

ESSENTIAL POWER, LLC™
c/o William P. Short III
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w.shortiii@verizon.net

March 20, 2012

Low Impact Hydropower Institute
c/o Mr. Fred Ayer
Executive Director
34 Providence Street
Portland, Maine 04103

Re: Application of Red Bridge Project for Certification by the Low Impact Hydropower Institute

Dear Mr. Ayer:

Attached please find an application for certification by the Low Impact Hydropower Institute (“LIHI”) of the Red Bridge Project (the “Project” or the “Facility”) of Essential Power, LLC™ (“Essential Power”).¹ In 2008, Essential Power purchased the Project. Essential Power is a Delaware limited liability company with its principal place of business at 99 Wood Avenue South, Suite 200, Iselin, New Jersey 08830. The company owns a portfolio of 1,755 megawatts of clean and efficient electricity producing power stations located in the Northeastern United States. Essential Power is wholly-owned by Industry Funds Management Pty Ltd (“IFM”), an Australian company which has completed 47 transactions in its 16-year period with approximately \$5.9 billion invested in the infrastructure sector. Additional information on Essential Power and IFM may be found at www.essentialpowerllc.com and www.industryfundsmanagement.us, respectively.

For purposes of responding to inquiries regarding the application, persons should contact the following:

Primary Contact

William P. Short III
Consultant
44 West 62nd Street
P.O. Box 237173

Secondary Contact

John J. Bahrs III
Vice President, Power Generation Services
Essential Power, LLC™
99 Wood Avenue South, Suite 200

¹ Effective January 1, 2012, the name of North American Energy Alliance, LLC (“NAEA”) changed to Essential Power, LLC™. There was no change in the ownership of NAEA or its corporate status.

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The Red Bridge Project (FERC No. P-10676) is a 4.50 MW exempt from licensing, limited pond-and-release project located on the Chicopee River in the Towns of Wilbraham, Ludlow, Palmer and Belchertown in Hampden and Hampshire Counties, Massachusetts. The station has an estimated annual production of 19,000 MWh. A FERC exemption from licensing was issued September 11, 1992 and subsequently amended on December 29, 1999 and November 8, 2001. The Project has been in continuous compliance with its requirements for exemption from licensing since 1992.

The following text or computer files are attached to this application:

1. LIHI Questionnaire Form
2. Appendix 1-1, FERC order granting exemption from licensing, issued September 11, 1992)
3. Appendix 1-2, FERC order amending exemptions, issued December 29, 1999
4. Appendix 1-3, FERC order amending exemptions, issued November 8, 2001
5. Appendix 1-4, FWS letter setting minimum flows, dated July 14, 1992
6. Appendix 1-5, DOI letter setting mandatory terms and conditions, dated July 31, 1992
7. Appendix 2, Agency Contacts
8. Appendix 3-1, Description of the Facility
9. Appendix 3-2, Mode of Operation
10. Appendix 3-3, Locations of Major Items of the Facility
11. Appendix 3-4, Site Plan of the Facility
12. Appendix 3-5, Aerial Photograph of the Facility
13. Appendix 3-6, Chicopee River Profile
14. Appendix 3-7, Chicopee River Watershed Map
15. Appendix A, Flows
16. Appendix A-1, Demonstration of Minimum Flows
17. Appendix A-2, Flow Duration Curve
18. Appendix A-3, Minimum Flow and Impoundment Fluctuation Monitoring Plan, dated October 2001
19. Appendix A-4, FWS Letter, dated November 6, 2001
20. Appendix A-5, MDFW Letter, dated November 15, 2001
21. Appendix A-6, FWS E-mail, dated October 13, 2011
22. Appendix A-7, MDEP Letter, dated October 19, 2011
23. Appendix A-8, Minimum Flow Monitoring Plan, dated February 20, 2012
24. Appendix B, Water Quality
25. Appendix B-1, Dissolved Oxygen at Gatehouse
26. Appendix B-2, WMECO Exhibit E -- Environmental Report, dated November 1989
27. Appendix B-3, WMECO Exhibit E -- Environmental Report, Appendix D -- Water Quality Report, dated November 1989

28. Appendix B-4, Chicopee River Watershed 2003 Water Quality Assessment Report
29. Appendix C, Fish Passage and Protection
30. Appendix D, Watershed Protection
31. Appendix D-1, Kleinschmidt Letter, dated March 19, 2001
32. Appendix E, Threatened and Endangered Species Protection
33. Appendix E-1, MDFW Letter, dated October 26, 2011
34. Appendix F, Cultural Resource Protection
35. Appendix F-1, MHC Letter, dated July 2, 2002
36. Appendix F-2, MHC Letter, dated September 27, 2011
37. Appendix G, Recreation
38. Appendix G-1, Existing Recreational Facilities
39. Appendix G-2, FERC Environmental Inspection Report, dated November 4, 2010
40. Appendix G-3, NAEA Letter, dated March 7, 2011
41. Appendix G-4, FERC Letter, dated October 12, 2011
42. Appendix G-5, MDFG Letter, dated December 1, 2011
43. Appendix H, Facilities Recommended for Removal

The application is arranged such that the control document is the LIHI Questionnaire. Back-up documents are cited in the questionnaire and may be found in the appendices.

I request that you review this application and let me know if anything additional is needed in order to place this application in front of the agency contacts and eventually the board of directors of LIHI for consideration.

Sincerely yours,

William P. Short III

cc: Kim Marsili
David Schmidt
Nicholas Hollister
Patricia B. McIlvanie

enclosures

APPENDIX 1-1

RED BRIDGE PROJECT

FERC ORDER GRANTING EXEMPTION FROM LICENSING ISSUED SEPTEMBER 11, 1992

A copy of FERC Order Granting Exemption from Licensing, issued September 11, 1992, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix 1-1 FERC Order Dated 1992_09_11."



Red Bridge Dam Spillway and Minimum Flow Gate

APPENDIX 1-2

RED BRIDGE PROJECT

FERC ORDER AMENDING EXEMPTIONS ISSUED DECEMBER 29, 1999

A copy of FERC Order Amending Exemptions, issued December 29, 1999, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix 1-2 FERC Order Dated 1999_12_29."



