 2.4 mi downstream from Erving, and 5.5 mi upstream from mouth. DRAINAGE AREA372 mi2. 323 square miles
	Number of zones of effect	Two (2) ZoE's See Attachment B-1.11.4 Plan View of Facility. In accordance with the LIHI pre-application consultation the Project can be reviewed for two (2) ZoE's because " the only difference in requirements between the downstream "bypass" and the tailraces is a difference in minimum flow requirements." <u>See Part III ZoE's</u> for detailed discussions for #1 Regulated Reach and #2 Dam Impoundment
B-1.9 Designated Zones of Effect	y Upstream and downstream locations by river miles	See Attachment B-1.11.2 USGS Map (with Geographic Coordinates) for Approximate Upstream River Mile Location ZoE: 17.5 RM And Approximate Downstream River Mile Location ZoE: 13.45 RM
	Type of waterbody (river, impoundment,	River
	Delimiting structures Designated uses by state water quality agency	Concrete flood walls up and downstream of the dam (not part of the project); dam; intake canals; powerhouses; tailrace training walls; downstream riprapped embankments.
		See Attachment B-1.9.1 Designated Uses by Water Quality Agency Specifically River Segment MA35-04. For full report go to: http://www.mass.gov/eea/agencies/mas sdep/water/watersheds/water-quality- assessments.html

B-1.10	Names, addresses, phone numbers, and e-mail for local state and federal resource agencies	See Part IV Appendix B-4 Contact Form Relevant Agency Contact Form		
Additional Contact Information	Names, addresses, phone numbers, and e-mail for local non-governmental stakeholders	See Part IV Appendix B-4 Contact Form Non-Government Agency Contact Form There were no NGO comments filed with either the Exemption or Amendment filings.		
	Photographs of key features of the facility and each of the designated zones of effect	See Attachment B-1.11.1 Photographs of Facility		
B-1.11 Photograph s and Maps	Maps, aerial photos, and/or plan view diagrams of facility area and river basin	See Attachments B-1.11.1 Project Photographs (under separate cover) B-1.11.2 USGS Map (with Geographic Coordinates) B-1.11.3 Aerial Photo B-1.11.4 Plan View of Facility B-1.11.5 River Basin Map B-1.11.6 River Mile Schematic		

Information Type	Variable Description	Response(and reference to further details)
B-1.12 Questions for "New" Facilities Only:	For Facilities that are considered "new" (i.e., an existing dam that added or increased power generation capacity after August 1998 or conduit facility that is not yet operation)	 Facility is designated as "LIHI New" The Project is considered a LIHI "New" hydropower facility, meaning those facilities that increased power generation capacity after August 1998 at a dam or diversion structure associated with the facility that was in existence in August 1998. This Project is eligible because improvements were made at an existing dam with efficiency upgrades (replacement of a propeller turbine with a Kaplan turbine) that provided the added or increased capacity and met the Eligibility requirements as follow: was created by modification to the existing facility that did not require or include any new dam or other diversion structure; remained <u>run of river</u> and did not include or require a change in water flow through the facility and <u>did not</u> worsened conditions for fish, wildlife, or water quality; and the existing dam <u>has not</u> been recommended for removal or decommissioning by a resource agency The New Home Dam Project meets all of these criteria.
	Operational date of the "new" generation	2010
	Dam, diversion or	No changes were made to the dam due to the added
	conduit modification	generation
	Change in water flow regime	The Project remained <u>run of river</u> and the increased capacity did not result in a change in water flow through the facility or worsened conditions for fish, wildlife or water quality. Please refer to Part III Attachment A-1.1 Agency Approved Stream Flow Compliance Plan.

Additional Information for "LIHI New" Facility requested during Intake Review:

Part II Appendix B-2 Zone of Effects Matrix

Facility Name: New Home Dam

Zone of Effect: <u>#1 Regulated Reach</u>

Two (2) ZoE's See Attachment B-1.11.4 Plan View of Facility. In accordance with the LIHI preapplication consultation the Project can be reviewed for two (2) ZoE's because "... the only difference in requirements between the downstream "bypass" and the tailraces is a difference in minimum flow requirements." The Standards selected to satisfy the LIHI Certification Criteria in these ZoE's are identified in the following tables.

		Alternative Standards Applied				
Criterion		1	2	3	4	Plus
Α	A Ecological Flow Regimes					
В	Water Quality	X				
С	Upstream Fish Passage		X			
D	Downstream Fish Passage		X			
Ε	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X			
G	Cultural and Historic Resources Protection	X				
Н	H Recreational Resources					

Shading indicates that some standards are not available for some criteria.

Zone of Effects: <u>#2 New Home Dam Impoundment</u>

		Alte	Alternative Standards Applied				
	Criterion		2	3	4	Plus	
Α	Ecological Flow Regimes	X					
В	Water Quality	X					
С	Upstream Fish Passage	X					
D	Downstream Fish Passage	X					
Ε	Watershed and Shoreline Protection	X					
F	Threatened and Endangered Species Protection		X				
G	Cultural and Historic Resources Protection	X					
Н	Recreational Resources	X					

Shading indicates that some standards are not available for some criteria.

Part III. Supporting Information

This Part contains the supporting information that explains and justifies the standards selected to pass the LIHI certification criteria.

Facility Name: New Home Dam

Zone of Effect: <u>#1 Regulated Reach</u>

		Alte	Alternative Standards Applied				
	Criterion		2	3	4	Plus	
Α	Ecological Flow Regimes	X					
В	Water Quality	X					
С	Upstream Fish Passage		X				
D	Downstream Fish Passage		X				
Ε	Watershed and Shoreline Protection	X					
F	Threatened and Endangered Species Protection		X				
G	Cultural and Historic Resources Protection	X					
Η	Recreational Resources	X					

Shading indicates that some standards are not available for some criteria.

Zone of Effects: <u>#2 New Home Dam Impoundment</u>

		Alte	Alternative Standards Applied			
	Criterion		2	3	4	Plus
Α	Ecological Flow Regimes	X				
В	Water Quality	X				
С	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
Ε	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X			
G	Cultural and Historic Resources Protection	X				
Н	Recreational Resources	X				

Shading indicates that some standards are not available for some criteria.

The following map overlays the ZoE's on the Facility:



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Part III Criterion A.1 Ecological Flow Regimes in ZoE #1 & ZoE #2

A	1	 <u>Not Applicable / De Minimis Effect:</u> Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility. If RunofRiver operation, provide details on how flows, water levels, and operation are monitored to ensure such an operational mode is maintained. In a conduit project, identify the water source and discharge points for the conduit system within which the hydropower plant is located. (Not Applicable) For impoundment zones only, explain how fish and wildlife habitat within the zone is evaluated and managed – NOTE: this is required information, but it will not be used to determine
		whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A1 to pass this criterion.

• Powerhouse Location

The Project confirms the location of the powerhouse relative to other dam/diversion structures that there are no LIHI defined bypassed reaches at the facility. The Facility arrangement was discussed in detail with LIHI during the Consultation and Intake Review and it was concluded:

"... the only difference in requirements between the downstream "bypass" and the tailraces is a difference in minimum flow requirements."

During the FERC Licensing Process the US Department of Interior, Fish and Wildlife Service, provided conditions on July 8, 1983 and on August 22, 1984 with 3 conditions regulating flows through the Project. Please refer to Table B-1 Attachment B-1.4.1 FERC Exemption for the full document and Supporting Information Flow Attachment A-1.1 for the specific conditions regarding flows. The flow conditions provided in those documents are as follows:

"1. The Exemptee shall provide fish-passage facilities at this project when so prescribed by the Fish and Wildlife Service and/or the Massachusetts Division of Fisheries and Wildlife. Design, Construction and operation of the fish passage facilities will be the responsibility of the Exemptee; however approval of the design by the Fish and Wildlife Service will be necessary. Any additional instantaneous flows for operation of these facilities will also be provided by the Exemptee, as prescribed by the Fish and Wildlife Service.

2. The Exemptee shall provide a <u>minimum instantaneous release below the project of at</u> <u>least 152 cfs (historical median flow) or inflow to the Project, whichever is less</u>, to preserve downstream aquatic habitat.

5. The Exemptee shall provide a <u>minimum instantaneous discharge at the dam of 10 cfs or</u> <u>inflow to the Project whichever is less</u>, to protect aquatic habitat in the bypass stream reach."

Based upon discussions with LIHI and the Exemption Requirements the downstream areas are considered as Regulated Reaches.

• Run of River Operation

The Project operates in Run-of-River mode. Details are provided on how flows, water levels, and operation are monitored ensuring such an operational mode is maintained in Supporting Information Attachment A-1.1 Agency Approved Stream Flow Compliance Plan; MADFW letter dated 2017-01-30 confirming that the Project "is in compliance with the prescribed ecological flows for both ZoE1 and ZoE2". The MADEP letter dated 2017-03-02 stated "The New Home Dam Project is in accordance with the prescribed ecological flows for both the Zone of Effect 2 New Home Dam Impoundment. The Project operates in a Run of River mode in accordance with the Stream Flow Compliance Plan that has been submitted and approved by this Agency." USFWS email dated 2107-02-22 stating "... to our knowledge the Project is in compliance with its existing terms and conditions."

Specific responses to LIHI Intake Review Questions:

- 1. Copies of the 1983 and 1984 USFW letters that specify the minimum flow requirements are included in Supporting Information Flow Attachment A-1.1.
- 2. The Stream Flow Compliance Plan (SFCP) is filed "CEII" with FERC. Therefore a link to the FERC file will not provide access to the file. The SFCP that is on file at FERC elibrary submitted separately has been reviewed by LIHI. All Agency comments as stated in the final FERC Acceptance were included for LIHI review.
- 3. The Project is in compliance with its minimum flows for the past 5 years.
- 4. LIHI understanding is correct the obligation to provide supporting documentation is available upon request as agreed to in the 2010 Stream Flow Compliance Plan and FERC Order.

• Impoundment Zone Fish & Wildlife Habitat Management

There are no mandated fish and wildlife habitat management requirements for the Project.

Part III Criterion B.1 Water Quality in ZoE #1 & ZoE #2

В	1	Not Applicable / De Minimis Effect:
		 If facility is located on a Water Quality Limited river reach,
		provide an agency letter stating that the facility is not a
		cause of such limitation.
		 Explain rationale for why facility does not alter
		water quality characteristics below, around, and
		above the facility.

• Water Quality Limited river reach

The Project is located on a Water Quality Limited river reach for both ZoE#1 and ZoE #2. Please see Supporting Information Attachment B-1.1 letters to MA DEP and the USFWS. The published information for the cause of river "impairment" is the probable sources to be "Municipal point source discharge" and "contaminated sediments sources waste sites or dumps". The MA DEP reviewed the published reports and stated "The facility is on a river segment with limited water quality but the New Home Dam Project is not the cause of said water quality limitations." As requested during the LIHI Intake Review a follow up email was sent to the MADEP requesting if the Facility has any impact on water quality. The MADEP responded, "The MADEP is not aware of any water quality issues associated with the operation of the New Home Dam Project." The USFWS did not address Water Quality in their email response of 2017-02-22 (see Supporting Information Attachment A-1.1).

• Water Quality Limited river reach rational

The rational is that the defined water quality issues are characteristic of other point source discharge.

Part III Criterion C.2 Upstream Fish Passage in ZoE #1

С	2	 <u>Agency Recommendation:</u> Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent). Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.
		not part of a Settlement Agreement.
		Describe any provisions for fish passage monitoring or
		effectiveness determinations that are part of the agency
		recommendation, and how these are being implemented.

Agency Recommendation Proceedings:

The proceeding and source, date, and specifics of the agency recommendation occurred during the FERC Licensing Process with the US Department of Interior, Fish and Wildlife Service, provided conditions on July 8, 1983 and on August 22, 1984. Specific conditions regarding fish passage from the above mentioned proceedings are bolded and underlined are as follows:

- "1. <u>The Exemptee shall provide fish-passage facilities at this project when so</u> prescribed by the Fish and Wildlife Service and/or the Massachusetts Division of Fisheries and Wildlife. Design, Construction and operation of the fish passage facilities will be the responsibility of the Exemptee; however approval of the design by the Fish and Wildlife Service will be necessary. Any additional instantaneous flows for operation of these facilities will also be provided by the Exemptee, as prescribed by the Fish and Wildlife Service.
- 2. The Exemptee shall provide a minimum instantaneous release below the project of at least 152 cfs (historical median flow) or inflow to the Project, whichever is less, to preserve downstream aquatic habitat.
- 5. The Exemptee shall provide a minimum instantaneous discharge at the dam of 10 cfs or inflow to the Project whichever is less, to protect aquatic habitat in the bypass stream reach."

Scientific Basis:

No scientific basis referenced in responses from Agencies.

The scientific or technical basis is determined by the Agencies and the Agencies have not provided supporting basis for this Project.

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Provisions for Fish Passage:

Catadromous Fish: A non-related dam on the Connecticut River (next dam downstream) is now passing eels as a result of the installation of eel pass in 2015/16 (see Part III Criterion C Upstream Fish Passage Attachment C-2.1 Agency Letters Dr Slater MADFG email date 4/15/15). The regulatory agencies expect to see eels at the New Home Dam in the near future.

The Project has had eel passage since 2008 installed on the south side of the river but no eels were passed during its period of operation from 2008 through 2010. For a period of July to October 2011 the USGS and USFW operated an eel trap on the north side of the river but no eels were trapped. It is the opinion of the agencies that too much leakage through the structure was causing nuisance flows that distracted any eels from finding the eel pass or the trap. The operational change of decreasing distraction flows and adding a concentrated attraction flow near the new eel ladder in combination of the documented passage of eels at the next downstream dam will hopefully yield eels finding a new eel passage (proposed for installation in 2017) in the near future. Repairs were made to the Dam in 2016 to minimize the distraction flows and to concentrate flows via weir on the top of the existing crest gate adjacent to the location of the proposed new eel pass.

Anadromous Fish: See End of Federal Salmon Restoration Project Article 2012-07-12, End of State Salmon Restoration Project MADFG Letter dated 2016-01-19 and MADFW email dated 4/15/2015 indicating downstream fish passage ended that season. There is no requirement for either upstream or downstream fish passage for anadromous fish at this time.

Regarding other anadromous fish passage there has been no other requirement added by any Agency to accommodate other fish species at this time.

C	1	Not Applicable / De Minimis Effect:
		 Explain rationale for why facility does not impose a barrier to upstream fish passage in the designated zone.

Part III Criterion C.1 Upstream Fish Passage in ZoE #2 Impoundment

Not Applicable. The Impoundment is not a part of ZoE 1 and does not form a barrier to fish passage.

Part III Criterion D.2 Downstream Fish Passage in ZoE #1

D	2	 <u>Agency Recommendation:</u> Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent). Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.
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The proceeding and source, date, and specifics of the agency recommendation same As Part III Criterion C as noted above.

Scientific Basis:

See Agency Letters in Criterion C Fish Passage Attachment C-2.1.

Provisions for Fish Passage:

Same as Part III Criterion C as noted above.

The referenced plunge pools were installed on the south and north side powerhouses for the downstream migration of Salmon smolts in the early 2000's as required by the Agencies. No testing was required or completed on the downstream fish passage facilities.

The plunge pool referenced in the email of 4/14/15 are for the Salmon smolts and are no longer needed in accordance with Caleb Slaters' response on 4/15/16 and follow up letter of 1/19/2016. Please see MADFW letter dated January 19, 2016 (C-2.1) where it is stated "The MA Atlantic Salmon Restoration project ended in 2013. The last Atlantic Salmon fry were stocked in Massachusetts in the spring of that year. In Massachusetts Atlantic Salmon typically smolt after two years in freshwater. Therefore most of those fry have smolted and left the system in the spring of 2015. As a result, the Division does not believe there is any reason to continue to mandate the operation of smolt specific downstream passage measures beginning in 2016."

There is no requirement for the plunge pools at this time. The south plunge pool is no longer operational.

D 1 Not Applicable / De Minimis Effect: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines).

Part III Criterion D.1 Downstream Fish Passage in ZoE #2 Impoundment

Not Applicable. The Impoundment does not form a barrier to fish passage.

III.E.1 Watershed and Shoreline Protection in ZoE #1 & ZoE #2

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

The New Home Dam Project is located in an urban and industrial area of the Town of Orange, Massachusetts. Land ownership by the Project is limited to the project facilities area as shown on the following aerial map with delineated Project property lines. There are no lands with significant ecological value associated within the control of the facility due to installation of flood control measures (flood walls, etc) by others and not part of the project.