Red Bridge Dam Looking Toward Gatehouse, the Red Bridge (right) and Commonwealth of Massachusetts Boat Ramp and Parking Lot (left)

APPENDIX 1-3
RED BRIDGE PROJECT
FERC ORDER AMENDING EXEMPTIONS
ISSUED NOVEMBER 8, 2001

A copy of FERC Order Amending Exemptions, issued November 8, 2001, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix 1-3 FERC Order Dated 2001_11_08."



**Power Canal with top of the Powerhouse in the background
(entrance to the Ice Sluice on the right)**

APPENDIX 1-4

RED BRIDGE PROJECT

**FISH & WILDLIFE SERVICE LETTER
SETTING MINIMUM FLOWS
DATED JULY 14, 1989**

A copy of Fish & Wildlife Service letter setting minimum flows, dated July 14, 1989, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix 1-4 FWS Letter Dated 1989_07_14.”



Powerhouse

APPENDIX 1-5

RED BRIDGE PROJECT

DEPARTMENT OF INTERIOR LETTER SETTING MANDATORY TERMS AND CONDITIONS DATED JULY 31, 1992

A copy of Department Of Interior letter setting mandatory terms and conditions, dated July 31, 1992, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix 1-5 DOI Letter Dated 1992_07_31."



**Tailrace looking up from Downstream Car-top
Boat Launch and Picnic Area
(Powerhouse in the background behind the trees)**

APPENDIX 2
RED BRIDGE PROJECT
AGENCY CONTACTS



Red Bridge Dam Minimum Flow Gate

Army Corps of Engineers²

Brian Valiton; (978) 318-8166
Brian.E.Valiton@usace.army.mil

Environmental Protection Agency

Ralph Abele; (617) 918-1629
abele.ralph@usepa.gov

Federal Energy Regulatory Commission

Kimberly D. Bose, Secretary; (202) 502-8400
kimberly.bose@ferc.gov

Federal Energy Regulatory Commission – New York Regional Office

Gerald L. Cross, Regional Engineer; (212) 273-5911
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Fish and Wildlife Service

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Fish and Wildlife Service

John Warner; (603) 223-2541, x-15
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National Marine Fisheries Service

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National Park Service, Rivers and Special Studies Branch

Kevin Mendik; (617) 223-5299
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Natural Resources Conservation Service

David Hvizdak; (413) 253-4370
david.hvizdak@ma.usda.gov

² Those entities highlighted in **RED** supplied comments on the Red Bridge's Application for Exemption from License.

Massachusetts Department of Conservation and Recreation

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Massachusetts Department of Fish and Game

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Massachusetts Department of Environmental Protection

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Massachusetts Division of Ecological Restoration

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Massachusetts Division of Fisheries and Wildlife

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Massachusetts Historical Commission (SHPO)

Brona Simon; (617) 727-8470

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American Rivers

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American Whitewater

Mark Singleton; (828) 586-1930

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Appalachian Mountain Club

Ken Kimball; **(no telephone listing)**

kkimball@outdoors.org

Conservation Law Foundation

Cynthia Liebman; (617) 350-0990

cliebman@clf.org

Connecticut River Watershed Council
Andrea F. Donlon, M.S.; (413) 772-2020
crwc@ctriver.org

Pioneer Valley Trout Unlimited
Paul Beaulieu; (413) 875-1302
pgbeauliu@tighebond.com

Trout Unlimited
Jeff Reardon; (207) 622-2273
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APPENDIX 3-1

Red Bridge Project

Description of the Facility

The Red Bridge Project (the “Project”) is exempt from licensing by the Federal Energy Regulatory Commission (“FERC”) as Project No. 10676. The Project is owned by Essential Power, LLC (“Essential Power”).³ The project is located in the Towns of Wilbraham, Ludlow, Palmer and Belchertown in Hampden and Hampshire Counties, Massachusetts, at approximate river mile 15.2 on the Chicopee River. The Project dam crosses the town line between Wilbraham and Ludlow; the powerhouse is located in Wilbraham. The impoundment extends in a northeasterly direction, bordering Belchertown and Palmer. The Project was originally constructed in 1901 by the Ludlow Manufacturing Company and was purchased in 1957 by the Western Massachusetts Electric Company (“WMECO”). In 1988, the Federal Energy Regulatory Commission determined that the Chicopee River was a navigable waterway under its jurisdiction and ordered WMECO to prepare an application for Exemption from Licensing.

The existing major project works include a dam with a crest elevation of 272.3’ (NGVD), a canal headgate house, a power canal, two operating penstocks,⁴ a powerhouse with two generating units, a tailrace channel (normal tailrace elevations 222.7’) and appurtenant facilities. Two flood control dikes are located on the northeast shore of the impoundment upstream of the dam.

The dam, built ca. 1901, crosses the Chicopee River in a roughly north to south direction, and is composed of three sections. The northern section of the dam is composed of a 165-foot-long earthen embankment with a concrete core. The top of the embankment is at El. 285.8’. The middle section of the dam is a 300-foot-long overflow spillway, consisting of rubble stone with cut-granite facing with a crest elevation of 272.3’. The southern section is a 362-foot-long earthen embankment with a concrete core. The top of the embankment is at El. 285.8’. The maximum height of the dam is approximately 51 ft. Cut-stone abutments separate the two earthen sections from the middle spillway section.

At normal pond elevation, the Red Bridge Project impoundment extends approximately 1.8 miles upstream of the dam. At normal pond condition, the maximum surface area is approximately 185 acres at El. 272.3’. Although the permitted storage is approximately 530 acre-feet and the permitted daily drawdown is two feet⁵ except during annual energy audits and system emergencies when a drawdown of as much as three feet may be used, the Project uses only one foot of its drawdown and 185 acre-feet of its storage. The canal headgate house is a

³ Until the late 1990s, the Project was owned by Western Massachusetts Electric Company when the Project was sold to Consolidated Edison Energy, Inc. (“CEEI”), an affiliate of Consolidated Edison Company of New York, Inc. In 2008, the Project was sold to its current owner, Essential Power.

⁴ Two penstocks were abandoned-in-place in 1938.

⁵ During the second quarter, the permitted daily drawdown is only one foot.

wooden structure on a granite block foundation, housing the 10 intake gates that control the flow from the impoundment to the power canal. The headgates are all steel construction, 5.5 feet wide by 8.5 feet high. Each is equipped with single stem lead screw gate operator. All of the headgates require manual operation. The power canal extends from the headgates to the penstock intake structure. The canal is approximately 340 feet long by 73 feet wide by 13 feet deep. The inner sidewalls are constructed of cut-granite. Sloped earthen embankments create the outer walls. The floor of the canal is concrete.

The canal leads to the penstock intake structure for the two operating and two abandoned penstocks. Adjacent to the trashracks on the upstream face of the intake is a cut-stone ice sluice that crosses beneath the Red Bridge Road and discharges back into the Chicopee River. There is one cast iron drain gate, 3 feet wide by 2 feet high, operated by a lead screw mechanism. Two operable and two inoperable 13-foot-diameter, 100-foot-long steel penstocks lead underground to the powerhouse. The two inoperable penstocks were taken out of service in 1938.

The Red Bridge Project powerhouse is constructed of brick and cut stone, and was built in ca. 1901. The original equipment included horizontal waterwheels and 40-cycle generators. The original waterwheels for Units No. 1 and No. 2 were retired in 1938. The powerhouse measures approximately 145 feet by 68 feet, with wells for the discontinued Units No 1 and No. 2 at the northerly end and the operating Units No.3 and No. 4 at the southerly end of the structure. The flows from the two operating units discharge through two tailrace bays into the tailrace canal. The normal tailrace elevation is 222.7'. The tailrace canal runs 735 feet in a southerly direction to where the flow re-enters the Chicopee River.

The flood control dikes are situated adjacent to the northeast shore of the impoundment, approximately 1,500 feet upstream of the dam. The first of these (known as the Railroad Dike) is of earth construction and is approximately 60 feet wide at its base, 50 feet long and rises 10 feet to an elevation of 285.0'. The second dike (known as the Alden Street Dike) is located approximately 650 feet north of the Railroad Dike and extends northeasterly for approximately 550 feet. This structure has a pile core with earthen embankments and a top elevation of 285.0'.

The powerhouse's 11.5 KV generators are connected to 11.5 KV circuit breaker to a 4.5 MVA autotransformer located approximately 150 feet from the powerhouse. The autotransformer steps the voltage up from 11.5 KV to 13.8 KV for interconnection to WMECO's distribution system.

The Red Bridge project is situated upstream of five other hydroelectric facilities located on the Chicopee River⁶ and downstream of other dams on the Ware, Swift and Quaboag Rivers.⁷ Three of the other five downstream hydroelectric facilities are owned and operated by Essential

⁶ The order of the hydroelectric dams, starting with the lowest dam, on the Chicopee River is Dwight Station Project (P-10675) river mile 1.2, Chicopee Falls Project (P-6522) river mile 3.0, Indian Orchard Project (P-10678) river mile 7.8, Putts Bridge Project (P-10677) river mile 9.2, Collins Hydro Project (P-6544) river mile 12.6 and Red Bridge Project (P-10676) river mile 15.2.

⁷ For example, the first dam on the Ware River is Thorndike Dam river mile 20.5 while the first dam on the Swift River is the Upper Bondsville Dam river mile 20.1. (No dams were identified on the Quaboag River).

Power – Dwight Station Project (P-10675), Indian Orchard Project (P-10678) and Putts Bridge Project (P-10677). The Project drains an area of 664 square miles.

Immediately downstream of the Red Bridge Project is Collins Dam Project (P-6544) while immediately upstream of Dwight Station Project is Chicopee Falls Dam (P-6522). The Project and the other NAEA dams on the Chicopee River have little to no control over their inflows. Collins Hydro and Chicopee Falls dams⁸ are owned and controlled by unrelated entities as are all of the hydroelectric projects on the upstream tributaries of the Chicopee River.

The Red Bridge project is operated in a limited pond-and-release mode, utilizing the storage capacity (185 acre-feet) afforded by a 1.0 foot drawdown during the second quarter and 2.0 foot drawdown during the balance of the year.⁹ The station is operated semi-automatically by a PLC control system. The operating mode of the Red Bridge project does not change during dry, mean or high water years. As flows vary at the Project, the number of turbines operating and the duration of operation changes, increasing and decreasing the amount of generation realized.

⁸ The owners/operators of the Collins Hydro and Chicopee Falls projects are also unrelated to each other.

⁹ Although the Project has a two-foot drawdown for the non-spring periods of the year, the Project operates year-round with a one-foot drawdown.

APPENDIX 3-2

Red Bridge Project

Mode of Operation

The Red Bridge project is situated upstream of five other hydroelectric facilities located on the Chicopee River and downstream of other dams on the Ware, Swift and Quaboag Rivers. Three of the other five downstream hydroelectric facilities are owned and operated by NAEA – Dwight Station Project (P-10675), Indian Orchard Project (P-10678) and Putts Bridge Project (P-10677).

Immediately downstream of the Red Bridge Project is Collins Dam Project (P-6544) while immediately upstream of Dwight Station Project is Chicopee Falls Dam (P-6522). The Project and the other NAEA dams on the Chicopee River have little to no control over their inflows. Collins Hydro and Chicopee Falls dams are owned and controlled by unrelated entities as are all of the hydroelectric projects on the upstream tributaries of the Chicopee River.

The Red Bridge project is operated in a limited pond-and-release mode, utilizing the storage capacity (185 acre-feet) afforded by a maximum 1.0 foot drawdown during the second quarter and 2.0 foot drawdown during the balance of the year.¹⁰ The station is operated semi-automatically by a PLC. The operating mode of the Red Bridge project does not change during dry, mean or high water years. As flows vary at the Project, the number of turbines operating and the duration of operation changes, increasing and decreasing the amount of generation realized.