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The following map overlays the ZoE's:



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New Home Dam			
LIHI Application			
Part III.E.1 Watershed and Sl	noreline Protection		
	Property	Land Cover (Ac)	
	North Side (Intake channel, Powerhouse & Tailrace)	0.15	
	Dam & Marden Style Spillway	0.07	
	South Side (Intake Structure, Powerhouse, Tailrace, Other Land)	1.6	
	Total Property Area	1.82	
Land Use and Land Cover			
7oF 1	Land Lice	Land Cover (Ac)	
	No shareline is owned by the Project. All Shareline is held by		
North Piver Bank	others. Immediately adjacent to and continuing downstream is a		
	flood control wall that is not part of the Project		
Millers Piver	Within ZoE1 - Water including all regulated reaches	0 71	-
Millers River	Project Property downstream of 70E1 - Water	0.71	
	South river bank is a structured bank using concrete retaining	0.50	-
	walls and rin ran for the protection of the shoreline. The		
	structured system begins at the downstream face of the south		
	nowerhouse and continues to the westerly property line. The rin	ľ	
South River Bank	ran material extends from the waters edge to the south and	379	lf
	ends at the property line that is coterminous with a foundation		
	of a building that had been razed by others prior to the project		
	conception.	ſ	
	Private Right of Way for all land locked properties along the		
South River Bank Upland	bank of the Millers River. Right of Way is used for utilities serving	ľ	
	those properties.	0.58	
			,
	Structures that divide ZoE1 and ZoE2		
	Land Use	Land Cover (Ac)	
	Power House & Intake Structure	0.06	
	New Home Dam and South Marden Style Spillway	0.07	
	Powerhouse & Intake Structure	0.05	
7oF 2	Land Lise	Land Cover (Ac)	
	No shoreline is owned by the Project. All Shoreline is held by		l
North River Bank	others	-	
Millers River Impoundment	Water	106	
South River Bank	No shoreline is owned by the Project. All Shoreline is held by		
	others	-	1

The Project Land Use and Land Cover is allocated as follows:

Please note the current site configuration has significantly less impacts on the river (both up and down stream) than the industrial (pre-1940) buildings that encroached on the waterway as shown in the following map:



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F	2	Finding of No Negative Effects:
		 Identify all listed species in the facility area based on current
		data from the appropriate state and federal natural resource
		management agencies.
		Provide documentation of a finding of no negative effect of the
		facility on any listed species in the area from an appropriate
		natural resource management agency.

Part III Criterion F.2 Threatened and Endangered Species in ZoE #1 & ZoE #2

• State Resource Management Agency Listed species

"The Division has determined that the New Home Dam Project (FERC, P-6096) is located within mapped *Priority and Estimated Habitat* for the Creeper (*Strophitus undulatus*), a mussel species state-listed as "Special Concern" in accordance with the MESA. The Creeper and its habitats are protected pursuant to the MESA."

See Attachment F-2.1 for MDFW List of Species.

• Documentation of a finding of no negative effect by State Resource Management Agency

On February 2, 2016 the Project noticed the MA Division of Fish and Wildlife (MDFW) of its intent to perform repairs and apply to apply for LIHI Certification. On March 2, 2106 the MDFW responded to the Projects notice of work and intent to apply for LIHI Certification. In that letter the Division wrote the following:

"The Division has determined that the New Home Dam Project (FERC, P-6096) is located within mapped *Priority and Estimated Habitat* for the Creeper (*Strophitus undulatus*), a mussel species state-listed as "Special Concern" in accordance with the MESA. The Creeper and its habitats are protected pursuant to the MESA. ... Provided the above-noted conditions are fully implemented and there are no changes to the project plans, this project will not result in a "take" of state-listed species."

Please see Supporting Information Attachment F-2.1 letter dated 2017-03-10 from MDFW regarding the current status of the approved mussel monitoring work. Monitoring work will be completed summer of 2017. As requested by LIHI: "The Project is committed to comply with the MA DF&W letter issued March 10, 2017 regarding NHESP Tracking No.: 16-35313 for the duration of the LIHI Certification Period."

• Federal Resource Management Agency Listed species

On March 31, 2016 the US Fish & Wildlife Service provided the Official Species List for threatened and endangered species within the Projects area. The following was reported: New Home Dam FERC P-6096-MA

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"There are a total of 1 threatened or endangered species on your species list. ...

Mammals Status Has Critical Habitat Condition(s)

Northern long-eared Bat (Myotis septentrionalis) Threatened

There are no critical habitats within your project area.

Please see Supporting Information Attachment F-2.2 for full report.

Part III Criterion G.1 Cultural and Historic Resources in ZoE #1 & ZoE #2

G	1	Not Applicable / De Minimis Effect:
		 Document that there are no cultural or historic resources
		located on facility lands that can be affected by
		construction or operations of the facility.
		 Document that the facility construction and operation have not
		in the past adversely affected any cultural or historic resources
		that are present on facility lands.

Letter has been sent to the MA Historic Commission but based upon previous experience from another Project that applied for LIHI Certification no response is expected.

Cultural and Historic Resource Protection ZoE 1 Regulated Reach Standard 1

The Application for FERC Exemption did include a review by the MA Historical Commission comment letter included Supporting Information Supporting Information Attachment G-1.1 Agency Letters In their letter dated 1982-02-16 the Agency wrote the following:

"MHC staff have reviewed these data and have determined that the proposed installation of tube turbines within the old gate complex will not alter this nineteenth century feature nor affect any significant historical or archaeological properties."

Cultural and Historic Resource Protection ZoE 2 Impoundment Standard 1

Same as above

Criterion	Standard	Instructions
Н	1	Not Applicable / De Minimis Effect:
		 Document that the facility does not occupy lands or waters
		to which public access can be granted and that the facility
		does not otherwise impact recreational opportunities in the
		facility area.

Part III Criterion H.1 Recreational Resources in ZoE #1 & ZoE #2

The New Home Dam Project is located in an urban and industrial area of the Town of Orange, Massachusetts. Land ownership by the Project is limited to the project facilities area. The Project owns no accessible land bordering the Project impoundment or downstream reach. Access to the facility property is by private easement in common with others and is not assignable to become a public way. In general the easement area is shown by the gravel pathway (light brown color) on the map included in Part III E Watershed and Shoreline Protection. The Facility does not occupy lands or waters to which public access can be granted and the facility does not otherwise impact recreational opportunities in the facility area. Informal footpaths over the property of others lead to fishing locations below the dam and in the impoundment. The Project has no right to post signs or to encourage others to cross over private property belonging to others.

There are no recreational conditions provided for in the Project's FERC Exemption. However, the Project does not own property or control access to the reservoirs and downstream reaches. The Project is aware of Public access that does occur and does not assess fees or charges for use of the waterways. The Project does coordinate with the upstream ACOE Dams that provide recreational flow releases for annual boating events on the river. Such events require the installation of boat barriers earlier than required by Exemption and operation of Bascule Flood Gates to prevent flooding.

The Project also maintains a consistent reservoir surface elevation for the Town of Orange Boat House and Local Outfitter that provides boating access upstream of the Project's safety devices. The Town of Orange and the Local Regional Planning Commission actively market this resource as a local attraction and benefit to the town and region.

Downstream is an active fishing area but access is over lands and properties of others. Access to the downstream area from the Project is not possible due to rip rapped banks and flood walls that are not part of the Project.

Recreational activities in the Project area are limited to fishing and boating with access over lands owned by others.

Secondary water contact recreation was not evaluated in the most recent Massachusetts 2012 Water Quality Report. However this river segment was listed as "impaired" due to probable municipal point discharges and contaminated sediments (see Criterion B Water Quality).

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Part IV Sworn Statement and Waiver Form

Sworn Statement and Waiver Form

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

SWORN STATEMENT

As an Authorized Representative of Mini-Watt Hydroelectric LLC, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's Certification Program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The undersigned further acknowledges that if certification of the applying facility is issued, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified.

The undersigned Applicant further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's Certification Program.

Mini-Watt Hydroelectric LLC By: O'Connell Development Group Inc., Its Manager

By: James N. Anl Min, Pres. James N. Sullivan, President

Commonwealth of Massachusetts)

County of Hampden

On this, the 6th day of February, 2017, before me a notary public, the undersigned officer, personally appeared James N. Sullivan, President of O'Connell Development Group Inc., Manager of Mini-Watt Hydroelectric LLC, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained. In witness hereof, I hereunto set my hand and official seal.

Notary Hublic ADWAR Notary Public Massachusetts Commission Expires Sep 19, 2019

1

LIHI Handbook 2rd Edition – Sworn Statement and Walver Form © 2016 Low Impact Hydropower Institute. All Rights Reserved.

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LIHI Application Final 4/28/2017

Part V Facility Contacts Form

1. All applications for LIHI Certification must include complete contact information to be reviewed.

Project Owner:	Mini Watt Hydroelectric LLC
Name and Title	James A Sullivan,
Company	O'Connell Development Group
Phone	413-534-0246
Email Address	jsullivan@oconnells.com
Mailing	PO Box 867, 480 Hampden Street, Holyoke, MA 01040
Address	
Project Operato	r (if different from Owner): O'Connell Energy Group
Name and Title	Stephen Fisk, General Manager
Company	O'Connell Energy Group
Phone	413-536-6062
Email Address	sfisk@oconnells.com
Mailing	Suite 200, 57 Suffolk Street, Holyoke, MA 01040
Address	
Consulting Firm	Agent for LIHI Program (if different from above):
Name and Title	William P Short III
Company	William P Short III
Phone	(917) 206-0001
Email Address	w.shortiii@verizon.net
Mailing	P.O. Box 237173, New York, New York 10023-7173
Address	
Compliance Con	ntact (responsible for LIHI Program requirements):
Name and Title	Stephen Fisk, General Manager
Company	O'Connell Energy Group
Phone	413-536-6062
Email Address	sfisk@oconnells.com
Mailing	Suite 200, 57 Suffolk Street, Holyoke, MA 01040
Address	
Party responsible	le for accounts payable:
Name and Title	Joanne Beauregard,
Company	O'Connell Development Group
Phone	413-534-0246
Email Address	jbeauregard@oconnells.com
Mailing	PO Box 867, 480 Hampden Street, Holyoke, MA 01040
Address	

2. Applicant must identify the most current and relevant state, federal, provincial, and tribal resource agency contacts (copy and repeat the following table as needed). Federal Agencies:

Agency Contact (Check area of responsibility: Flows $X_{,}$ Water Quality $X_{,}$ Fish/Wildlife			
Resources X , Watersheds , T/E Spp. , Cultural/Historic Resources , Recreation):			
Agency Name	Fish and Wildlife Service		
Name and Title	Melissa Grader		
Phone	(413) 548-8002		
Email address	Melissa_Grader@fws.gov		
Mailing	United States Fish and Wildlife Service		
Address	Sunderland Fishery Resources Office		
	103 East Plumtree Road		
	Sunderland, Massachusetts 01375		

State Agencies:

Agency Contact (Check area of responsibility: Flows <u>X</u> , Water Quality <u>X</u> , Fish/Wildlife		
Resources, Watersheds, T/E Spp, Cultural/Historic Resources, Recreation):		
Agency Name	Massachusetts Department of Environmental Protection	
Name and Title	Robert D. Kubit	
Phone	(508) 767-2854	
Email address	robert.kubit@state.ma.us	
Mailing	Massachusetts Department of Environmental Protection	
Address	Division of Watershed Management	
	627 Main Street	
	Worcester, Massachusetts 01608	

Agency Contact (Check area of responsibility: Flows X_, Water Quality, Fish/Wildlife		
Resources X_, Watersheds, T/E Spp, Cultural/Historic Resources, Recreation):		
Agency Name	Massachusetts Division of Fisheries and Wildlife	
Name and Title	Caleb Slater	
Phone	(508) 389-6331	
Email address	caleb.slater@state.ma.us	
Mailing	Massachusetts Division of Fisheries and Wildlife	
Address	1 Rabbit Hill Road	
	Westborough, Massachusetts 01581	

Agency Contact (Check area of responsibility: Flows_, Water Quality _, Fish/Wildlife		
Resources, Watersheds, T/E Spp. <u>X</u> _, Cultural/Historic Resources, Recreation):		
Agency Name	Massachusetts Division of Fisheries and Wildlife	
Name and Title	Thomas French Assistant Director of DFW – for NHESP	
Phone		
Email address	Thomas French (tom.french@state.ma.us)	
Mailing	Massachusetts Division of Fisheries and Wildlife	
Address	1 Rabbit Hill Road	
	Westborough, Massachusetts 01581	

Agency Contact (Check area of responsibility: Flows_, Water Quality _, Fish/Wildlife				
Resources, Watersheds, T/E Spp, Cultural/Historic Resources _X_, Recreation):				
Agency Name	Massachusetts Historical Commission (SHPO)			
Name and Title	Brona Simon, SHPO & Executive Director			
Phone	(617) 727-8470			
Email address	mhc@sec.state.ma.us			
Mailing	Massachusetts Historical Commission			
Address	220 Morrissey Boulevard			
	Boston, Massachusetts 02125			

Part I Appendix Table B-1 Attachments

- B-1.1 Facility Name No Attachments
- B-1.2 Location No Attachments (See Attachment B-1.11 Photographs and Maps)
- B-1.3 Facility Owner See Part IV Appendix B-4 Contacts for contact information
- B-1.4 Regulatory Status

B-1.4.1 FERC Exemption & Amendment

B-1.4.2 Water Quality Certificate

- B-1.5 Power Plant Characteristics
 - B-1.5.1 Historical Reference to construction date of first dam
 - B-1.5.2 10 Year Energy Production Record with Average year Calculation

B-1.5.3 Turbine Performance Curves

B-1.6 Characteristics of Dam

B-1.6.1 Updated FERC Pertinent Data Sheet

B-1.7 Characteristics of Reservoir and Watershed

B-1.7.1 Description of Dams and Tributaries on Millers River

- B-1.8 Hydrologic Setting
 - B-1.8.1 Annual River Flow Data
 - B-1.8.2 Monthly River Flow Data
 - B-1.8.3 USGS Gage 01166500 Millers River at Erving, MA Description
- B-1.9 Designated Zones of Effect

B-1.9.1 Designated Uses by Water Quality Agency

- B-1.10 Additional Contact Information See Part IV Appendix B-4 Contacts
- B-1.11 Photographs and Maps
 - B-1.11.1 Project Photographs (under separate cover)
 - B-1.11.2 USGS Map (with Geographic Coordinates)

B-1.11.3 Aerial Photo

- B-1.11.4 Plan View of Facility
- B-1.11.5 River Basin Map
- B-1.11.6 River Mile Schematic
B-1.4.1 FERC Exemption & Amendment

FERC ORDER GRANTING EXEMPTION FROM LICENSING ISSUED December 28, 1984

(We apologize for the poor quality of the copy. This condition is the best quality that could be provided from FERC library)



New Home Dam FERC P-6096-MA

LIHI Application Page 3 of 36

Project No. C00-9609

for

the Co shall application effective d cive date of this order mmission. Failure to constitute acceptance puta does ŝ Not .0 2

Ву the Commission.

(SEAL)

Kenneth 187. PL. Plum

Secretary.



ь. Project No: 6016-001

hydroelectric application

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY CONDIESEION

(October 9, 1984)

Application filed with the Commission

- Date Fileds Tebruary 29, 1984
- Applicants Mini-Watt Electric Company Name of Projects New Home Dam Project
- t.
- Locations On the Hillers River in Franklin County, Massachusette. g.
- Filed Pursuant to: Section 408 of the Energy Security Act of 1980, 16 U.S.C. 552705 and 2708 as amended.
- Contact Person: Bruce J, Dexter, Mini-Watt Electric Company P.O. Box 237, 18 Chase Court, Orange, Massachusetts 01364

1. Comment Dates NOV 1 4 1664

Description of Projec of: (1) an existing and masonry dam; (2) 105 scres, a storage Vater surface (3) the

chouse containing 1 new de of 167 kW; (3) an existing ong tailrace; (4) an exist ion line; and (5) appurtent

would consist of: (1) # Wide, IOD-Foot-long intare enannes; concrete gated intake structure; () with three generating units with a f 490 kW; (4) a naw 40-foot-wide, 200 *91 (5) a naw 230-foot-200; 4,14-kV facilitie transmission 1 The applicant 2,020,000 kWh.

Applicant owns all existing facilities. Furpose of Projects Project energy would be sold to Massachusetts Electric Company

This notice also consists of the following standard paragraphs: Al, A9, B, C, DJA



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LIHI Application Page 4 of 36



-1- Attachment B-2 Farm 5 4.108 <u>Standard terms and conditions of execution from litensing</u>. Any exemption from litensing granted under this subpart for a small hydroclostric power project is subject to the fallowing standard serms and executions:

(a) <u>Article 1</u>. The Commission Preserves the right to conduct investigations under sections 4(g), 305, 307, and 311 of the Foderal Power Act with respect to any acts, complaints, forts, conditions, prestices, or other matters related to the construction, operation, or maintenance of the exampt project. If any term or condition of the examption is visited, the Commission may revoke the examption, issue a mitable order moder social 4(g) of the Foderal Power Act, or take appropriate setion for andercoment, forfaiture, or penalties under Fart III of the Foderal Power Act.