The exemption requires a continuous minimum flow release of 237 cfs, or inflow if less, at the base of the spillway. The exemption also limits pond drawdowns to one foot below the crest from April to June and two feet for the remainder of the year. During a June 22, 1999 meeting, the resource agencies indicated the drawdowns would not likely have an adverse impact on fish habitat, but could adversely impact the existing boat launch. Also, FWS indicated the present flow release mechanism is inadequate for a permanent measure due to large fluctuations in actual release amounts.

In response, CEEI installed an automated slide gate at the spillway. The new slide gate is capable of releasing the required minimum flow from a single point on the spillway during full and low pond conditions. The CEEI indicated in its December 6, 1999 letter that the use of a new slide gate at the spillway was also acceptable to both the FWS and the MDFW.

¹⁰ Id.

APPENDIX 3-3

Red Bridge Project

Locations of Major Items of the Facility

The major components of the Red Bridge Project may be viewed on Google Earth and are found at the following latitudes and longitudes:

<u>Items</u>	<u>Latitude</u>	<u>Longitude</u>
Dam -- Northern section	42 ⁰ 10'43.24" N	72 ⁰ 24'34.65" W
Dam – Middle section	42 ⁰ 10'40.87" N	72 ⁰ 24'33.98" W
Dam – Southern section	42 ⁰ 10'38.67" N	72 ⁰ 24'31.32" W
Canal headgate house	42 ⁰ 10'37.15" N	72 ⁰ 24'29.54" W
Brick and cut stone powerhouse	42 ⁰ 10'33.71" N	72 ⁰ 24'34.26" W
1.8 mile-long impoundment	42 ⁰ 10'42.32" N	72 ⁰ 24'28.44" W
340 foot-long power canal	42 ⁰ 10'35.51" N	72 ⁰ 24'31.71" W
735 foot-long tailrace channel	42 ⁰ 10'36.16" N	72 ⁰ 24'35.98" W
Railroad Dike	42 ⁰ 10'53.03" N	72 ⁰ 24'16.98" W
Alden Street Dike	42 ⁰ 10'53.03" N	72 ⁰ 24'16.98" W



**Commonwealth of Massachusetts Downstream Car-top
Boat Launch and Picnic Area**

APPENDIX 3-4

Red Bridge Project

Site Plan of the Facility

The site plan of the Red Bridge project may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix 3-4 Site Plan of the Facility.”



Power Canal with the Red Bridge in front of Gatehouse

APPENDIX 3-5

Red Bridge Project

Aerial Photograph of the Facility

An aerial photograph of the Red Bridge project may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix 3-5 Aerial Photograph of the Facility.”



Substation (in foreground) and Powerhouse (in background)

APPENDIX 3-6

Red Bridge Project

Chicopee River Profile

The Chicopee River Profile project may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix 3-6 Chicopee River Profile.”

APPENDIX 3-7

Red Bridge Project

Chicopee River Watershed Map

A map of the Chicopee River Watershed may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix 3-7 Chicopee River Watershed Map.”

APPENIDX A

Red Bridge Project

Flows

The Facility is in compliance with resource agency recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches.

Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act required the inclusion in the Red Bridge exemption from licensing, all terms and conditions that are prescribed by state and federal fish and wildlife agencies to prevent loss of, or damage to fish and wildlife resources.

With respect to minimum flow at the Red Bridge Project, the FWS specifically mandated the following conditions:

- The Exemptee agreed to release from Red Bridge dam a minimum flow of 237 cfs, or inflow to the project reservoir, whichever is less, at the base of the spillway for the protection and enhancement of fish resources in the bypassed reach of the Chicopee River.
- The FWS reserved the right to add and/or alter these terms and conditions as appropriate in order to carry out its responsibilities with respect to fish and wildlife resources. The Exemptee agreed, within 30 days of receipt, to file with the Commission any additional or modified mandatory terms and conditions.
- The Exemptee agreed to operate the project to limit draw down of the Project impoundment to no more than one foot below the crest of the dam from April 1 through June 30. From July 1 through March 30 [31], the Exemptee agree to limit drawdown to no more than 2 feet below the crest of the dam, except during system emergencies or energy audits.¹¹
- The Licensee [Exemptee] agreed, within six months from the date of issuance of the exemption from licensing for the Project, present to the FWS for approval, a plan for monitoring project impoundment level and instantaneous bypass releases. Following approval of the plan, the Exemptee agree to measure and record impoundment level and flows according to the plan and provides records of these data to the FWS within 30 days from a request for the records.

¹¹ Id.

- The Exemptee agreed to incorporate the aforementioned fish and wildlife conditions in any conveyance; by lease, sale or otherwise; of its interests so as to legally assure compliance with said conditions for as long as the Project operates under an exemption from licensing.

To date, the Exemptee has not been notified by the FWS and/or MDFW of the need to modify, increase or decrease its minimum flow.

The exemption requires a continuous minimum flow release of 237 cfs, or inflow, at the base of the spillway. The exemption also limits pond drawdowns to one foot below the crest from April to June and two feet for the remainder of the year.¹² During a June 22, 1999 meeting, the resource agencies indicated the drawdowns would not likely have an adverse impact on fish habitat, but could adversely impact the existing boat ramp. Also, FWS indicated the present flow release mechanism is inadequate for a permanent measure due to large fluctuations in actual release amounts.

As a result of these comments, the Exemptee decided to implement limitations for the pond level and reviewed whether a one or two foot drawdown would affect the existing boat ramp. In response, CEEI installed an automated slide gate at the spillway. The new slide gate is capable of releasing the required minimum flow from a single point on the spillway during full and low pond conditions. The CEEI indicated in its December 6, 1999 letter that the use of a new slide gate at the spillway was also acceptable to both the FWS and the MDFW.