(b) <u>Artisiz 2</u>. The construction, operative, and minimumof the exampt project must comply with any terms and conditions that any Federal or state fish and viidlife agancies have determined are appropriate to personal loss of, or damage ta, fish or wiidlife resources or otherwise to sarry out the purposes of the Fish and Wiidlife Coordination Act, as specified in Exhibit 2 of the application for examption from licensing or in the comments sommitted in response to the movies of the application.

(e) <u>Article 3</u>. The Coomission may appropriate a license applicant tion by any qualified license applicant and revoke this examption if article and a structure of any proposed generating fastilities has not begun within its months; or been completed within four years, from the date on which this examption was granted. If as examption is revoked, the commission will not necess a subsegrand application for examption within two years of the revocation. (4) Article 4. This examples is subject to the maripules aritude of the Delive fittes if the project is the maripules aritude of the Delive Sittes if the project is headted as maripules to veters of the Delive States.

-2-

(*) Article 2. This examption does not confor any right to use of compy any Privat linds that may be necessary for the development of operation of the project. Any right to use or or compy any Poisral lands for those purposes much be obtained from the administering Poisral ind spension. The Commission may accept a license application by any gualified license applicant and reveals this examption, if any necessary right to use or compy Prioral Lands for those purposes has not been obtained within one year from the data on which this examption was granted.

New Home Dam FERC P-6096-MA

LIHI Application Page 5 of 36



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FERC ORDER AMENDING EXEMPTIONS ISSUED May 5, 2009

20090505-3561 FERC PDF (Unofficial) 05/05/2009

127 FERC ¶ 62,107 UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION

Mini-Watt Hydroelectric LLC

Project No. 6096-012

ORDER AMENDING EXEMPTION

(Issued May 05, 2009)

On March 31, 2009, Mini-Watt Hydroelectric (exemptee) filed an application to amend its exemption for the New Home Dam Project, FERC No. 6096. The project is located on the Millers River in Franklin County, Massachusetts.

BACKGROUND

On December 28, 1984, the New Home Dam Project was exempted from licensing.¹ The project was authorized with four generating units with a total installed capacity of 677 kW. The project, with construction completed in 1995, consists of two powerhouses, one on the North Bank of the river and one on the South Bank. The North Bank Development contains a single turbine/generator unit rated at 175 kW, and the South Bank Development contains two units rated at 120 kW each, for a total installed capacity of 415 kW.

PROPOSED AMENDMENT

The exemptee proposes to amend the project's installed capacity from 415 kW to 495 kW by replacing one existing propeller turbine/generator unit rated at 120 kW with a new double regulated Kaplan turbine/generator unit rated at 200 kW at the South Bank Development. The proposed construction will begin in September 2009 with completion in August 2010. The operation of the project will remain at run-of-river mode, with a minimum bypass flow of 10 cubic feet per second.

¹ 29 FERC ¶61,356 (1984).

LIHI Application Page 7 of 36

2

AGENCY CONSULTATION

The exemptee consulted with the U.S. Fish and Wildlife Service (FWS) and the Massachusetts Division of Fisheries and Wildlife (MDFW). The FWS provided the exemptee with two environmental concerns related to the proposal: (1) water quality in the bypassed reach, and (2) the intake velocity. After the exemptee provided further information and the FWS verified the data, the concerns were resolved to the FWS's satisfaction. In addition, the FWS recommended that the exemptee update the existing streamflow compliance monitoring plan, which we are requiring in ordering paragraph (D). The MDFW stated that it concurred with the FWS assessment and has no objection to the proposal.

DISCUSSION

A. Design Changes

The exemptee's proposal to replace one existing propeller turbine/generator with a new double regulated Kaplan turbine unit would result in an increase in hydraulic and generating capacities. The hydraulic capacity of the project would increase from166 cfs to 200 cfs. The project's generating capacity would increase from 415 kW to 495 kW.

B. Exhibits A and G Drawings

The Exhibit A describes the as-built project features, as authorized, and the proposed replacement of the unit. The exemptee also includes two Exhibit G drawings related to the turbine replacement: (1) G-1, Existing Plan and Cross Section View of the turbine replacement; and (2) G-2, Proposed Plan and Cross Section View of the turbine replacement. The Exhibit A and Exhibit G drawings conform to the Commission's rules and regulations and are approved in ordering paragraph (E) of this order. In ordering paragraph (F), we are requiring the exemptee to file the approved exhibit drawings in aperture card and electronic file formats. The filed G-1 and G-2 drawings are redesignated as G-6 and G-7, respectively, to preserve the original G-1 and G-2 drawings filed on December 28, 1984.

C. Environmental Review

All work will take place in the South Bank Development powerhouse, and the construction area will be closed off by installing stop logs in the tailrace and closing the headgates. The operation will remain run-of-river mode throughout all

activities and after the construction. The FWS's analyses of the proposal indicated that it is unlikely that impairment to water quality would occur and the intake velocity will meet its velocity design criterion. In addition, the exemptee indicated that: (1) the monitoring system would be modified to make the new turbine, with a wider operating range, be the first on and last off; and (2) the North Bank Development unit would be tied to the system. As such, the project would improve its ability to maintain and verify compliance with operational requirements of the exemption.

3

CONCLUSION

The increase in project capacity from 415 kW to 495 kW is within the project's authorized capacity of 677 kW. The new turbine is estimated to produce an additional 350,000 kWh annually. In addition, the modifications to the monitoring system would improve the project's compliance with operational requirements.

The Commission's staff finds that the increase in the project's installed capacity would not result in any additional adverse environmental effects other than those identified during processing of the exemption. Therefore, this order will amend the exemption to replace one existing propeller turbine/generator unit rated at 120 kW with a new double regulated Kaplan turbine/generator unit rated at 200 kW at the South Bank Development.

The Director orders:

(A) The exemption for the New Home Dam Project, FERC No. 6096, is amended as provided by this order, effective the date this order is issued.

(B) The total authorized installed capacity of the New Home Dam Project, FERC No. 6096, is 495 kW.

(C) Appendix A, subparagraph j, of the Order Granting Exemption from Licensing is revised, in part, to read as follows:

j. Description of Project:The North Bank Development would consist of: (2) an existing powerhouse containing one generating unit with an installed capacity of 175 kW;

The South Bank Development would consist of: (3) a powerhouse with two generating units with a total installed capacity of 320 kW; The estimated annual generation of the project would be 1,700,000 kWh.

4

(D) Within one year from the date this order is issued, the exemptee shall file for Commission approval, a revised stream flow compliance monitoring plan, incorporated with the modification and improvement. The system must monitor and document compliance with the minimum flow release requirement under Article 2 of the exemption and the terms and conditions provided by the U.S. Fish and Wildlife Service. The plan shall include location of monitoring equipment, and shall provide for gage system calibration, the method of flow data collection and for providing flow data to the U.S. Fish and Wildlife Service, the Massachusetts Division of Fisheries and Wildlife, and the Massachusetts Department of Environmental Protection within 30 days of the agency's request for the data. The Flow Monitoring Plan shall be prepared in consultation with the U.S. Fish and Wildlife Service, the Massachusetts Division of Fisheries and Wildlife, and the Massachusetts Department of Environmental Protection. The exemptee shall include with the Plan documentation of consultation, copies of comments and recommendations on the completed Plan after it has been prepared and provided to the consulted agencies, and specific descriptions of how the agencies' comments are accommodated by the Plan. The exemptee shall allow a minimum of 30 days for the agencies to comment and make recommendations prior to filing the Plan with the Commission for approval. If the exemptee does not adopt a recommendation, the filing shall include a discussion of the exemptee's reasons, based on project specific information. The Commission reserves the right to require changes to the Plan.

Exhibit No.	FERC Drawing No.	Drawing Title	Superseded FERC Drawing No.
G-6	6096-8	Existing Plan and Cross Section View of Turbine Replacement	
G-7	6096-9	Proposed Plan and Cross Section View of Turbine Replacement	

(E) The Exhibit A and the following Exhibit G drawings filed on March 31, 2009, are approved and made part of the exemption.

Exhibit G drawings shall be filed in the Commission's electronic format as specified in ordering paragraph (F). Superseded exhibits are eliminated from the exemption.

(F) Within 45 days of the date of issuance of this order, the exemptee shall file the approved exhibit drawings in aperture card and electronic file

5

formats.

a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Drawing Number (i.e., P-6096-8 and P-6096-9) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., G-6 and G-7), Drawing Title, and date of this order shall be typed on the upper left corner of each aperture card. See Figure 1.





Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office.

b) The exemptee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office. The approved exhibit drawings must be segregated from other project exhibits and identified as (CEII) material under 18 CFR § 388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Drawing Number, FERC Exhibit, Drawing Title, date of this order, and file extension [i.e., P-6096-8, G-6, Existing Plan and Cross Section View of Turbine Replacement, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification: 20090505-3561 FERC PDF (Unofficial) 05/05/2009

Project No. 6096-012

IMAGERY - black & white raster file FILE TYPE - Tagged Image File Format, (TIFF) CCITT Group 4 RESOLUTION - 300 dpi DRAWING SIZE FORMAT - 24" X 36" (min), 28" X 40" (max) FILE SIZE - less than 1 MB

(G) This order constitutes final agency action. Requests for rehearing may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

6

William Guey-Lee, Chief Engineering and Jurisdiction Branch Division of Hydropower Administration and Compliance

B-1.4.2 Water Quality Certificate



ANTHONY D. CORTESE, Sc. D.

Commissioner

J

The Commonwealth of Massachusetts Executive Office of Environmental Affairs Department of Environmental Quality Engineering Division of Water Pollution Control One Winter Street, Boston 0**2**108

September 27, 1983

Mr. David R. Dexter Mini-Watt Electric Company, Inc. Post Office Box 237 Orange, Massachusetts 01364

Re: Water Quality Certification #83W-101 Dredge Millers River Orange

Dear Mr. Dexter:

In response to your request in your petition dated September 19, 1983 submitted to the Division of Waterways, this Division has reviewed your application for a permit to dredge approximately 2000 cubic yards of sediment from Millers River in Orange, Massachusetts. The areas to be dredged are the present discharge channel, to its original depth, and the new discharge channel on the south side of the river.

In accordance with the provisions of Section 401 of the Federal Water Pollution Control Act as amended (Public Law 95-217), this Division issues the following <u>Water Quality Certification</u> relative to this project, subject to the following conditions:

1. The dredging portion of the project could result in a violation of water quality standards adopted by this Division. Therefore, reasonable care and diligence shall be taken by the contractor to assure that the proposed activity will be conducted in a manner which will minimize violations of said standards.

Disposal of dredge materials into the waters of the Commonwealth is prohibited. Mr. David R. Dexter Mini-Watt Electric Company, Inc. September 27, 1983 Page 2

Should any violation of the water quality standards or the terms of this certification occur as a result of the proposed activity, the Division will direct that the condition be corrected. Non-compliance on the part of the permittee will be cause for this Division to recommend the revocation of the permit(s) issued therefor or to take such other action as is authorized by the General Laws of the Commonwealth. This certification does not relieve the applicant of the duty to comply with any other statutes or regulations.

Very truly yours,

homas C. M. Maloneof

Thomas C. McMahon Director

TCM/DBS/wp

cc: Anthony D. Cortese, Sc.D., Commissioner, Department of Environmental Quality Engineering, One Winter Street, Boston 02108

William Lawless, Chief, Permits Branch, Corps of Engineers, 424 Trapelo Road, Waltham 02154

John J. Hannon, Director, Division of Waterways, Department of Environmental Quality Engineering, One Winter Street, Boston 02108

Richard Cronin, Director, Division of Fisheries & Wildlife, 100 Cambridge Street, Boston 02202

Philip Coates, Director, Division of Marine Fisheries, 100 Cambridge Street, Boston 02202

Douglas Thompson, Permits Section, EPA, Region I, John F. Kennedy Building, Boston 02203

William Febiger, Energy Facilities Siting Council, 100 Cambridge Street, Room 1506, Boston 02202

B-1.5.1 Historical Reference to construction date of first dam

"New Home Dam & Eel Pass. There has been a major dam at this site, just west of the street bridge, since 1790 when James Holmes built one of logs to provide water power for his grist and saw mills. The structure was re-built in 1877 and lasted until 1891, when the New Home Sewing Machine Company erected a new one. Following the floods of 1936 and 1938, the state built the current dam in 1939, lowering its height by four feet, and turned over control to the town in 1941. An eel pass was installed by the Athol Bird and Nature Club and MRWC just downstream of the dam in 2009 on the south bank, to help restore upstream passage of this native aquatic species to its historical range."¹

Appendix B-1.5.1												
	10 Year Energy Production Record with Average Calculation											
	New Home Dam											
	Mini-Watt Hydroelectric LLC											
												10 Year
Month	Projected	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average
JAN	180,114	224,826	229,215	210,576	191,469	145,431	121,153	245,491	150,364	245,421	250,443	201,439
FEB	163,540	190,998	73,621	146,999	128,969	135,056	127,048	199,855	199,794	147,438	146,368	149,615
MAR	225,971	159,630	208,331	221,845	223,094	124,452	178,932	210,421	251,539	172,203	167,854	191,830
APR	176,646	116,961	200,742	191,613	213,405	150,844	243,462	124,137	266,735	205,979	228,835	194,271
MAY	179,056	171,099	202,595	150,329	161,222	77,580	222,061	221,338	167,889	262,958	95,873	173,294
JUN	152,294	200,000	87,322	89,595	160,212	31,775	149,751	155,026	229,882	111,466	137,599	135,263
JUL	93,283	137,551	34,764	81,868	194,584	7	51,163	4,769	113,477	202,953	131,222	95,236
AUG	40,028	48,753	1,372	141,122	150,810	-	100,084	16,389	79,972	113,490	17,568	66,956
SEP	45,444	26,992	5,386	142,182	56,213	465	211,652	21,993	91,086	19,166	27,833	60,297
OCT	90,709	134,294	13,554	102,143	78,564	74,523	240,002	91,159	91,503	116,001	113,420	105,516
NOV	144,437	241,435	79,525	182,898	186,219	185,562	229,463	146,745	105,317	177,292	107,361	164,182
DEC	179,597	200,614	111,897	191,166	237,818	207,045	247,529	168,760	189,299	263,535	179,097	199,676
	1,671,119	1,853,151	1,248,322	1,852,336	1,982,578	1,132,740	2,122,300	1,606,082	1,936,857	2,037,902	1,603,472	1,737,574

B-1.5.2 10 Year Energy Production Record with Average year Calculation

¹ The Millers River Blue Trail and this Map Guide are projects of the Millers River Watershed Council, New Home Dam FERC P-6096-MA

B-1.5.3 Turbine Performance Curves







T-3:



<u>T-2:</u>

New Home Dam FERC P-6096-MA

Part I Table B-1 Attachments

LIHI Application Page 17 of 36

B-1.6.1 Updated FERC Pertinent Data Sheet

Pertinent Datasheet					
Project 6096-MA	FERC-D2SI - New	York Regional Office	8/21/2015		
	NYRO		•		
General Data					
Dam Number	06096-01-01	Hazard Potential Classification	1		
Dam Name	New Home	Vear Dam Completed	1036		
Project Name	New Home	River	Millers River		
Reservoir Name	New Home	Drainage Area (sg mi)	272		
Secondary Reservoir Name	New Home	Downstream City	Frving		
Licensee/Evemptee	Mini-Watt Hydroelectric LLC	Distance (mi)	4		
Owner	Mini-Watt Hydroelectric LLC	Last Periodic Inspection Date	7/15/2015		
County State	Franklin Massachusetts	Last Periodic Inspection Date	7/15/2015		
LISGS Quad Man	Orange				
	42 5804				
Langitude	72 2101				
	-72.3101	Desemin Dete			
Hydrologic Data		Reservoir Data			
Hundred-Year Flood (cfs)	2,490	Normal Maximum Surface Area (ac)	106		
Flood of Record (cfs)	28,000	Reservoir Elevation (ft)			
Date of Flood of Record	9/22/1938	Maximum	502.3		
Average Flow (cfs)		Normal Maximum	502.3		
Minimum Flow Required (Y/N):	Y	Minimum	501.7		
Minimum Flow (cfs):	152 or inflow	Reservoir Storage (ac-ft)			
		Maximum	530		
Project Works		Normal Maximum	530		
Dam Height (ft)	9				
Nominal Dam Crest Elevation (ft)	501.3 Bascule Gates "Up"	Safety Requirements			
	497.3 Bascule gates "Down"	· _			
Elevation of Lowest Point of Crest of Dam (ft)	493.0 South Spillway "Tripped"	Current Performance Measure	Meets Current Standards		
Elevation of Lowest Point of Parapet (ft)		Part 12D Report Required	No		
Normal Freeboard (ft)	-0.9	Latest Part 12D Report Receive	Not Applicable		
Length of Dam (ft)	90	Emergency Action Plan Status	Exempt		
Flashboards Installed	Yes	Latest EAP Plan/Modification Received	Not Applicable		
Elevation of Top of Flashboards (ft)	502.3 Bascule Gates "Up"	Latest Annual Certification	12/30/2013		
Uncontrolled Spillway Width (ft)	Not Applicable	Latest 5-year reprint			
Uncontrolled Spillway Crest Elevation (ft)	Not Applicable	Latest Functional Exercise			
PMF Inflow (cfs)		Public Safety Plan Date	11/2/1992		
PMF Outflow (cfs)		Boat Restraining Barrier Required	Yes		
PMF Reservoir Elevation (ft)		Date In (Month/Day)	5/20		
IDF Inflow (cfs)	2,490	Date Out (Month/Day)	10/1		
IDF Outflow (cfs)	2,490	ODSP Revision Date			
IDF Reservoir Elevation (ft)					
IDF Freeboard (ft)		Gate Details			
Number of Penstocks	0	Gate Category/Number of Gates:			
Number of Tunnels	0	Category 1: 0 gates (Failure has dam safe	ety or operational		
Number of Canals	2	Category 2: 2 gates (Failure has minimal or no consequences)			
Number of Locks	0	Latest Gate Test Certification	12/23/2014		
Number of Powerhouses	2	Total Number of Spillway Gates	2		
Number of Generating Units	3	Types, # of Spillway Gates	Bascule: 2		
Authorized Generation	455	()			
	1				
Dam Type 1:	Gravity				
	ontains Critical Energy Infra	structure Information			
C					
- Do Not Release -					