The Red Bridge Project consists of a dam site located on the Chicopee River. The 18-mile long Chicopee River originates at the confluence of the Ware and Quaboag Rivers, 2.8 miles upstream, and discharges into the Connecticut River 15.2 miles downstream of the project area at Springfield, Massachusetts. The following flow parameters are extrapolated from 53 years of United States Geological Survey (“USGS”) (1929-1982) records from hydrologic gaging station No. 01177000, located on the Chicopee River at Indian Orchard, Massachusetts, located approximately 8 miles downstream of the Red Bridge dam site. The drainage area at this gage is 689 square miles and the drainage area at the hydropower project site is 664 square miles. The mean annual flow at the project is 877 cfs (914 cfs at the gage) with a minimum and maximum historical discharge of 16 cfs, recorded on various dates between 1929 and 1931, and 43,400 cfs, recorded in September 21, 1938, respectively. Additional flow parameters for the Chicopee River related to the project area are as follows:

- high flow: approximately 1,465 cfs (approximately 1,525 cfs at the gage at Indian Orchard); flow exceeded 10 percent of the time;¹³
- low flow: approximately 215 cfs (approximately 225 cfs at the gage at Indian Orchard); flow exceeded 90 percent of the time;¹⁴

¹² Id.

¹³ See Appendix A-2 for a Flow Duration Curve for the Chicopee River at Indian Orchard.

¹⁴ Id.

- 7Q10 flow: 237 cfs (the 7Q10 flow refers to the minimum 7-day average flow rate expected to occur once every 10 years and is based on 0.36 cfs per square mile of drainage area).

The dam creates an average 17.3-foot deep, 185-acre impoundment that is 1.8 mile long, with a normal surface elevation of 272.3 feet USGS datum, normal tailwater elevation of 222.7 feet and average gross head of 49.6 feet.

During the In-take Review, it was discovered that CEEI had not completed the “Minimum Flow and Impoundment Fluctuation Monitoring Plan” as well as performed the requisite six months of empirical study of the spillway flows subsequent to the installation of the automated slide gate. Accordingly, on February 20, 2012, Essential Power, with the concurrence of FWS, MDEP and MDFW, filed with FERC a “Minimum Flow and Impoundment Fluctuation Monitoring Plan” for the Project. In lieu of performing a six-month study of the spillway flows, Essential Power agreed to supply monthly, for six months, starting March 1, 2012, pond elevation, gate position and station generation data to FWS.

In summary, the Exemptee operates the Red Bridge Project in a limited pond-and-release mode for the protection of water quality, aquatic resources, and aesthetic values in the Chicopee River. This operation may be temporarily modified, if required, by operating emergencies beyond the control of the Exemptee, or for short periods while performing energy audits.

APPENIDX A-1

Red Bridge Project

Demonstration of Minimum Flows

A copy of the latest FERC compliance filing for the minimum flow requirements for the Red Bridge project may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-1 Demonstration of Minimum Flow Dated 2011_03_01.”



Penstocks (in foreground) and the Powerhouse (in background)

APPENIDX A-2

Red Bridge Project

Flow Duration Curve

A copy of the Flow Duration Curve at the Indian Orchard gage may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-2 Flow Duration Curve Dated 1989_08.”



Left side of Ice Sluice

APPENIDX A-3

Red Bridge Project

Minimum Flow and Impoundment Fluctuation Monitoring Plan, Dated October 2001

The Minimum Flow and Impoundment Fluctuation Monitoring Plan, dated October 2001, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-3 Minimum Flow and Impoundment Fluctuation Monitoring Plan, Dated 2001_10.”

APPENIDX A-4

Red Bridge Project

Fish and Wildlife Letter, Dated November 6, 2001

The Fish and Wildlife letter, dated November 6, 2001, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-4 United States Fish and Wildlife Letter, Dated 2001_11_06.”

APPENIDX A-5

Red Bridge Project

Massachusetts Division of Fisheries and Wildlife Letter, Dated November 15, 2001

The Massachusetts Division of Fisheries and Wildlife letter, dated November 6, 2001, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-5 Massachusetts Division of Fisheries and Wildlife Letter, Dated 2001_11_15.”

APPENIDX A-6

Red Bridge Project

Fish and Wildlife E-mail, Dated October 13, 2011

The Fish and Wildlife e-mail, dated October 13, 2011, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-6 Fish and Wildlife E-mail, Dated 2011_10_13.”

APPENIDX A-7

Red Bridge Project

Massachusetts Department of Environmental Protection Letter, Dated October 19, 2011

The Massachusetts Department of Environmental Protection letter, dated October 19, 2001, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-7 Massachusetts Department of Environmental Protection Letter, Dated 2011_10_19.”

APPENIDX A-8

Red Bridge Project

MINIMUM FLOW AND IMPOUNDMENT FLUCTUATION MONITORING PLAN, Dated February 20, 2012

The Minimum Flow and Impoundment Fluctuation Monitoring Plan, dated February 20, 2012, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix A-8 Minimum Flow Monitoring Plan, Dated 2012_02_20.”

APPENIDX B

Red Bridge Project

Water Quality

The Facility is in compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach.

Under Section 401(a)(1) of the Clean Water Act (“CWA”),¹⁵ an applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable waters must obtain from the state in which the discharge originates certification that any such discharge will comply with applicable water quality standards. The Commission may, therefore, not issue a license for a hydropower project unless the relevant state agency either has issued a water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year.¹⁶ At the time of the issuance of the Exemption from License, the MDEP did not complete a water quality study for the Project and, consequently, did not issue a water quality certificate for the Project.

The existing water quality at the Red Bridge project is classified by the MDEP as a Class B, warmwater fishery. In Massachusetts, general standards govern levels of oil and grease, radioactive substances, color, odor, form, turbidity, floating or suspended solids, nutrients, and aesthetics (314 CMR 4.03 (1988)) for all waters. In addition, the Class B warmwater fishery classification requires the water to have a minimum of 5.0 mg/l of dissolved oxygen (“DO”); temperature must be less than 83°F; pH must be between 6.5 and 8.0 standard units, and fecal coliform bacteria counts must not be more than 200 per 100 ml sample.