B-1.7.1 Description of Dams and Tributaries on Millers River

Description of Millers Rivers' Dams & Tributaries

The Millers River Basin drains approximately 390 square miles² and lies within the larger Connecticut River Basin. There are **ten (10) dams** on the main stem of the Millers River. These dams are identified as follows beginning with the head waters:

- 1. Upper Naukeag Lake Dam (non FERC Regulated)
- 2. Lower Naukeag Lake Dam (non FERC Regulated)
 - 3. Whitney Dam (non FERC Regulated)
 - 4. Hunts Pond Dam (P-8012-MA)
 - 5. Tannery Dam (P-8895-MA)
- 6. Birch Hill Dam (Army Corps Flood Control Dam)
 - 7. Cresticon Upper Dam (P-10163-MA)
 - 8. Cresticon Lower Dam (P-10163-MA)
- 9. L. S. Starrett Company Dam (non FERC Regulated) 10. New Home Dam (P-6096-MA)

The Millers River's headwaters are fed from tributaries in Rindge and New Ipswich New Hampshire and Lake Monomonac in Winchendon on the North Branch of the Millers River and formed by numerous ponds including Upper & Lower Naukeag Lake and Sunset Lake in Ashburnham, MA on the main stem of the Millers River. The North Branch joins the Millers River main stem at Whitney Pond Dam in Winchendon Center. The outlet of Whitney Pond Dam discharges directly into impoundment formed by Hunts Pond Dam. A section of Route 12 and a section of High Street cross the Hunts Pond Dam Impoundment. After Hunts Pond Dam the Millers River continues west through a short stretch of rapids to the impoundment of Tannery Pond Dam. After Tannery Pond Dam and about a 2 mile stretch of rapid flowing waters the river slows, becomes deeper, and then turns north until reaching the Winchendon Wastewater Treatment Plant (WWTP). The river then turns south as it passes through a massive flat area which is part of the Army Corp Birch Hill Flood Control Project (installation completed Feb 1942). Before leaving the Birch Hill Flood Control Project area the river turns west and joins with the Otter River. Birch Hill Dam is one of two flood control dams in the basin built by the Corps. After flow is discharged from Birch Hill Dam, it becomes swifter just above Route 68 in South Royalston. The river begins a southwest course fluctuating between rapids and semi-uniform flow. For the next five miles the river flows through a largely undeveloped area dropping over 225 feet. The flow is then impounded by the dam at the old Union Twist Drill Company in Athol, called L.P. Athol Hydroelectric Project. There are two impoundments in succession at the L.P. Athol Project - Cresticon Upper Dam and Cresticon Lower Dam. After passing a short rapid section the flow is impounded at the L. S. Starrett Company Dam (Crescent Street Dam). The river flows west to its confluence with the Tully River, then southwest, passing under Route 2A to the Athol-Orange town line where it continues in a northwest direction to New Home Dam in Orange Center. More specific information about the New Home Dam is included in the Facility Description. From New Home Dam the next 10.5

² Taken from Water Resources of Massachusetts US Geological Survey Water Resources Investigations Report 90-4144.

miles of river flows swiftly, passing Erving Paper and the Erving Center WWTP. The river then flows through the Village of Millers Falls where it receives the effluent from the Erving POTW#1. It then flows past the old dam at Route 63 and a short distance farther before entering the backwater of the Connecticut River in Gill.

River Flows are manipulated from several different impoundments within the Millers River Watershed. Army Corps Projects at Tully Lake & Birch Hill manipulate reservoir levels for flood control. ACOE regulate river flow to 3,100 cfs at the town of Athol due to the rivers' relatively small channel capacity in this area. The ACOE dams allow releases up to the channel capacity once per year, conditions permitting. Lake Monomonac, Lower Naukeag Lake and Sunset Lake Pond levels are reduced in the fall and are refilled in the spring impacting downstream river flows. Whitney Pond Dam, a non-generating facility, is manually operated by the Town of Winchendon in response to flows.



Schematic Map of Millers Rivers' Dams & Tributaries³

³ Taken from Massachusetts Department of Environmental Management *Hydrologic Assessment of the Millers River* Final Report, April 2003 New Home Dam FERC P-6096-MA



B-1.8 Hydrologic Setting See latest Water Data Report 2013 at wdr.water.usgs.gov

B-1.8.1 USGS Gage 01166500 Millers River at Erving, MA Description

The data contained in the tables below are taken directly from the USGS Web Site http://waterdata.usgs.gov/ma/nwis/uv/?site_no=01166500&PARAmeter_cd=00065,00060 .

The drainage are at the Project is 323 square miles. The ratio of drainage areas 323/372 (86.8%) is used to determine flows at the Project Site.

USGS 01166500 MILLERS RIVER AT ERVING, MA

LOCATION--Lat 42° 35′51", long 72° 26′19", Franklin County, Hydrologic Unit 01080202, on right bank 75 ft downstream from bridge at Farley, 0.6 mi upstream from Mormon Hollow Brook, 2.4 mi downstream from Erving, and 5.5 mi upstream from mouth.

DRAINAGE AREA--372 mi2.

PERIOD OF RECORD--Discharge: August 1914 to June 1915 (twice-daily gage heights and corresponding discharge), July 1915 to current year.

Water-quality records: Water years 1953, 1965–66, 1994.

REVISED RECORDS--WSP 641: 1920(M). WSP 781: 1928(M), 1933(M). WSP 1301: 1915(M). WDR MA-RI-84-1: drainage area.

GAGE--Data Collection Platform with satellite telemeter. Elevation of gage is 388 ft NAVD 1988, from topographic map. Prior to June 30, 1915, nonrecording gage, June 30, 1915, to Sept. 20, 1938, water-stage recorder, and Sept. 21 to Dec. 31, 1938, non- recording gage, at site 2.2 mi upstream at different datum. Jan. 1 to Mar. 29, 1939, nonrecording gage, and Mar. 30, 1939, to Sept. 12, 1941, water-stage recorder, at site 0.4 mi downstream at different datum.

REMARKS--Flow regulated by powerplants and by Lake Monomonac and other reservoirs; high flow regulated by Birch Hill Reservoir 22 mi upstream since 1941 and Tully Lake since 1948. Greater regulation by powerplants prior to 1966.

Attachment B-1.8.2 Annual River Flow Data

Drainage Area	372	323					
		87%					
	Flow Erving	Flow Orange					
Water Year	00060, Discharge, cubic feet per second						
1916	754.9	655.5					
1917	646.0	560.9					
1918	527.7	458.2					
1919	594.9	516.5					
1920	810.9	704.1					
1921	781.9	678.9					
1922	837.2	726.9					
1923	606.4	526.5					
1924	629.9	546.9					
1925	438.3	380.6					
1926	512.5	445.0					
1927	510.9	443.6					
1928	948.1	823.2					
1929	657.0	570.5					
1930	296.6	257.5					
1931	417.4	362.4					
1932	482.3	418.8					
1933	715.9	621.6					
1934	690.7	599.7					
1935	670.6	582.3					
1936	714.9	620.7					
1937	711.4	617.7					
1938	1,012.0	878.7					
1939	664.5	577.0					
1940	620.7	538.9					
1941	353.6	307.0					
1942	491.1	426.4					
1943	650.1	564.5					
1944	558.1	484.6					
1945	765.4	664.6					
1946	632.0	548.8					
1947	548.6	476.3					
1948	632.3	549.0					
1949	446.9	388.0					
1950	459.4	398.9					
1951	753.3	654.1					
1952	827.7	718.7					
1953	745.4	647.2					
1954	643.3	558.6					
1955	664.5	577.0					
1956	820.7	712.6					
1957	428.7	372.2					
1958	627.2	544.6					
1959	480.2	416.9					
1960	917.1	796.3					
1961	620.8	539.0					

1962	453.8	394.0	
1963	448.2	389.2	
1964	432.7	375.7	
1965	195.9	170.1	
1966	300.3	260.7	
1967	595.5	517.1	
1968	567.7	492.9	
1969	620.7	538.9	
1970	732.8	636.3	
1971	477.6	414.7	
1972	803.3	697.5	
1072	803.5 907 F	770.2	
1975	697.3	614.6	
1974	707.8	614.0	
1975	/10.0	622.2	
1976	935.2	812.0	
1977	554.5	481.5	
1978	749.7	650.9	
1979	776.6	674.3	
1980	658.6	571.8	
1981	429.8	373.2	
1982	868.8	754.4	
1983	752.7	653.6	
1984	1,044.0	906.5	
1985	331.5	287.8	
1986	648.6	563.2	
1987	689.9	599.0	
1988	528.2	458.6	
1989	623.6	541.5	
1990	712.8	618.9	
1991	706.4	613.4	
1992	611.1	530.6	
1993	557.9	484.4	
1994	670.7	582.4	
1995	482.8	419.2	
1996	999.6	867.9	
1997	860 5	747.2	
1008	707.2	614.0	
1990	/07.2	/121 7	
2000	755.0	451.7	
2000	733.9	COC.5	
2001	397.3	200.2	
2002	343.5	298.3	
2003	650.1	564.5	
2004	/38.8	641.5	
2005	774.6	6/2.6	
2006	1,070.0	929.1	
2007	683.8	593.7	
2008	902.1	783.3	
2009	870.2	755.6	
2010	705.4	612.5	
2011	852.0	739.8	
2012	695.6	604.0	
2013	643.1	558.4	
2014	747.3	648.9	
2015	695.5	603.9	
** No Incomplete data have been used for statistical calculation			
Avorage Appuel	(52.0	EC7 0	
Average Annual	653.9	8.102	

Attachment B-1.8.2 Annual River Flow Data (continued)

Attachment B-1.8.3 Monthly River Flow Data

Drainage Area	372	323
		87%
USGS 01166500 MILLERS RIVER AT ERVING, MA	Flow Erving	Flow Orange
Monthly mean in ft3/s (Calculation P	Period: 1915-10-01 -> 2015-10-3	31)
Month	Mean Of Monthly Dis	charge
Jan	649	564
Feb	631	548
Mar	1,170	1,016
Apr	1,580	1,372
May	824	715
Jun	544	472
Jul	307	267
Aug	237	206
Sep	276	240
Oct	385	334
Nov	557	484
Dec	700	608





7Q10 adjusted for drainage area (1950-1998) 45.9 cfs x 323sm/372sm = 39 cfs



Millers River at Erving, MA, Instantaneous Peak Flows, Drainage Area= 372 square miles

Source: Massachusetts Department of Environmental Management Hydrologic Assessment of the Millers River April 2003



Peak Flows adjusted for drainage area (1985-2014)

Attachment B-1.9.1 Designated Uses by Water Quality Agency "MILLERS RIVER WATERSHED 2000 WATER QUALITY ASSESSMENT REPORT" for full report go to:

http://www.mass.gov/eea/agencies/massdep/water/watersheds/water-quality-assessments.html





11.5

B-1.11 Photographs and Maps

B-1.11.1 Photographs of Facility (under separate cover)

B-1.11.2 USGS Map (with Geographic Coordinates)





Aerial Photo – Google Earth 5/10/2014 View of the New Home Dam Project. The dam is delineated by the dashed line. The arrow indicates direction of flow.

B-1.11.4 Plan View of Facility





B-1.11.6 River Mile Schematic Map



New Home Dam Part III Supporting Information Attach	ments
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	LIHI Filing Check Off List					
				Response Date		
Criterion	Zone of Effect/Correspondence	Mail Date	Agency Review	Expected	Actual	
	ZoE 1 Regulated River Reach					
	ZoF 2 Dam Impoundment					
A. Ecological Flow Regimes						
Comment Letter	MDEP via email	1/24/2017	30	2/23/2017	3/2/2017	
Comment Letter	MDEW via email	1/24/2017	30	2/23/2017	1/30/2017	
Comment Letter	LISEWS via email	1/24/2017	30	2/23/2017	2/22/2017	
Attachments	Demonstration of Minimum Flows			2,20,201	2, 22, 202,	
	DOI Letters from FEBC filings					
	Elow History and Elow Duration Curve					
	Agency Approval of Stream Flow Compliance Plan					
B. Water Quality						
Comment Letter	MDEP via email follow up	4/13/2017	30	5/13/2017	4/14/2017	
Comment Letter	MDEP via email	1/24/2017	30	2/23/2017	3/2/2017	
Comment Letter	LISEWS via email	1/24/2017	30	2/23/2017	2/22/2017	
Attachments		1/21/2017	50	2/23/2017	2,22,201,	
	Millers River Watershed 2000 Water Quality Assessment Report					
	Massachusetts Vear 2012 Integrated List of Waters					
	EPA Table for Millers River Water Quality					
C Unstream Fish Passage a	nd D. Downstream Eich Passage					
Comment Letter	MDEW via email use email responses from 2015/16 re eel pass	1/24/2017	30	2/23/2017		
Comment Letter	IISEWS via email	1/24/2017	30	2/23/2017	2/22/2017	
Attachments	DOI Letters from FERC filings	1/24/2017	50	2/25/2017	2/22/2017	
	FERC Exemption					
	FERC Amendment					
F Watershed & Shoreline F	Protection					
NA	Notice not Required No shoreline as part of property Provide doc	umentation	nly			
	Notice not required no shoreline as part of property fromde doe		, iliy			
F Threatened & Endanger	l ad Species Protection					
Comment Letter	LISEW/S	3/31/2016	_	3/31/2016	3/31/2016	
Attachments	Official Species List	3/31/2010		5/51/2010	3/31/2016	
					3/31/2010	
Comment Letter	MDFW Update via email	1/24/2017	30	2/23/2017	3/10/2017	
Attachments	MESA Original Comment Letter	3/22/2016	-	3/22/2016	3/22/2016	
	MESA Permit	5/24/2016	-	5/24/2016	5/24/2016	
		5/24/2010		5/24/2010	5/24/2010	
G. Cultural & Historic Resou	I Irce Protection					
d. cultural & historie hesot					will not respond	
Comment Letter	MA Historic Commission via overnight mail	1/24/2017	31	2/24/2017	to email	
Attachments	UISGS Man with Project coordinates					
	Beservoir or River Impoundment Man					
	FERC Exemption					
	FERC Amendment					
H. Recreation Resources	Notice Not Required Provide documentation only					

Supporting Information Flow Attachment A-1.1

FERC Approved Stream Flow Compliance Plan

132 FERC ¶ 62,084 UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION

Mini-Watt Hydroelectric LLC

Project No. 6096-012

ORDER APPROVING STREAMFLOW COMPLIANCE MONITORING PLAN

(Issued August 02, 2010)

 On April 30, 2010, Mini-Watt Hydroelectric LLC, exemptee for the New Home Dam Project, filed its Streamflow Compliance Monitoring Plan, pursuant to the Order Amending Exemption (2009 order).¹ The project is located on the Millers River in Franklin County, Massachusetts.

BACKGROUND

2. The project consists of the New Home Dam, comprised of two Bascule gates (approximately 7 feet by 40 feet) with center and end piers, and two powerhouses, one on the north side and one on the south side. The north powerhouse is located at the end of an open flume structure, approximately 90 feet downstream of the dam and houses one turbine, T1 (operates at 225 cubic feet per second (cfs)). The south powerhouse is located at the end side of a discharge channel, approximately 110 feet downstream of the dam, and houses two turbines, T2 (operates at 176 cfs) and T3 (operates at flows ranging from 14 to 190 cfs).

3. Article 2 of the project's exemption requires that the project be operated in compliance with any terms and conditions that federal or state fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources.² The U.S. Fish and Wildlife Service (FWS), in a letter dated November 14, 1984, stipulated that the project provide an instantaneous minimum flow of 152 cfs below the project (that is, historical median August flow), and 10 cfs in the bypassed reach, or inflow, whichever is less.

1 127 FERC \$62,107 (Issued May 5, 2009).

² Order Granting Exemption for Licensing of a Small Hydroelectric Project of 5 Megawatts or Less, 29 FERC ¶61,356 (1984).
The exemptee's compliance history shows that there have been several 4. allegations of noncompliance with Article 2.3 The Commission was often unable to determine if the project was operated in compliance with Article 2 based on the data provided by the exemptee, and further indicated that it was unlikely that project operators had the information needed to ensure minimum flow release requirements were being met. In a February 12, 2002, letter, the Commission requested the exemptee to file a streamflow compliance and monitoring plan that included: (1) a description of how the project would be operated to insure that inflows are released as quickly as possible following times when downstream flows fall below 152 cfs; (2) a description of how flows below the project would be monitored and recorded to ensure and demonstrate compliance with exemption Article 2; and (3) comments or correspondence from the U.S. Geological Survey (USGS) and FWS regarding the plan. The exemptee filed a plan on April 5, 2002, in which it proposed to adjust the operating procedure on a trial basis over six months. The plan entailed using the Army Corps of Engineers gage (Corps gage, in Athol, Massachusetts) as an indicator of river flow to operate the project and manage the upper pond level (0.5 to 1.5 inches above the dam crest when river flows are at or below 152 cfs, and 0.5 above to 0.5 inches below the dam crest when river flows are above 152 cfs). The Corps gage is located in a flat water section of the river (an apparent backwater of the New Home Dam Project) and the impoundment behind the dam could result in an inaccurate discharge reading at the gage, particularly at low flows. In its June 25, 2002, letter, the Commission found it unacceptable to use the Corps gage to determine when to modify operations. Additionally, the Commission determined that the exemptee should be able to determine compliance based on estimates of project discharge based on project generation, and concluded that additional gaging below the project may be needed if compliance problems arose at the project.

5. The Commission's 2009 order included the FWS' request for the exemptee to provide an updated streamflow compliance monitoring plan. Specifically, the plan should include the location of the monitoring equipment and provide for gage system calibration, the method of flow data collection, and the process for providing data to the FWS, Massachusetts Division of Fish and Wildlife (MDFW), and the Massachusetts Department of Environmental Protection (MDEP) within 30 days of an agency request for that data.

³ See unpublished letters issued by the Commission dated December 10, 2001; February 12 and June 25, 2002; August 27, 2007; and December 22, 2009.

EXEMPTEE'S PLANS

6. The exemptee's plan states that all three turbines can be operated in automated level control, with any unit being selected as the lead turbine. Under normal operating conditions, the standard operating procedure states that T3 will be the flow regulating turbine (i.e., first on, last off). Measurements from sensors located in the head pond, tailrace, and each turbine gate will be used to calculate stream flows through the turbines and the total facility flow. Operation of T3 will be based on a head pond level of approximately 0.5 inches above the crest of the dam, with turbine gate settings automatically adjusted to maintain this head pond elevation. All operations are subject to conditions beyond the control of the facility operators (including but not limited to power outages, equipment failures, signal variations due to temperature, and fouling of sensors by river debris).

7. During a decrease in pond elevation (decreasing river flow conditions), T3 turbine gates will modulate to a closed position. The gates will continue to close (based on a computer algorithm for time and pond level) in an attempt to maintain the head pond elevation at 0.5 inches above the crest of the dam. In a situation where T3 is at minimum gate position and the head pond level decreases to below 0.5 inches above the dam, T3 and the remaining turbines will be turned off and all inflow will pass over the dam. If pond levels continue to decrease, human operator actions will be implemented, including closing of manually operated head gates to minimize leakage through the turbines to preserve the head pond.

During an increase in pond elevations (increasing river flow condition), 8 turbine gates will modulate open, to limit upstream flooding. The gates will continue to open (based on a computer algorithm for time and pond level) in an attempt to maintain head pond elevation at 0.5 inches above the bascule gate. If pond levels continue to rise after T3 has reached full gate, T1 will be started and ramped up to optimum gate; simultaneously, T3 will be reduced to a minimum gate setting and will continue to automatically adjust to maintain head pond levels (i.e., its gates will continue to open if the sensed pond level continues to increase). If the sensed pond level continues to rise, then T2 will be started and ramped up to optimum gate: simultaneously, T3 will be reduced to a minimum gate setting and will continue to adjust to maintain head pond levels as described above. If the head pond continues to rise when all turbines are on and at full capacity, then the south Bascule gate will automatically adjust downward upon reaching the top of the center pier located between the two bascule gates at the dam. After this level is reached, then human operator input is required for manual operation of north Bascule gate to respond to high river flow situations. During high flow events, the sequences of operations are coordinated with the Army Corps Flood Control Operators at Tully Lake and Birch Hill Dams, located upstream of the New Home

Dam. When high river flow conditions subside back to the decreasing flow condition, the sequence of operation is reversed.

9. Streamflow compliance will be accomplished by maintaining head pond elevation as described above in the standard operating procedure. At river flows up to 600 cfs, the pond level is controlled by operating the 3 turbines; flows are calculated for each turbine based on turbine equipment curves and recorded head and gate positions. For each turbine, the turbine flow calculation is performed by a computer to calculate the water flow based on the equipment performance curves, using data collected from level monitoring devices for the head pond and tail water elevation, and for the turbine gate position. Above a 600 cfs pond level, the crest gates are operated to prevent upstream flooding.

10. Upon request by the agencies, the exemptee will compile the data into a report format and provide the report within 30 days of the request. The report will include the following information collected from sensors: date and time stamps, head pond and tailwater elevation, net head (difference between head pond and tailwater elevations), turbine wicket gate position, and bascule gate elevation. The report will additionally include data on flows from leakage through the dam (10 cfs), downstream passage at the south and north sides of the powerhouse (up to 25 cfs if operator tag is selected on), flow over the dam, flow through each turbine, and total flows through the facility. The data used in the turbine flow calculation will be recorded in 60 minute intervals and stored in a file on a monthly basis. The collected data will be maintained on site in electronic format, and backed up to an offsite location on a monthly basis. Data will be retained for a period of three years.

11. A staff gage will be installed adjacent to the head pond level transducer in the summer of 2010, thus providing a numerical indicator of pond elevation and an opportunity to calibrate the level transducer. Daily inspections will be made at the site, and alarms (for high and low water level conditions during generating conditions) will automatically dial to the operator after normal operating hours. Daily inspections will specifically include observation of water levels and any needed adjustments made in the programmable logic controller (PLC) input from transducers and set points (if adjustments cannot be made or the transducer's input provides incorrect information, the transducer will be replaced with a spare kept in the spare parts inventory).

AGENCY CONSULTATION

 The FWS provided comments on the exemptee's plan on March 11, 2010. The comments suggested several language changes in the exemptee's description

of minimum flows through the facility. Additionally, the FWS recommended the plan contain a discussion of how data will be maintained and a description of how flow monitoring equipment will be maintained and calibrated. Following these revisions, the exemptee provided the final plan to the FWS, MDEP, and MDFW on March 22, 2010. The FWS, MDEP, and MDFW each accepted the plan, on March 31, April 12, and April 28, 2010, respectively.

DISCUSSION AND CONCLUSION

13. The exemptee's plan should ensure compliance with the streamflow requirements of the project exemption and addresses the concerns previously raised by the Commission's noncompliance investigations (specifically, that the exemptee lacked the information needed to ensure minimum flow release requirements were met, and was unable to provide a data set demonstrating compliance). The licensee's agency-approved streamflow compliance monitoring plan for the New Home Dam Project meets the requirements of the 2009 order, and should be approved.

The Director Orders:

(A) Pursuant to the Order Amending Exemption, Mini-Watt Hydroelectric's streamflow compliance monitoring plan, filed on April 30, 2010, is approved.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

> Steve Hocking Chief, Biological Resources Branch Division of Hydropower Administration and Compliance

Agency Comment Letters for 1984 Exemption



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

2

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

If you have any questions, please contact Mr. Bob Scheirer at this office at (603)224-2585.

Sincerely yours, Gordon E. Bechett

Gordon E. Beckett Supervisor New England Field Office



United States Department of the Interior

FISH AND WILDLIFE SERVICE ECOLOGICAL SERVICES P.O. BOX 1518 CONCORD, NEW HAMPSHIRE 03301 FEDERAL ENERGY REGULATORY COMMISSION R E C E I V E D

FERC #6096

APR 20 1987 AUG 2 2 1984

Mr. David R. Dorter NEW YORK, N. Y. Mini-Watt Electric Company P.O. Box 237 18 Chase Court Orange, Massachusetts 01364

Dear Mr. Dexter:

This concerns your New Home Dam Hydro Project, PERC No. 6096, Millers River, Franklin County, Massachusetta.

On August 14, 1984, Mr. Bob Scheirer of my staff and Mr. Bob Madore of the Massachusetts Division of Fisheries and Wildlife met with you to discuss the issue of a minimum flow release in the stream bypassed portion of your project. During the meeting the headpond was at the top of the bascule gate and forebay flashboards, and there was agreement that about 5-10 ofs was leaking through the flashboards and under the bascule gate. Stream bottom composition in the bypassed reach is bedrock and fractured bedrock, providing poor fishery habitat. It was thus agreed by all parties that a minimum instantaneous release of 10 ofs into the bypassed reach would be sufficient to protect aquatic resources. This flow could be provided by not repairing the leakage, or by installing a suitably sized pipe through the dam to pass 10 ofs at all times, as available from inflow.

Therefore, we will add the following condition to your exemption:

5. The Exemptee shall provide a minimum instantaneous discharge at the dam of 10 cfs or inflow to the project whichever is less, to protect aquatic habitat in the bypassed stream reach.

Please file a copy of this additional condition with the FERC within 30 days. If you have any questions, please call Mr. Scheirer at 603-224-2585.

Sincerely your la E.

Gordon E. Beckett Supervisor New England Field Office

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O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) <u>sfisk@oconnells.com</u>

January 24, 2017

Via E-Mail Only

Ms. Melissa Grader United States Fish and Wildlife Service Sunderland Fishery Resources Office 103 East Plumtree Road Sunderland, Massachusetts 01375

Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute - Criterion A - Ecological Flow Regimes

Dear Ms. Grader:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project"). LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment A.1 ZoE Map as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion A Ecological Flow Regimes, Standard 1 for each ZoE. The Standard states:

 Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility.

If Run---of---River operation, provide details on how flows, water levels, and
operation are monitored to ensure such an operational mode is maintained.

I have enclosed a copy of the relevant documents. I believe that this information may assist in your determination.

- Criterion Attachment A.2 Demonstration of Minimum Flows
- Criterion Attachment A.3 DOI letter setting minimum flow
- Criterion Attachment A.4 Flow History and Flow Duration Curve
- Criterion Attachment A.5 Agency Approval of Stream Flow Compliance Plan

Upon completion of your review, O'Connell requests that the United States Fish and Wildlife Service provide it with a letter confirming that:

The Project is in compliance with the prescribed ecological flows for both ZoE 1 Regulated Reach and ZoE 2 New Home Dam Impoundment. And further the Project operates in Runof-River mode and such details can be provided in accordance with the Stream Flow Compliance Plan that has been submitted and approved by the relevant agencies.

If you have any questions or concerns about this request, please do not hesitate to contact

me.

In advance, I thank you for all of your help.

Sincerely yours,

9 Fab

Stephen J. Fisk General Manager

cc. Steve Berry (via e-mail only) William P. Short III (via e-mail only)

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) sfisk@oconnells.com

January 24, 2017

Via E-Mail Only

Caleb Slater, Ph.D Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road Westborough, Massachusetts 01581

Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute - Criterion A - Ecological Flow Regimes

Dear Doctor Slater:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project"). LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment A.1 ZoE Map as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion A Ecological Flow Regimes, Standard 1 for each ZoE. The Standard states:

 Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility.

If Run---of---River operation, provide details on how flows, water levels, and
operation are monitored to ensure such an operational mode is maintained.

I have enclosed a copy of the relevant documents. I believe that this information may assist in your determination.

- Criterion Attachment A.2 Demonstration of Minimum Flows
- Criterion Attachment A.3 DOI letter setting minimum flow
- Criterion Attachment A.4 Flow History and Flow Duration Curve
- Criterion Attachment A.5 Agency Approval of Stream Flow Compliance Plan

Upon completion of your review, O'Connell requests that the Massachusetts Division of Fisheries and Wildlife provide it with a letter confirming that:

The Project is in compliance with the prescribed ecological flows for both ZoE 1 Regulated Reach and ZoE 2 New Home Dam Impoundment. And further the Project operates in Runof-River mode and such details can be provided in accordance with the Stream Flow Compliance Plan that has been submitted and approved by the relevant agencies.

If you have any questions or concerns about this request, please do not hesitate to contact

me.

In advance, I thank you for all of your help.

Sincerely yours,

Stathen & Fish

Stephen J. Fisk General Manager

cc. Steve Berry (via e-mail only) William P. Short III (via e-mail only)

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) sfisk@oconnells.com

January 24, 2017

Via E-Mail Only

Robert Kubit, P.E. Massachusetts Department of Environmental Protection Division of Watershed Management 627 Main Street Worcester, Massachusetts 01608

Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute - Criterion A - Ecological Flow Regimes

Dear Mr. Kubit:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project"). LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment A.1 ZoE Map as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion A Ecological Flow Regimes, Standard 1 for each ZoE. The Standard states:

 Confirm the location of the powerhouse relative to other dam/diversion structures to establish that there are no bypassed reaches at the facility.

If Run---of---River operation, provide details on how flows, water levels, and
operation are monitored to ensure such an operational mode is maintained.

I have enclosed a copy of the relevant documents. I believe that this information may assist in your determination.

- Criterion Attachment A.2 Demonstration of Minimum Flows
- Criterion Attachment A.3 DOI letter setting minimum flow
- Criterion Attachment A.4 Flow History and Flow Duration Curve
- Criterion Attachment A.5 Agency Approval of Stream Flow Compliance Plan

Upon completion of your review, O'Connell requests that the Massachusetts Department of Environmental Protection provide it with a letter confirming that:

The Project is in compliance with the prescribed ecological flows for both ZoE 1 Regulated Reach and ZoE 2 New Home Dam Impoundment. And further the Project operates in Run-of-River mode and such details can be provided in accordance with the Stream Flow Compliance Plan that has been submitted and approved by the relevant agencies.

If you have any questions or concerns about this request, please do not hesitate to contact

In advance, I thank you for all of your help.

Sincerely yours,

Stephen & Fish Stephen J. Fisk General Manager

cc: Steve Berry (via e-mail only) William P. Short III (via e-mail only)

me.

A1.1 Flow Response Letters from Agencies

A-1.1 Flow Response Email USFW 2017-02-22

 From:
 Grader, Melissa <melissa_grader@fws.gov>

 Sent:
 Wednesday, February 22, 2017 12:04 PM

 To:
 Fisk, Steve

 Cc
 William P. Short (w.shortiii@verizon.net); Berry, Steve; Caleb Slater

 Subject:
 Re: New Home Dam LIHI Request for Comment

Hi Steve,

Fisk, Steve

I am absolutely flat out right now and simply do not have time to wrap my head around the new LIHI criteria and how FWS should evaluate New Home in light of those criteria.

If something short and direct will work then what we can say is that, to our knowledge, the project is in compliance with its existing terms and conditions. In addition, the Service supports the measures O'Connell has been implementing to improve run-of-river operation and facilitate upstream eel passage.

We recommend that O'Connell submit the eel passage designs to FERC so that they can become part of the project.

Hope that helps.

Regards,

Melissa Grader Fish and Wildlife Biologist U.S. Fish and Wildlife Service - New England Field Office 103 East Plumtree Road Sunderland, MA 01375 413-548-8002 x8124 melissa_grader@fws.gov

On Mon, Feb 20, 2017 at 1:16 PM, Fisk, Steve <SFisk@oconnells.com> wrote:

Hello Melissa,

At the request of the Low Impact Hydropower Institute, I'm am reaching out to see if there is any comment on our submittal for the New Home Dam located in Orange, MA that was emailed to you on January 24, 2017. Please advise if you plan to comment on that submittal. Thank you,

Steve

1

A-1.1 Flow Response Letter MADFW 2017-01-30





1 Rabbit Hill Road, Westborough, MA 01581 p: (508) 389-6300 | f: (508) 389-7890 MASS.GOV/MASSWILDLIFE

Jack Buckley, Director

January 30, 2017

Stephen J. Fisk General Manager O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 sfisk@oconnells.com

Re: Application of New Home Dam Project (FERC P-6096) for Certification by the Low Impact Hydropower Institute - Criterion A - Ecological Flow Regimes

Dear Mr. Fisk,

I have received you email dated 1/24/17 in regard to your application for certification by the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (FERC P-6096). LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). According

to LIHI, there are two (2) ZoE's for this Project:

ZoE 1 Regulated Reach: Downstream of New Home Dam ZoE 2: New Home Dam Impoundment

After reviewing your email and the appropriate reference materials, I can confirm that the New Home Dam Project is in compliance with the prescribed ecological flows for both ZoE 1 and ZoE 2. The Project operates Run-of-River in accordance with the "Stream Flow Compliance Plan" (dated April 30, 2010) which has been submitted to, and approved by, the relevant agencies.