At the commencement of the license process for the Red Bridge Project, WMECO filed results of a water quality study, including a dissolved oxygen (“DO”) study¹⁷ for the Project. A graph of DO may be found at Appendix B-1 while the entire report¹⁸ may be found at Appendix B-3. It is certain that this study of the Red Bridge Project was submitted to DOI, FWS and MDFW on or about late November 1989 for review and analysis and that none of these agencies raised any objection to its data or conclusions.¹⁹ Furthermore, there is no record that any agency conducted its own analysis prior to the issuance of the Exemption from License or subsequently found fault with the WMECO analysis or conclusions. Finally, the DOI letter of July 31, 1992 did not state any reason to deny the Exemption from License due to water quality.

¹⁵ 33 U.S.C. 1341(a)(1).

¹⁶ Id.

¹⁷ See Appendix B-3, WMECO Exhibit E -- Environmental Report, Appendix D – Water Quality Report, dated November 1989.

¹⁸ Id.

¹⁹ For example, see the bottom of page two and the top of page three of the DOI letter (dated July 31, 1992) setting forth its mandatory terms and conditions to WMECO for its Exemption from License.

Regarding the Chicopee River from the confluence of the Ware River and Quaboag River, Palmer, to Red Bridge Impoundment Dam, Wilbraham/Ludlow, MDWM (“Massachusetts Division of Water Management”) found that the flow is influenced by the Red Bridge Dam hydropower project.²⁰

Whole effluent toxicity tests have been conducted on the Palmer Water Pollution Control Facility treated effluent. Between July 2000 and March 2006, twenty-two valid chronic tests were conducted using *C. dubia*. Results of the chronic whole effluent toxicity tests using *C. dubia* ranged from 6.25% to 100% effluent (n=22). Results in June 2001 showed a significant difference in reproduction for 25% effluent. The LC50 results were all >100% effluent (n=24) with the exception of September 2004, which was 33.0% effluent.

DWM conducted water quality monitoring at one station (CH01 – near the intersection of New Hampshire Avenue and Springfield Street, Palmer) along this segment of the Chicopee River between April and October 2003. In-situ parameters were measured on seven occasions, including two pre-dawn occasions. Grab samples were also collected and analyzed for TSS, turbidity, ammonia-nitrogen, and total phosphorus.

Dissolved oxygen, temperature and pH all met criteria. Ammonia-nitrogen concentrations in samples collected at Station CH01 were low, while total phosphorus concentrations were slightly elevated during the summer.

Given generally good water quality conditions the Aquatic Life Use is assessed as support for this segment.

DWM conducted fecal coliform and *E. coli* bacteria monitoring at Station CH01 this segment of the Chicopee River between April and October 2003. The DWM station is downstream from numerous combined sewer outflows (“CSOs”) and the Palmer wastewater treatment plant (“WWTP”) discharge.

DWM sampling dates included both wet weather and dry weather sampling. *E. coli* counts were generally elevated during wet weather sampling but no strong pattern was found relating *E. coli* counts and sampling conditions. Both high and low *E. coli* counts were measured on dry weather sampling dates. The highest *E. coli* count of 1520 cfu/100 mL was found on October 15, 2003, a wet weather sampling date. The geometric mean for *E. coli* was 194.5 cfu/100 mL.

Parameter	DWM 2003 (n=16)
Fecal coliform (cfu/100mL)	20 –1800
Geometric mean	304.7
<i>E. coli</i> (cfu/100mL)	30 – 1520
Geometric mean	194.5

²⁰ See Appendix B-4, pages 84-87 and Appendices B and D of Chicopee River Watershed 2003 Water Quality Assessment Report. The entire report can be obtained at www.mass.gov/dep/water/resources/36wqar03.pdf.

Currently without the exact dates when CSOs were eliminated, it is impossible to determine what impacts CSOs would have on bacteria levels during the 2003 sampling season. It is known, though, that CSO #014 had an illicit connection removed in 2004.

No objectionable deposits, scums or water odor were recorded by DWM field crews. Water clarity was generally noted to be clear although on two occasions it was noted to be slightly turbid. Erosion was noted on one occasion only. Aquatic vegetation, periphyton and phytoplankton were unobservable or not observed.

Given the elevated *E. coli* counts, the Primary Contact Recreation Use is assessed as impaired. Since the geometric mean for *E. coli* meets the Secondary Recreation Contact Use criterion the Secondary Contact Recreation Use is assessed as support. The Secondary Contact Recreation Use is given an “Alert Status” due to CSO discharges upstream and the one high *E. coli* count. Given the general lack of objectionable conditions along this segment the Aesthetics Use is assessed as support.

Regarding the Chicopee River from Red Bridge Impoundment Dam to Wilbraham Pumping Station (old WWTP), Wilbraham/Ludlow, MDWM found that flow is regulated by two hydropower projects on this segment, Red Bridge and Collins Hydro Projects.²¹

Between April and October 2003, MDWM conducted water quality monitoring at one station (CH02B–Miller Street/Cottage Avenue bridge, Ludlow/Wilbraham) along this segment of the Chicopee River. In-situ parameters were measured on seven occasions, including two predawn occasions. Grab samples were also collected and analyzed for TSS, turbidity, ammonia-nitrogen and total phosphorus.

Dissolved oxygen, temperature and pH at Station CH02B all met criteria. Ammonia-nitrogen concentrations in samples collected at Station CH02B were low, while total phosphorus concentrations were slightly elevated during the summer.

Given the generally good water quality conditions, the Aquatic Life Use is assessed as support. Due to the potential impacts of hydropower operations, this segment is identified with an “Alert Status.”

Between April and October 2003, DWM conducted fecal coliform and *E. coli* bacteria monitoring at one station (CH02B–Miller Street/Cottage Avenue bridge, Ludlow/Wilbraham) along this segment of the Chicopee River.

E. coli bacteria counts were low on both dry and wet weather sampling dates. The highest *E. coli* count was 160 cfu/100mL on October 15, 2003, a wet weather sampling date. The geometric mean of the *E. coli* counts was 20.8 cfu/100 mL.