Thank you for this opportunity to comment.

Sincerely,

Calel Reg

Caleb Slater, Ph.D. Anadromous Fish Project Leader

MASSWILDLIFE

A-1.1

Flow Response Letter MADEP 2017-03-02



Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker Governor

Karyn E. Polito Lieutenant Governor Matthew A. Beaton Secretary

> Martin Suuberg Commissioner

Stephen J. Fisk, General Manager O'Connel I Energy Group Suite 200, 57 Suffolk St. Holyoke MA 01040 March 2, 2017

Re: Comment on LIHI Criterion - New Home Dam FERC No. 6096

Dear Mr. Fisk,

In response to your request for comment by the Massachusetts Department of Environmental Protection regarding the Low Impact Hydropower Institute's Project Standards, we offer the following.

Criterion A Ecological Flow Regimes

The New Home Dam Project is in compliance with the prescribed ecological flows for both the Zone of Effect 1 Regulated Reach and the Zone of Effect 2 New Home Dam Impoundment. The Project operates in a Run-of-River mode in accordance with the Stream Flow Compliance Plan that has been submitted and approved by this agency.

Criterion B Water Quality

The facility is on a river segment with limited water quality but the New Home Dam Project is not the cause of said water quality limitations.

I hope the above meets your needs.

Sincerely,

Robert Kubit, P.E.

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751 TTYW MassRelay Service 1-800-439-2370 MassDEP Website: www.mass.gov/dop Printed on Recycled Paper

Supporting Water Quality Information Attachment B-1.1

B-1.1 Water Quality Letters to Agencies

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) <u>sfisk@oconnells.com</u>

January 24, 2017

Via E-Mail Only

Ms. Melissa Grader United States Fish and Wildlife Service Sunderland Fishery Resources Office 103 East Plumtree Road Sunderland, Massachusetts 01375

> Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute - Criterion B - Water Quality

Dear Ms. Grader:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project") located in the center of the Town of Orange, MA. LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment B.1 ZoE Map and as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion B Water Quality, Standard 1 for each ZoE. The Standard Sates:

"Not Applicable / De Minimis Effect:

If facility is located on a Water Quality Limited river reach, provide an agency letter stating that the facility is not a cause of such limitation." Please reference relevant documents as noted below. I believe that this information may assist in your determination.

- Criterion Attachment B.2 USGS Map with Project Coordinates
- Millers River Watershed 2000 Water Quality Assessment Report <u>http://www.mass.gov/eea/agencies/massdep/water/watersheds/water-quality-assessments.html</u>
- Massachusetts Year 2012 Integrated List of Waters http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf

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Millers River (Size: 15.056 Miles) Impaired		
Source: USEPA Web Site WWW3.epa.gov/myenv	/myseator.html?	
AESTHETIC	Impaired	
Cause of Impairement:		
Phosphorus	1	
Probable Source		
ALARPAL FORT SOURCEDING-WRITER	1	
ADURDE INVENDME	1	
FISH CONSUMPTION	Impaired	
Cause of Impairement:	1	
PCB(s) in Fish Tissue	1	
Probable Lourse		
4-CENTANINA TEL RESIMENTS	1	
ALLERSE FROM WHIST E STOP OF DOWING		
FISH, OTHER AQUATIC LIFE AND	Impaired	
WILDLIFE		
Cause of Impairement:		
PCB(s) in Fish Tissue		
Presate Louron		
TORITZING A LED ON DAR EN LA		
Azigatesreol likites on olives		
PRIMARY CONTACT RECREATION	Impared	
Cause of Impairement:		
Fecal Coliform		
Freidalle Beureat		
w/wCkierlagestad/wp60x9x968	1	
Assault a second and a second as a second se		
SECONDARY CONTACT RECREATION	Not Assess	

Upon completion of your review, O'Connell requests that the United States Fish and Wildlife Service provide it with a letter confirming that:

"The facility is on a river segment with limited water quality and that the facility is not the cause of said water quality limitations."

If you have any questions or concerns about this request, please do not hesitate to contact me.

In advance, I thank you for all of your help.

Sincerely yours,

<u>Stephen J Fisk</u> Stephen J. Fisk General Manager

cc: Steve Berry (via e-mail only) William P. Short III (via e-mail only)

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) sfisk@oconnells.com

January 24, 2017

Via E-Mail Only

Robert Kubit, P.E. Massachusetts Department of Environmental Protection Division of Watershed Management 627 Main Street Worcester, Massachusetts 01608

> Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute - Criterion B - Water Quality

Dear Mr. Kubit:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project") located in the center of the Town of Orange, MA. LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment B.1 ZoE Map and as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion B Water Quality, Standard 1 for each ZoE. The Standard Sates:

"Not Applicable / De Minimis Effect:

If facility is located on a Water Quality Limited river reach, provide an agency letter stating that the facility is not a cause of such limitation." Please reference relevant documents as noted below. I believe that this information may assist in your determination.

- Criterion Attachment B.2 USGS Map with Project Coordinates
- Millers River Watershed 2000 Water Quality Assessment Report <u>http://www.mass.gov/eea/agencies/massdep/water/watersheds/water-quality-assessments.html</u>
- Massachusetts Year 2012 Integrated List of Waters http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf

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EPA Table for Milliers River Water Quality		
Millers River (Size: 15.056 Milles) Impaired		
Source: USEPA Web Site WWW3.epa.gov/myenv	/mywater.html?	
AESTHETIC	Impaired	
Cause of Impairement:		
Photphorum		
Probable Lourse	1	
AUGUSTAN, FOR Y SOUTH DRID-WARKED		
-BULACE UNKNOWN		
FISH CONSUMPTION	Impaired	
Cause of Impairement:	1.	
PCB(s) in Fish Tissue		
Probable Boures		
-EXERTAINING TED REDWIES TH		
AREASES FROM WASTE DITES ON OWNES		
FISH, OTHER AQUATIC LIFE AND	Impaired	
WILDLIFE		
Cause of Impairement:		
PCB(s) in Fish Tissue		
Pychabie Source		
-EINTAINENETSI SEDARENTE		
48326483 PROA 104572 \$725 08 200 PT		
PRIMARY CONTACT RECREATION	Impaired	
Cause of Impairement:		
Fecal Californ		
Prosalin Bouren		
AUARPAL PORT RURIERORD-GANIES		
-E(410)CE/commentation		
SECONDARY CONTACT RECREATION	Not Assessed	

Upon completion of your review, O'Connell requests that the Massachusetts Department of Environmental Protection provide it with a letter confirming that:

"The facility is on a river segment with limited water quality and that the facility is not the cause of said water quality limitations."

If you have any questions or concerns about this request, please do not hesitate to contact me.

In advance, I thank you for all of your help.

Sincerely yours,

Skephen J Frik Stephen J. Fisk General Manager

cc: Steve Berry (via e-mail only) William P. Short III (via e-mail only)

B-1.1 Water Quality Response Letters from Agencies

No comment from USFWS

The following email and letter were provided by the MADEP regarding Water Quality:

Setti	Kubit, Robert (DEP) <robert.kubit@state.ma.us> Friday, April 14, 2017 2:07 PM</robert.kubit@state.ma.us>
To:	Fisk Steve
Subject:	RE: New Home Dam LIHI Request for Comment
Hi Steve,	
The MassDEP is not aware	of any water quality issues associated with the operation of the New Home Dam Project.
Hope this helps.	
Bob	
Robert Kubit, P.E.	
MassDEP	
Division of Watershed Mar	nagement
Worcester MA 01606	
Telephone: (508) 767-285	4
Email: robert.kubit@state	ma.us
Fax: (508) 791-4131	
Hello Bob, Thanks for the letter. LIHI I you (the MADEP) aware of	has asked for additional clarification to the projects' effect on water quality questioning - "are any water quality issues associated with the operation of the project?". If you could respond
by an email that I could inc	clude with the next submittal that would be very helpful. Thanks,
by an email that I could ind	clude with the next submittal that would be very helpful. Thanks,
Steve Stephen J. Fisk	OCONNELL
Steve Stephen J. Fisk General Manager	
Steve Stephen J. Fisk General Manager <u>O'Connell Energy Group</u> <u>Suite 200, 57 Suffolk St.</u> Holyoke, MA 01040	Office: 413.534.4660 Fax: 413.534.4660 Fax: 413.537.9029 Emellion: Endergy Group Emellion: Endergy Group
Steve Stephen J. Fisk General Manager <u>O'Connell Energy Group</u> <u>Suite 200, 57 Suffolk St.</u> Holyoke, MA 01040	Office: 413.534.4660 Fax: 413.534.4660 Fax: 413.537.9029 Email: <u>sfisk@coonnells.com</u>
Steve Stephen J. Fisk General Manager <u>O'Connell</u> Energy Group <u>Suite 200, 57 Suffolk St.</u> Holyoke, MA 01040	Cude with the next submittal that would be very helpful. Thanks, ENERGY GROUP Office: 413.534.4660 Fax: 413.536.4911 Mobile: 413.537.9029 Email: <u>sfisk@oconnells.com</u>
Steve Stephen J. Fisk General Manager <u>O'Connell Energy Group</u> <u>Suite 200, 57 Suffolk St.</u> Holyoke, MA 01040	Coconnect Exercise 413:534:4660 Fax: 413:534:4660 Fax: 413:537:9029 Email: sfisk@cconnells.com
by an email that I could ind Steve Stephen J. Fisk General Manager O'Connell Energy Group Suite 200, 57 Suffolk St. Holyoke, MA 01040	Coconcelle Exercited account of the service of the

MassDEP

Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker Governor

Karyn E. Polito Lieutenant Governor Matthew A. Beaton Secretary

> Martin Suuberg Commissioner

Stephen J. Fisk, General Manager O'Connel I Energy Group Suite 200, 57 Suffolk St. Holyoke MA 01040 March 2, 2017

Re: Comment on LIHI Criterion - New Home Dam FERC No. 6096

Dear Mr. Fisk,

In response to your request for comment by the Massachusetts Department of Environmental Protection regarding the Low Impact Hydropower Institute's Project Standards, we offer the following.

Criterion A Ecological Flow Regimes

The New Home Dam Project is in compliance with the prescribed ecological flows for both the Zone of Effect 1 Regulated Reach and the Zone of Effect 2 New Home Dam Impoundment. The Project operates in a Run-of-River mode in accordance with the Stream Flow Compliance Plan that has been submitted and approved by this agency.

Criterion B Water Quality

The facility is on a river segment with limited water quality but the New Home Dam Project is not the cause of said water quality limitations.

I hope the above meets your needs.

Sincerely,

Robert Kubit, P.E.

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751. TTY# MassRelay Service 1-800-439-2370 MassDEP Websile: www.mass.gov/dep Printed on Recycled Paper

Supporting Fish Passage Information Attachment C-2.1

C-2.1 Fish Passage Letters to Agencies

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) <u>sfisk@oconnells.com</u>

January 24, 2017

Via E-Mail Only

Ms. Melissa Grader United States Fish and Wildlife Service Sunderland Fishery Resources Office 103 East Plumtree Road Sunderland, Massachusetts 01375

> Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute – Criterion C & D – Upstream and Downstream Fish Passage

Dear Ms. Grader:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project") located in the center of the Town of Orange, MA. LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment C & D.1 ZoE Map and as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion C Upstream Fish Passage Standard 2 and Criterion D Downstream Fish Passage, Standard 2 for each ZoE. The Standard Sates:

Criterion C Upstream Fish Passage:

Agency Recommendation:

- Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent).
- Explain the scientific or technical basis for the agency recommendation,

including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.

 Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

Criterion D Downstream Fish Passage:

Agency Recommendation:

- Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent).
- Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not.
- Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

The proceeding and source, date, and specifics of the agency recommendation occurred during the FERC Licensing Process with the US Department of Interior, Fish and Wildlife Service, provided conditions on July 8, 1983 and on August 22, 1984. Specific conditions regarding fish passage from the above mentioned proceedings are bolded and underlined are as follows:

- "1. The Exemptee shall provide fish-passage facilities at this project when so prescribed by the Fish and Wildlife Service and/or the Massachusetts <u>Division of Fisheries and Wildlife</u>. Design, Construction and operation of the fish passage facilities will be the responsibility of the Exemptee; however approval of the design by the Fish and Wildlife Service will be necessary. Any additional instantaneous flows for operation of these facilities will also be provided by the Exemptee, as prescribed by the Fish and Wildlife Service.
- The Exemptee shall provide a minimum instantaneous release below the project of at least 152 cfs (historical median flow) or inflow to the Project, whichever is less, to preserve downstream aquatic habitat.
- 5. The Exemptee shall provide a minimum instantaneous discharge at the dam of 10 cfs or inflow to the Project whichever is less, to protect aquatic habitat in the bypass stream reach."

Please refer to Criterion Attachment C&D 2 for relevant documents as noted below. I believe that this information may assist in your determination.

- US Department of Interior, Fish and Wildlife Service issued July 8, 1983
- US Department of Interior, Fish and Wildlife Service issued August 22, 1984
- FERC Order Granting Exemption from Licensing Issued February 19,1985
- FERC Order Amending Exemption from Licensing Issued June 27, 1991

Upon completion of your review, O'Connell requests that the United States Fish and Wildlife Service provide it with a letter confirming that:

"The facility is in compliance with science based fish passage recommendations."

If you have any questions or concerns about this request, please do not hesitate to contact

In advance, I thank you for all of your help.

Sincerely yours,

Chaphen J Fish Stephen J. Fisk General Manager

cc. Steve Berry (via e-mail only) William P. Short III (via e-mail only)

me.

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-2731 (direct line) (413) 237-3759 (cell) sfisk@oconnells.com

January 24, 2017

Via E-Mail Only

Caleb Slater, Ph.D. Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road Westborough, Massachusetts 01581

Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute - Criterion C & D - Upstream and Downstream Fish Passage

Dear Doctor Slater:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project") located in the center of the Town of Orange, MA. LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment C & D.1 ZoE Map and as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion C Upstream Fish Passage Standard 2 and Criterion D Downstream Fish Passage, Standard 2 for each ZoE. The Standard Sates:

Criterion C Upstream Fish Passage:

Agency Recommendation:

- Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent).
- Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether

the recommendation is or is not part of a Settlement Agreement.

 Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

Criterion D Downstream Fish Passage:

Agency Recommendation:

- Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally stringent).
- Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not.
- Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

The proceeding and source, date, and specifics of the agency recommendation occurred during the FERC Licensing Process with the US Department of Interior, Fish and Wildlife Service, provided conditions on July 8, 1983 and on August 22, 1984. Specific conditions regarding fish passage from the above mentioned proceedings are bolded and underlined are as follows:

- "1. The Exemptee shall provide fish-passage facilities at this project when so prescribed by the Fish and Wildlife Service and/or the Massachusetts Division of Fisheries and Wildlife. Design, Construction and operation of the fish passage facilities will be the responsibility of the Exemptee; however approval of the design by the Fish and Wildlife Service will be necessary. Any additional instantaneous flows for operation of these facilities will also be provided by the Exemptee, as prescribed by the Fish and Wildlife Service.
- The Exemptee shall provide a minimum instantaneous release below the project of at least 152 cfs (historical median flow) or inflow to the Project, whichever is less, to preserve downstream aquatic habitat.
- The Exemptee shall provide a minimum instantaneous discharge at the dam of 10 cfs or inflow to the Project whichever is less, to protect aquatic habitat in the bypass stream reach."

Please refer to Criterion Attachment C&D 2 for relevant documents as noted below. I believe that this information may assist in your determination.

- US Department of Interior, Fish and Wildlife Service issued July 8, 1983
- US Department of Interior, Fish and Wildlife Service issued August 22, 1984
- FERC Order Granting Exemption from Licensing Issued February 19,1985
- FERC Order Amending Exemption from Licensing Issued June 27, 1991

Upon completion of your review, O'Connell requests that the Massachusetts Department of Fisheries and Wildlife provide it with a letter confirming that:

"The facility is in compliance with science based fish passage recommendations."

If you have any questions or concerns about this request, please do not hesitate to contact

In advance, I thank you for all of your help.

Sincerely yours,

Shephen, T. Fish Stephen J. Fisk General Manager

cc: Steve Berry (via e-mail only) William P. Short III (via e-mail only)

me.