²¹ See Appendix B-4, pages 87-89 and Appendix B of Chicopee River Watershed 2003 Water Quality Assessment Report. The entire report can be obtained at www.mass.gov/dep/water/resources/36wqar03.pdf.

Parameter	DWM 2003 (n=6)
Fecal coliform (cfu/100mL)	<2 - 120
Geometric mean	28.2
<i>E. coli</i> (cfu/100mL)	<2 - 160
Geometric mean	20.8

No objectionable deposits, odors or scums were noted by DWM field crews with the exception of one occasion when an oily sheen and rusty flow was noticed on the downstream left bank. Water clarity, although sometimes unobservable, was generally noted to be clear with one occasion of slight turbidity. Aquatic plant density, periphyton and plankton were generally noted as unobservable.

Given the low bacteria counts, both Primary and Secondary Recreation Contact Uses are assessed as support. Given the general lack of objectionable conditions along this segment, the Aesthetics Use is assessed as support.

The facility area and the downstream reach are currently identified by the US EPA as meeting the water quality standards pursuant to Section 303(d) of the CWA.²² While the US EPA noted that pathogens are present in the Chicopee River downstream or in its upstream tributaries,²³ none, however, appear to be found in the Chicopee River just immediately above or below the Red Bridge Project.²⁴ Thus, it can be deduced that the Project does not contribute to any degradation of the water quality of the Chicopee River.

²² At http://iaspub.epa.gov/tmdl_waters10/attains_impaired_waters.impaired_waters_list?p_state=MA&p_cycle=2006, information on this US EPA determination may be found.

²³ Ware, Quaboag and Swift Rivers.

²⁴ A similar conclusion was reached by the MDEP in its letter dated October 19, 2011. A copy of which may be found at Appendix A-7.

APPENDIX B-1

Red Bridge Project

Dissolved Oxygen at Gatehouse

A graph of the dissolved oxygen, covering the period from July 24 through 27, 1989, performed by Kleinschmidt Associates for WMECO for the Red Bridge Project may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix B-1 Dissolved Oxygen at Gatehouse Dated 1989_07_24-27.”



**Powerhouse (behind tree), Penstock Building (to the left)
and Forebay (top of hill, far left)**

APPENDIX B-2

Red Bridge Project

WMECO Exhibit E -- Environmental Report

A copy of a portion of the WMECO Exhibit E -- Environmental Report, dated November 1989, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix B-2 WMECO Environmental Report 1989_11."



**Commonwealth of Massachusetts Boat Ramp and Parking Lot
(Boat Ramp on the far left with Gatehouse to the left outside of picture)**

APPENDIX B-3

Red Bridge Project

WMECO Exhibit E -- Environmental Report, Appendix D – Water Quality Report

A copy of WMECO Exhibit E -- Environmental Report, Appendix D – Water Quality Report, dated November 1989, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix B-3 WMECO Water Quality Report 1989_11.”



**Commonwealth of Massachusetts Parking Lot for
Downstream Car-top Boat Launch and Picnic Area**

APPENDIX B-4

Red Bridge Project

Chicopee River Watershed 2003 Water Quality Assessment Report

The Chicopee River Watershed 2003 Water Quality Assessment Report may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix B-4 Chicopee River Watershed 2003 Water Quality Assessment Report.”



**Racks at the end of the Power Canal
(top of Powerhouse in the background)**

APPENDIX C

Red Bridge Project

Fish Passage and Protection

The Facility is in compliance with mandatory fish passage prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by resource agencies after December 31, 1986.

Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act require the inclusion in the Red Bridge exemption from licensing, all terms and conditions that are prescribed by state and federal fish and wildlife agencies to prevent loss of, or damage to fish and wildlife resources.

With respect fish passage and protection, the FWS specifically mandated the following conditions:

- The Exemptee agreed to construct, maintain and monitor upstream and downstream fish passage when prescribed by the FWS and/or MDFW. The Exemptee agreed to be responsible for the designs of the fish passage facilities which shall be developed in consultation with, and be approved by, the FWS, MDFW and the Connecticut River Atlantic Salmon Commission (CRASC). Furthermore, the Exemptee agreed to construct and have operational upstream and/or downstream passage facilities within two years after being notified of their need by the FWS and/or the MDFW.
- The Exemptee agreed to develop plans for monitoring, maintaining and operating the upstream and downstream fish passage facilities in consultation with FWS, MDFW and CRASC. Within two years after being notified of the need for passage facilities, these plans shall be finalized and approved.
- The FWS reserved the right to add and/or alter these terms and conditions as appropriate in order to carry out its responsibilities with respect to fish and wildlife resources. The Exemptee agreed, within 30 days of receipt, to file with the Commission any additional or modified mandatory terms and conditions.
- The Exemptee agreed to incorporate the aforementioned fish and wildlife conditions in any conveyance; by lease, sale or otherwise; of its interests so as to legally assure compliance with said conditions for as long as the Project operates under an exemption from licensing.

To date, the Exemptee has not been notified by the FWS²⁵ and/or MDFW of the need to construct and have operational within two years upstream and/or downstream passage facilities.



Right Side of Ice Sluice

²⁵ On September 17 and 19, 2011, MDEP and FWS, respectively, were asked if the Project was in compliance with its Fish Passage and Protection. Both entities responded that the Project was in compliance and, despite the fact the agencies could request appropriate passage at any time, there were no pending agency request for passage.

APPENDIX D

Red Bridge Project

Watershed Protection

The Facility is in compliance with both state and federal resource agencies recommendations for a license-approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

In 1992, Commission staff determined that excavation for the construction of the minimum flow powerhouse could increase the potential for erosion and sedimentation and result in short-term turbidity for the duration of the construction. For these reasons, Article 14²⁶ was included to ensure that the Exemptee, before engaging in any ground disturbance, would take protective measures to minimize erosion and sedimentation associated with the construction of the minimum flow unit powerhouse.