Fish Passage Response Letters from Agencies- On going Dialog that will result in new eel pass in 2017

C-2.1 Fish Passage Response Email USFW 2017-02-22

Fisk, Steve		
From:	Grader, Melissa <melissa_grader@fws.gov></melissa_grader@fws.gov>	
Sent:	Wednesday, February 22, 2017 12:04 PM	
To:	Fisk, Steve	
Cc	William P. Short (w.shortiii@verizon.net); Berry, Steve; Caleb Slater	
Subject:	Re: New Home Dam LIHI Request for Comment	

Hi Steve,

I am absolutely flat out right now and simply do not have time to wrap my head around the new LIHI criteria and how FWS should evaluate New Home in light of those criteria.

If something short and direct will work then what we can say is that, to our knowledge, the project is in compliance with its existing terms and conditions. In addition, the Service supports the measures O'Connell has been implementing to improve run-of-river operation and facilitate upstream eel passage.

We recommend that O'Connell submit the eel passage designs to FERC so that they can become part of the project.

Hope that helps.

Regards,

Melissa Grader Fish and Wildlife Biologist U.S. Fish and Wildlife Service - New England Field Office 103 East Plumtree Road Sunderland, MA 01375 413-548-8002 x8124 melissa_grader@fws.gov

On Mon, Feb 20, 2017 at 1:16 PM, Fisk, Steve <SFisk@oconnells.com> wrote:

Hello Melissa,

At the request of the Low Impact Hydropower Institute, I'm am reaching out to see if there is any comment on our submittal for the New Home Dam located in Orange, MA that was emailed to you on January 24, 2017. Please advise if you plan to comment on that submittal. Thank you,

1

Steve

C-2.1 Fish Passage Response Email MADFW 2017-02-08

Fisk, Steve

From:	Fisk, Steve
Sent:	Wednesday, February 8, 2017 8:45 AM
To:	"Slater, Caleb (FWE)"
Subject:	RE: New Home Dam LIHI Request for Comment

Ok great information. So we need to address the downstream passage in conjunction with the new upstream eel pass – not a problem. We just need to work out the details. Thanks,

Steve

Stephen J. Fisk General Manager

O'Connell Energy Group Suite 200, 57 Suitok St. Holyoke, MA 01040

ONNEL ENERGY GROUP

Office: 413.534.4660 Fax: 413.536.4911 Mobile: 413.537.9029 Email: <u>sfisk@cconnels.com</u>

From: Slater, Caleb (FWE) [mailto:caleb.slater@state.ma.us] Sent: Wednesday, February 8, 2017 8:31 AM To: Fisk, Steve <SFisk@oconnells.com> Subject: RE: New Home Dam LIHI Request for Comment

The Starrett Project is "Crescent Street" P-14447. There are eels already in the Millers upstream of your project (see attached) just not very many. ¾ inch clear space racks should keep them out of the units- then you need to check for impingement (getting stuck on the racks).

Caleb

Caleb Slater, PhD Anadromous Fish Project Leader Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road, Westborough, MA 01581 p: (508) 389-6331 | e: <u>Caleb.Slater@state.ma.us</u> mass.gov/masswildlife | facebook.com/masswildlife

From: Fisk, Steve [mailto:SFisk@oconnells.com] Sent: Wednesday, February 08, 2017 8:15 AM

To: Slater, Caleb (FWE) Subject: RE: New Home Dam LIHI Request for Comment

Hello Caleb,

Following up on the previous email I did not find a FERC number for Starret. But did find one for LP Athol and references to downstream eel provisions 5 years after LIHI Certification.

The shutdown as described is only if downstream provisions are not in place. In correspondence with Alex Haro for the eel pass I believe he provided information of a low level opening of 12" diameter for the eels downstream passage at I think was 7 years after the first upstream passage of eels. I will dig out that information and send it along. In any event we planned to have the downstream passage in place when required to pass the eels so no shutdowns would be required.

I hope to cull through all the documents next week to find this supporting documentation. Let me know if this sounds right to you. Thanks,

Steve

Stephen J. Fisk General Manager

ONNEL ENERGY GROUP

O'Connell Energy Group Suite 200, 57 Suifolk St. Holyoke, MA 01040 Office: 413.534.4660 Fax: 413.536.4911 Mobile: 413.537.9029 Email: sfsk.0cconnels.com

From: Fisk, Steve Sent: Monday, January 30, 2017 3:46 PM To: 'Slater, Caleb (FWE)' <<u>caleb.slater@state.ma.us</u>> Subject: RE: New Home Dam LIHI Request for Comment

Hello Caleb,

Thanks for the quick response. We currently have 1" spacing that we installed seasonally during the downstream migration for the salmon. I think we can easily swap those out for the ³/4" spacing for the eel protection. The racks are full height. I need to find the files that were approved when we installed the 1" trash racks but I'm sure at maximum flow we were less than 2fps, I will take a look at the Starret exemption. Thanks again and talk to you soon.

Steve

Stephen J. Fisk General Manager



O'Connell Energy Group Suite 200, 57 Suffolk St. Holyoke, MA 01040 Office: 413.534.4660 Fax: 413.536.4911 Mobile: 413.537.9029 Email: sfsk@connels.com

From: Slater, Caleb (FWE) [mailto:caleb.slater@state.ma.us] Sent: Monday, January 30, 2017 3:23 PM To: Fisk, Steve <<u>SFisk@oconnells.com</u>> Subject: RE: New Home Dam LIHI Request for Comment

Steve,

Here is the letter on flows. I need more info on eels for the fish passage letter. I know you are installing a eelway now for upstream passage. How about your plans for downstream protection? What is the clear space of your racks? Are they full depth? What is the approach velocity. Did we discuss possible evening shutdowns in the fall (after rain) to protect downstream passing eels? You should look at the Starrett (Crescent Street) exemption to see what we are requiring there.

Thanks,

Caleb

Caleb Slater, PhD Anadromous Fish Project Leader Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road, Westborough, MA 01581 p: (508) 389-6331 | e: <u>Caleb Slater@state.ma.us</u> mass.gov/masswildlife | facebook.com/masswildlife

From: Fisk, Steve [mailto:SFisk@oconnells.com] Sent: Tuesday, January 24, 2017 1:55 PM To: Slater, Caleb (FWE) Cc: William P. Short (w.shortii@verizon.net); Berry, Steve Subject: New Home Dam LIHI Request for Comment

Hello Caleb,

Attached are two letters requesting comment on the Criterion of Low Impact Hydropower Institute Application for Certification. Please review and respond at your earliest convenience. Please do not hesitate to call if you have any questions or comments. Thanks,

C-2.1 Fish Passage MA DFW 2015-04-15

Fisk, Steve

From	Slater Caleb (MISC) <caleb ma.us="" slater@state=""></caleb>
Sent:	Wednesday, April 15, 2015 1:56 PM
To:	Fisk, Steve
Cc	Melissa_Grader@fws.gov
Subject:	RE: Mini-Watt Hydro at New Home Dam, Orange, MA FERC #6096

Steve,

Current downstream fish passage requirements are done after this season. The salmon program is over and the last smolts should be headed to the ocean right now. Fish surveys have found eels upstream of this project. The Millers should be seeing more eels soon as Turners falls will be required to build upstream eelways as part of their new license in 2018. I expect the Division will be working to get WORKING upstream eel passage installed on all the dams on the Millers as TF comes online.

LIHI is a good instrument to get hydros with exemptions to invest in eel passage since it was no written into the exemptions. I would expect upstream eel passage to be a condition now and downstream protection to be a condition later (as eels spend 10+ years in FW before heading back downstream).

Caleb



Caleb Slater, PhD Anadromous Fish Project Leader Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road Westborough, MA 01581 508-389-6331 www.mass.gov/masswildlife

From: Fisk, Steve [mailto:SFISK@oconnells.com] Sent: Tuesday, April 14, 2015 2:51 PM To: Slater, Caleb (FWE) Subject: RE: Mini-Watt Hydro at New Home Dam, Orange, MA FERC #6096

Hello Caleb,

We currently install full depth 1" trash racks seasonally for downstream fish migration. We have 2 downstream passes (north and south side of the river) with plunge pools for the fish migration that flow 25 cfs each during the migration season.

The USGS installed upstream eel passage around 2007 on the south side of the river and had the Athol Bird and Nature Club operate the installation form many years with no apparent success. In 2013 the USGS installed an eel trap on the north side of the river that was operated by Alex Haro and Melissa Grader for one season with no apparent success.

Thanks,

Steve

New Home Dam FERC P-6096-MA Part III Appendix B-2 to B-9 ZoE Supporting Information Attachments Page 37 of 56

Stephen J. Fisk General Manager

O'Connell Energy Group Suite 200, 57 Suffolk St. Holyoke, MA 01040



Office: 413.534.4660 Fax: 413.536.4911 Mobile: 413.537.9029 Email: sts2.0ccnnets.com

From: Slater, Caleb (MISC) [<u>mailto:caleb.slater@state.ma.us</u>] Sent: Tuesday, April 14, 2015 2:34 PM To: Fisk, Steve Subject: RE: Mini-Watt Hydro at New Home Dam, Orange, MA FERC #6096

Steve,

Did we talk about ¼ inch clear space racks (full depth) for downstream eel protection and an upstream eel ladder at this site?

Caleb



Caleb Slater, PhD Anadromous Fish Project Leader Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road Westborough, MA 01581 508-389-6331 www.mass.gov/masswildlife

From: Fisk, Steve [mailto:SFISK@oconnells.com] Sent: Tuesday, April 14, 2015 2:07 PM To: Slater, Caleb (FWE) Subject: Mini-Watt Hydro at New Home Dam, Orange, MA FERC #6096

Hello Caleb,

We are applying for a MA CEC grant for improvements at the New Home Dam in Orange, MA. The application requests a letter from DFG that lists concerns that may impact LIHI certification for this site. For reference we had previous correspondence regarding 2009/10 FERC Amendment for improvements to the project at that time.

The current proposed scope of work will include concrete repairs to the dam, crest gate, needle beams and stop log repairs, runner replacement for turbine T2. There will be no impact on the minimum flows during or after completion of the work. There will be no change in capacity at the project. The work will include installation of fabric portadam in the river adjacent to work areas to facilitate the repair work. All work is scheduled for low flow period in the summer of 2016 or 2017 to allow for adequate time for permitting and comments. A complete description of work will be submitted for agency review upon award of grant to perform the work.
In accordance with the grant application we are requesting a non-binding opinion as to whether (or under what conditions) DFG would oppose UHI Certification. In addition if there is no objection we would look for an indication of support for this project.

Thanks you.

Steve

Stephen J. Fisk General Manager

ONNE ENERGY GROUP

O'Connell Energy Group Suite 200, 57 Suffolk St. Holyoke, MA 01040 Office: 413.534.4660 Fax: 413.536.4911 Mobile: 413.537.9029 Email: cfick/Docomels.com

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C-2.1 Fish Passage Anadromous Document News Article End of Federal Program for Salmon Restoration 2012



495,055,905 Feds end Connecticut River salmon restoration effort Published Jul 11, 2012 Written by Wilson Ring Associated Press Jan. 20

burlingtonfreepress.com

MONTPELIER — The federal government is ending its conservation effort to restore Atlantic salmon in the Connecticut River basin, because the nearly half-century-old program that has stocked about 100 million small fish in tributaries throughout western New England is not working well enough to justify the continued cost, officials say.

The U.S. Fish and Wildlife Service also is beginning a three-year evaluation of a similar program in the Merrimack River basin in Massachusetts and New Hampshire, which could lead to the end of its participation in Atlantic salmon restoration programs there, as well, said Fish and Wildlife Regional Assistant Director for Fisheries Bill Archambault.

The only bright spot for Atlantic salmon in the Northeastern United States is in Maine, where salmon, which once were common throughout the region, continue to return in relatively large mumbers to the Penobscot River basin after growing to adulthood in the North Atlantic and returning to the small rivers and streams to spawn, he said.

"I think I speak for most of the biologists for the U.S. Fish and Wildlife Service in that we would very much like to see Atlantic salmon restored to the Connecticut River," Archambault said. "These are by far the most high-profile, majestic fish of the Connecticut River."

In 2010, Fish and Wildlife stocked about 6 million tiny fry and 75,000 to 90,000 larger salmon smolts throughout the Connecticut River estuary at a cost of about \$2 million. This spring about 50 adult salmon returned to the Connecticut to spawn in the tributaries where they were released, Archambault said.

To build a self-sustaining population would require the return of at least 1,000 fish a year, Archambault said.

"The fact is, there was a lot of money thrown at this for a long time. And the fact that the agency with the statutory responsibility for recovering these fish has admitted failure is significant," said Chris Wood, president of Trout Unlimited, the national group that works to promote the health of cold-water fish. "The larger perspective is that trout and salmon are the ultimate indicators of the health of the land, because every single thing that we do on the land is indicated by the health of the rivers that surround us."

When Europeans first arrived in what is now New England almost 400 years ago, hundreds of thousands of Atlantic salmon swam up the Connecticut River every year almost to the Canadian border. But the <u>stocks</u> were wiped out around 1800 after the construction of dams kept the fish

from making it upstream.

In 1967, Vermont, New Hampshire, Massachusetts and Connecticut got together with the U.S. Fish and Wildlife Service and started working to restore Atlantic salmon to the Connecticut River basin.

If scientists learn more from <u>successful</u> Atlantic salmon programs elsewhere, the Connecticut River program could be brought back.

"But the science right now just doesn't justify continued effort from the Fish and Wildlife Service standpoint," Archambault said. "I totally agree and am very comfortable with the science that allowed us to redirect."

Wood said there were too many obstacles in the Connecticut River to successful Atlantic salmon restoration, including dams that block fish access to the tributaries where they breed. He pointed to Maine's Penobscot River, where conservation efforts are removing dams that block fish access to their breeding grounds, opening up more than 1,000 miles of tributaries.

Archambault called the Penobscot "the last great hope for salmon in the lower 48."

The Fish and Wildlife decision, announced Tuesday at a meeting in Hadley, Mass., ends the federal participation in the Atlantic salmon restoration. Connecticut and Massachusetts could choose to continue their own programs, Archambault said.

The fish released into the tributaries of Vermont, New Hampshire, Massachusetts and Connecticut live there until they are two years old and then swim downstream into the Connecticut River and then the Atlantic Ocean. They will spend their adult lives in the North Atlantic before returning to the streams where they were released to breed.

Enough of the fish are making it into the Atlantic Ocean. Scientists don't know why so few fish and able to return from the Atlantic.

The Fish and Wildlife Service is helping to run a similar program in the Merrimack River. Scientists are doing a three-year evaluation of the program there as well. If the rates of return continue to remain low the federal participation in that program will likely end as well.

Despite of the failure of the Atlantic salmon program to restore a breeding population, it had other benefits, including an improved habitat, the removal of some dams and installation of fish ladders that have benefited other species, Archambault said.

C-2.1 Fish Passage Anadromous Document MADFW 2016-01-19



Jack Buckley, Director

January 19, 2016

Millers River Hydroelectric Operators New Home (FERC No. 6096) Crescent Street (FERC No. 14447) Cresticon (FERC No. 10163) RE: Atlantic Salmon downstream fish passage protection

Project Owners,

To protect Atlantic Salmon the Division requires hydroelectric dams in the basin to operate downstream passage measures for both salmon smolts and post spawn adults. These measures were incorporated into the Federal Energy Regulatory Commission (FERC) permits for these projects and are enforced by FERC.

The MA Atlantic Salmon restoration project ended in 2013. The last Atlantic Salmon fry were stocked in Massachusetts in the spring of that year. In Massachusetts Atlantic Salmon typically smolt after two years in freshwater. Therefore most of those fry have smolted and left the system in the spring of 2015. As a result, the Division expects very few salmon smolts migrating downstream in spring of 2016. Given this, the Division does not believe there is any reason to continue to mandate the operation of smolt specific downstream passage measures beginning in 2016.

Projects which have installed ¼ inch clear space racks should keep them in place as protection against American Eel entrainment. Downstream bypass systems should not be dismantled as they may be used in the future for downstream passage of Adult American Eel.

Individual projects may still responsible for downstream passage for American Eel (as per FERC permits).

In cases where flow through the downstream bypass facility is part of a project's required minimum flow accommodations will need to be made to replace this flow from another source if the downstream bypass is closed.

The Division will support petitions to FERC to amend project Licenses/Exemptions to reflect these changes.

Please call me if you have any questions.

alet Ketty

Caleb Slater Anadromous Fish Project leader (508) 389-6331

www.mass.gov/masswildife

Division of Fisheries and Wildlife Field Headquarters, One Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7890 An Agency of the Department of Fish and Game

Supporting Threatened & Endangered Species Information Attachment F-2.1

F-2.1 Threatened & Endangered Species Letters to Agencies



Edward N. Lewis, PE PO Box 611; Old North Road Worthington, MA 01098-0611 e-mail: ed.lewistenlewis.com http://www.enlewis.com

February 2, 2016

Thomas French Assistant Director of DFW - for NH&ESP Massachusetts Division of Fisheries and Wildlife 1 Rabbit Hill Road Westborough, MA 01581

Dear Mr. French:

Re: Application for New Home Dam Project (FERC No. P-6096) for Certification by the Low Impact hydropower Institute - Threatened and Endangered Species Protection

Mini-Watt Hydroelectric, LLC of 480 Hampden Street in Holyoke, MA is working on a future filing with the Low Impact Hydropower Institute (LIHI) an IRS 501(c)(3) non-profit organization dedicated to reducing the impacts of hydropower generation through the certification of hydropower projects that have avoided or reduced their environmental impacts pursuant to the LIHI criteria. The filing will relate to the above-captioned dam maintenance project.

We are aware that the project area is within a "Priority Habitat for Rare and Endangered Species" as presented on the October 2008 "Priority Habitat" data layer presented on the Massachusetts Geographic Information System, a compilation of geographic information relating to the State of Massachusetts.

We request that your agency provide Mini-Watt with the following:

Identify species and recommend changes or conditions that will ensure that the project sill have no short term or long term adverse effects on the habitat of the local population of the species.

Enclosed, please find a completed "MESA Project Review Checklist" and a cheque for \$300 payable to "Commonwealth of Massachusetts".

Mini-Watt requests that the State of Massachusetts Division of Fisheries and Wildlife provide a letter containing or confirming:

Documentation that if work is undertaken in the area complies with Division of Fisheries and Wildlife recommendations the work will have no adverse impact relative to existing conditions.

If you have any questions or concerns about this requires, please do not hesitate to call or e-mail.

Thank you in advance for your time and attention.

Sincerely yours,

Edward N. Lewis, PE

Digitally signed by Edward Lewis DN: cn-Edward Lewis, o, ou, email-ed.lewis@enlewis.com, c-US Date: 2016.02.02 14:07:05 -05:00"

Threatened & Endangered Species Response Letters from Agencies

Attachment F-2.1 Threatened & Endangered Species MDFW List of Species



Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding the applicant of New Home Dam (FERC P-6069) for Certification by the Low Impact Hydropower Institute.

Our database indicates that the Creeper (*Strophitus undulatus*), a freshwater mussel species of Special-Concern, is located within both ZoE 1 and ZoE2, as shown on the Criterion Attachment. Further, this species is documented throughout The Miller's River in Athol and Orange. The Creeper is protected pursuant to the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00).

The New Home Dam Project received authorization from our office (issued 3/2/2016) in regard to the proposed impoundment drawdown to conduct inspection, maintenance, repair and installation of eel way. We also require that if the New Home Dam Project conducts any other drawdowns (i.e., emergency, routine or maintenance), the Project shall consult with the Division regarding mussel protection measures. As long as the Project remains in compliance with the conditions issued, then there will be no negative effect on state-listed species.

If you have any questions about this letter, please contact Misty-Anne Marold, Endangered Species Review Biologist, at (508) 389-6356. We appreciate the opportunity to comment on this project.

Sincerely,

Thomas W. French, Ph.D. Assistant Director

MASSWILDLIFE



Division of Fisheries & Wildlife

Jack Buckley, Director

March 2, 2016

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

Commonwealth of Massachusetts

Mini-Watt Hydroelectric, LLC 480 Hampden Street Holyoke, MA 01040

RE: Applicant: Project Location: Project Description:

NHESP File No .:

Stephen Fisk 18 Chase Court (rear); 16 W River Street (rear), Orange New Home Dam Project (FERC, P-6096) - Impoundment drawdown to conduct inspection, maintenance, repair and installation of eel way 16-35313

Dear Applicant

The Massachusetts Division of Fisheries and Wildlife (Division) is responsible for the conservation, restoration, protection and management of the inland fish and wildlife resources of the Commonwealth. The Division's mission also includes conserving and protecting endangered, threatened and species of special concern pursuant to the Massachusetts Endangered Species Act (MESA; M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). The Division monitors operations at hydroelectric Projects within the Commonwealth and comments on proposed hydroelectric facilities. The Division received the MESA Review Checklist and supporting documentation for review pursuant to the MA Endangered Species Act Regulations (321 CMR 10.18).

The Division has determined that the New Home Dam Project (FERC, P-6096) is located within mapped Priority and Estimated Habitat for the Creeper (Strophitus undulatus), a mussel species state-listed as "Special Concern" in accordance with the MESA. The Creeper and its habitats are protected pursuant to the MESA. A Fact Sheet about this species can be found on our website, <u>www.mass.gov/nhesp</u>.

The work proposed includes drawing down the impoundment to allow for inspection and repair of the dam facility. Additionally, the work includes installation of a new eel pass on the north side of the river, including modification to the water flow paths through the structures. Work is proposed to occur during the summer low flow period of July, August and September 2016 and should take about 6-weeks. The current filing does not include any routine maintenance or operational elements.

Based on the information provided and the information contained in our database, the Division has determined that this project, as currently proposed, must be conditioned in order to avoid a prohibited "take" of Strophitus undulatus (321 CMR 10.18(2)(a)). The Work shall adhere to the following conditions:

www.mass.gow/nhesp

Division of Fisheries and Wildlife Field Headquarters, One Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7890 An Agency of the Department of Fish and Game

- The Applicant shall engage a qualified mussel biologist to design and submit a <u>Mussel</u> <u>Protection Plan</u> for the Division's review and approval prior to the proposed work. In order to handle state-listed species, the biologist must obtain a Commercial Scientific Collection Permit from our office. Surveys and sweeps for mussels may only be conducted from June 1 through October 1, unless otherwise approved in writing by the Division.
- 2) Should the project be subject to the filing of a Notice of Intent with the Conservation Commission pursuant to the MA Wetlands Protection Act (WPA), a copy of that filing shall be sent to the Division simultaneous with the Conservation Commission for review pursuant to the rare species provisions of the WPA (310 CMR 10.59).
- 3) If the New Home Dam Project conducts any other drawdowns (i.e., emergency, routine or maintenance), the Applicant shall consult with the Division regarding nussel protection measures to be implemented prior to conducting future drawdowns.

Provided the above-noted conditions are fully implemented and there are no changes to the project plans, this project will not result in a "take" of state-listed species. All work is subject to the anti-segmentation provisions (321 CMR 10.16) of the MESA. This determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

The Division notes that any future projects or activities proposed on the Property which are (a) located outside of the approved limit of Work shown on the Development Plan, (b) not exempt pursuant to 321 CMR 10.14, and (c) located within mapped *Priority Habitat* as indicated in the Massachusetts Natural Heritage Atlas, will require review by the Division pursuant to the MESA. The Division, at its discretion, may take into account the cumulative impacts that may be relevant to state-listed species, including but not limited to those associated with the current project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Misty-Anne R. Marold, Senior Endangered. Species Review Biologist, at (508) 309-6356 (misty-anne.marold@state.ma.us).

Sincerely,

W. Zul

Thomas W. French, Ph.D. Assistant Director

CC:

MA DEP Western Region, Wetlands Edward N. Lewis, PE



FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581 p: (508) 389-6300 | f: (508) 389-7890 MASS.GOV/MASSWILDLIFE

Jack Buckley, Director

March 10, 2017

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

Re: Town: NHESP Tracking No.: Request: Orange

16-35313 Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute – Criterion F - Threatened and Endangered Species Protection

Dear Mr. Fisk:

Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding the applicant of New Home Dam (FERC P-6069) for Certification by the Low Impact Hydropower Institute.

Our database indicates that the Creeper (Strophitus undulatus), a freshwater mussel species of Special-Concern, is located within both ZoE 1 and ZoE2, as shown on the Criterion Attachment. Further, this species is documented throughout The Miller's River in Athol and Orange. The Creeper is protected pursuant to the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00).

The New Home Dam Project received authorization from our office (issued 3/2/2016) in regard to the proposed impoundment drawdown to conduct inspection, maintenance, repair and installation of eel way. We also require that if the New Home Dam Project conducts any other drawdowns (i.e., emergency, routine or maintenance), the Project shall consult with the Division regarding mussel protection measures. As long as the Project remains in compliance with the conditions issued, then there will be no negative effect on state-listed species.

If you have any questions about this letter, please contact Misty-Anne Marold, Endangered Species Review Biologist, at (508) 389-6356. We appreciate the opportunity to comment on this project.

Sincerely,

Thomas W. French, Ph.D. Assistant Director

MASSWILDLIFE

Threatened & Endangered Species Attachment F-2.2

Attachment F-2.1 Threatened & Endangered Species USFW List of Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 PHONE: (603)223-2541 FAX: (603)223-0104 URL: www.fws.gov/newengland



Consultation Code: 05E1NE00-2016-SLI-1178 Event Code: 05E1NE00-2016-E-01708 Project Name: new_home_dam March 31, 2016

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan

(http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior Fish and Wildlife Service

Project name: new_home_dam

Official Species List

Provided by:

New England Ecological Services Field Office 70 COMMERCIAL STREET, SUITE 300 CONCORD, NH 03301 (603) 223-2541_ http://www.fws.gov/newengland

Consultation Code: 05E1NE00-2016-SLI-1178 Event Code: 05E1NE00-2016-E-01708

Project Type: POWER GENERATION

Project Name: new_home_dam Project Description: Proposed drawdown of the New Home Dam

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior Fish and Wildlife Service

Project name: new_home_dam

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Franklin, MA



United States Department of Interior Fish and Wildlife Service

Project name: new_home_dam

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the Has Critical Habitat column may or may not lie within your project area. See the Critical habitats within your project area section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat (Myotis septentrionalis)	Threatened		

Supporting Cultural & Historic Resources Information Attachment G-1.1

Cultural & Historic Resources Letters to Agencies

O'Connell Energy Group 57 Suffolk Street, Suite 200 Holyoke, Massachusetts 01040 (413) 540-1454 (direct line) (413) 537-9029 (cell) <u>sfisk@oconnells.com</u>

January 24, 2017

Ms. Brona Simon SHPO & Executive Director Massachusetts Historical Commission 220 Morrissey Boulevard Boston, Massachusetts 02125

> Re: Application of New Home Dam Project (FERC # P-6096) for Certification by the Low Impact Hydropower Institute – Criterion G - Cultural and Historic Resources

Dear Ms. Simon:

I am presently working on a future filing with the Low Impact Hydropower Institute ("LIHI") for the New Home Dam Project (the "Project") located in the center of the Town of Orange, MA. As a component of the LIHI Application the Project is required to obtain confirmation that the Project does not adversely impact any cultural or historic resource on facility lands as noted below.

LIHI's new format reviews Projects on the basis of "Zones of Effect" (ZoE). As agreed to in the "Pre-Application Consultation" with Mike Sale, Senior Technical Adviser for LIHI, there are two (2) LIHI ZoE's for this Project as shown in Criterion Attachment G.1 ZoE Map and as follows:

ZoE #1 Regulated Reach: Downstream of New Home Dam ZoE #2: New Home Dam Impoundment

Each ZoE has eight (8) Criterion that is evaluated by LIHI with Project Standards. Specifically we request that you provide comment on Criterion G Cultural and Historic Resources, Standard 1 for each ZoE. The Standard Sates:

Not Applicable / De Minimis Effect:

- Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility.
- Document that the facility construction and operation have not in the past adversely affected any cultural or historic resources that are present on facility

lands.

I have attached a copy of the relevant documents. I believe that this information may assist in your determination.

- USGS Map with Project Coordinates
- Aerial Map with Reservoir or River Impoundment Delineated
- FERC order granting exemption from licensing, issued December 28, 1984; and
- FERC order amending exemptions, issued May 5, 2009.

At your earliest convenience, O'Connell Energy requests that the Massachusetts Historical Society provide it with a letter containing or confirming:

> "The facility construction and operation have not in the past adversely affected any cultural or historic resources that are present on facility lands."

If you have any questions or concerns about this request, please do not hesitate to contact me.

In advance, I thank you for all of your help.

Sincerely yours,

Stephen & Fish

Stephen Fisk General Manager

attachments

cc: Steve Berry (via e-mail only) William P. Short III (via e-mail only) Cultural & Historic Resources Response Letters from Agencies –

No response is expected from current request. Therefore we provide a copy of the Exemption review letter from 1982-06-16:

COMMONWEALTH OF MASSACHUSETTS Office of the Secretary of State

294 Washington Street Boston, Massachusetts 02108 COMMISSION 617-727-8470

MICHAEL JOSEPH CONNOLLY Secretary of State

February 16, 1982

HISTORICAL

MASSACHUSETTS

Mr. David R. Dexter President, Chase Industrial Supply Inc. Box 237 18 Chase Court Orange, MA 01364

RE: New Home Dam, Orange

Dear Mr. Dexter:

Thank you for your prompt submission of photographs and additional information regarding the New Home Dam project. MHC staff have reviewed these data and have determined that the proposed installation of tube turbines within the old gate complex will not alter this mineteenth century feature nor affect any significant historical or archaeological properties. Likewise, the archaeological remains of the New Home Sewing Machine Company will not be disturbed by the alternate proposal for the construction of a small power house. In fact, the MHC complements the developer on the proposed adaptive reuse of an historical industrial feature.

The initial consultation to identify resources in the project area and define project effects has been undertaken in accordance with 36CFR800 of the National Historic Preservation Act of 1966. Since the proposed development will have no effect on any historical or archaeological properties, no further compliance with Section 106 review is necessary. If you should have any further questions, please contact Brona Simon of MHC staff. Thank you for your cooperation.

Sincerely,

aturin Weslowik !

Patricia L. Weslowski State Historic Preservation Officer Executive Director Massachusetts Historical Commission

PLW/amf

New Home Dam FERC P-6096-MA

Part III Appendix B-2 to B-9 ZoE Supporting Information Attachments Page 56 of 56

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Figure 5.1 Principle Feature 1: South Riverbank Intake, Powerhouse and Tailrace Photo Location Map Photos 1,2,3,4,5,6,7

Figure 5.2 Principle Feature 2: New Home Dam Photo Location Map Photos 8,9,10

Figure 5.3 Principle Feature 3: North Riverbank Intake, Powerhouse and Tailrace Photo Location Map Photos 11,12,13,14,15

Principle Feature 1: South Riverbank Intake, Powerhouse and Tailrace Photos:



South Photograph No. 1 - View of Low-Lying Building upstream of Diversion Dam on Left (South) Riverbank. Flood Wall and Building(s) on right side of photo are not part of the Project.



South Photograph No. 2 - Continuation of Previous Photograph along South Canal. Flood Wall and Building(s) in background are not part of the Project.



South Photograph No. 3 - Continuation of Previous Photograph to Intake of South Powerhouse. Stanchion Gate Spillway Operating Deck and South Powerhouse Intake Structure. Flood Wall and Building(s) to the left of the photo are not part of the Project.



Photograph No. 4 – Canal View of Three (3) Bay Stanchion Gate (Needle Beams and Stop Logs) South Canal Spillway with Flood Wall in Foreground.



Photograph No. 5 - South Powerhouse Intake Structure with Floodwall in Foreground.



Photograph No. 6 – South Powerhouse view from tailrace: (Left to Right) Training Wall, Powerhouse Tailrace and South Tailrace Retaining Wall.



South Photograph No. 7 – Downstream View of south riverbank intake canal Three (3) Stanchion (Needle Beams and Stop Logs) Bay Spillway View from North Riverbank. Building(s) in background are not part of the Project.

New Home Dam



Photograph No. 8 - New Home Diversion Dam from South Powerhouse Intake Structure. Building(s) in background are not part of the Project.



Photograph No. 9 - Bascule Gates from North Powerhouse Intake Flume. Buildings and Main Street Bridge are not part of the Project and belong to others.



Photograph No. 10 - View of New Home Dam (looking north), North Bascule Gate Operator building (at far side of Dam) and North Powerhouse Intake Flume (to the left of gate operator building). Note: Abandoned pre 1940 North Mill Inlet (to the right of the Gate Operator Building) and Outlet along Riverwall, both at water level, (to the left of the Gate Operator Building and below the North Powerhouse Intake Flume).

North Powerhouse Photo Location Map



North Photograph No. 11 - View of Low-Lying Building upstream of Diversion Dam on Right Riverbank. Building(s) in background are not part of the Project.



North Photograph No. 12 - View Downstream along North Flume with North Powerhouse located at end of Flume. . Building(s) to the right of photo is/are not part of the Project. New Home Dam FERC P-6096-MA LIHI Application Final 2017-04-28



Photograph No. 13 - Right (North) Abutment and Flume Wall. Building(s) in background are not part of the Project.



Photograph No. 14 - Right (North) Riverwall, North Powerhouse and Powerhouse Tailrace. Note abandoned building behind and flood wall are not part of the Project and is owned by others.



Photograph No. 15 - Termination of Right (North) Riverwall for North Powerhouse Tailrace. Note abandoned building behind and flood wall are not part of the Project and is owned by others.