In 1999, the Exemptee proposed to install an automated slide gate at the spillway instead of a minimum flow generation unit at the spillway. The new slide gate would be capable of releasing the required minimum flow from a single point on the spillway during full and low

²⁶ Article 14 states that “At least 90 days before the start of any land-disturbing, land-clearing, or spoil-producing activities, the Exemptee shall file with the Commission for approval, and with the New York Regional Office, a plan to control erosion, to control slope instability, and to minimize the quantity of sediment resulting from project construction and operation.

“The plan shall be based on actual site geological, soil, slope, drainage, and groundwater conditions and on project design, and shall include, at a minimum, the following four items: (1) a description of the actual site conditions; (2) measures to control erosion, to prevent slope instability, and to minimize the quantity of sediment resulting from project construction and operation; (3) detailed descriptions, functional design drawings, and topographic map locations of all control measures; and (4) a specific implementation schedule and details of monitoring and maintenance programs for the project construction period and for project operation.

“The Exemptee shall prepare the plan after consultation with the Soil Conservation Service and the Massachusetts Division of Fisheries and Wildlife. The Exemptee shall include with the plan documentation of consultation with the agencies and copies of agency comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the plan accommodates all of the agency comments and recommendations. 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. If the Exemptee does not adopt a recommendation, the filing shall include the Exemptee's reasons, based on geological, soil, and groundwater conditions at the site.

“The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Exemptee is notified by the Commission that the plan is approved. Upon Commission approval, the Exemptee shall implement the plan, including any changes required by the Commission.”

pond conditions. CEEI indicated in its December 6, 1999 letter that the use of a new slide gate at the spillway was also acceptable to both the FWS and the MADFW. Since the proposed automatic slide gate was not authorized by the subject order, CEEI was required to fulfill the measures delineated by Article 14 before proceeding with its proposed installation. These measures required CEEI to file, for Commission approval, an erosion control plan²⁷ before the start of any land-disturbing, land-clearing or spoil-producing activities at the project. In addition, the development and implementation of the erosion control plan minimized any adverse impacts of slide gate installation on water quality and fishery resources.

²⁷ Although no explicit FERC approval of an erosion control plan could be found in the Essential Power, FERC or MHC files, a Soil Erosion and Sedimentation Control Plan was located on pages 197 to 201 of Appendix D-1. Since the Soil Erosion and Sedimentation Control Plan was incorporated into the bid document for the installation of the automated slide gate, it can be inferred that the plan would have been complied with during the construction of the automated slide gate.

APPENDIX D-1

Red Bridge Project

Kleinschmidt Letter, Dated March 19, 2001

The Kleinschmidt letter, dated March 19, 2001, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix D-1 Kleinschmidt Letter, Dated 2001_03_19.”



Power Canal and Entrance to the Ice Sluice

APPENDIX E

Red Bridge Project

Threatened and Endangered Species Protection

There are no threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or the downstream reach. There are two non-fish species, the wood turtle and stygiandragon, in the vicinity of the Project, of which neither appears to be impacted by the Facility. Both of these species are listed by MDFW as warranting special concern status but not as an endangered or threaten species. (A website link to a list of Massachusetts threatened, endangered or special concern species can be found in the footnote at the end of this Appendix).²⁸

In conjunction with the Environmental Assessment prepared by WMECO in connection with its application for an Exemption from Licensing, FWS and various Massachusetts agencies were consulted to determine whether any federally listed or proposed threatened and endangered species under the jurisdiction of MDFW or FWS are known to occur in the project area, with the exception of occasional, transient, individuals, including bald eagles. Neither the FWS nor any Massachusetts agency reported that any known federally listed populations of endangered, threatened or rare vegetative, fish or wildlife species occur in the project area and none were discovered during any field survey.

Currently, the shortnose sturgeon is the only federally listed endangered fish species in Massachusetts. The habitat and distribution of this species does not include the project area. Massachusetts lists several fishes as rare; however, MDFW reported that none of these species occur in headwaters, tributaries or other upstream or immediate downstream areas of the Chicopee River drainage affected by the Red Bridge project.

²⁸ The Massachusetts Division of Fisheries and Wildlife maintains a list of threatened, endangered and special concern species on its website at http://www.mass.gov/dfwele/dfw/nhosp/species_info/mesa_list/mesa_list.htm. The following fish species are listed as threatened, endangered or special concern. None appear to be found in the Chicopee River immediate below or above the Red Bridge Project (between Collins Hydro on the Chicopee River, Thorndike Dam on the Ware River and Upper Bondsville Dam on the Swift River, respectively).

Federally Endangered Species	Shortnose Sturgeon (<i>Acipenser brevirostrum</i>)
Massachusetts Endangered Species	Atlantic Sturgeon (<i>Acipenser oxyrinchus</i>) Lake Chub (<i>Couesius plumbeus</i>) Northern Redbelly Dace (<i>Phoxinus eos</i>) Shortnose Sturgeon (<i>Acipenser brevirostrum</i>)
Massachusetts Threatened Species	American Brook Lamprey (<i>Lampetra appendix</i>) Threespine Stickleback (<i>Gasterosteus aculeatus</i>)
Massachusetts Special Concern Species	Eastern Silvery Minnow (<i>Hybognathus regius</i>) Bridle Shiner (<i>Hybognathus regius</i>) Longnose Sucker (<i>Catostomus catostomus</i>) Burbot (<i>Lota lota</i>)

In its letter dated October 26, 2011, MDFW reported that no threaten, endangered or special concern fish species exist in the Facility area and/or its downstream reach.

APPENDIX E-1

Red Bridge Project

Massachusetts Division of Fisheries and Wildlife Letter, Dated October 26, 2011

The Massachusetts Division of Fisheries and Wildlife letter, dated October 26, 2011, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix E-1 Massachusetts Division of Fisheries and Wildlife Letter, Dated 2011_10_26.”



Red Bridge Dam (Spillway in the center) and Impoundment

APPENDIX F

Red Bridge Project

Cultural Resource Protection

The Facility is in compliance with all requirements regarding cultural resource protection, mitigation or enhancement included in its FERC exemption from license. In view of the results of discovery efforts and the SHPO's determination, the FERC found that the Facility would have no effect on any structure, site, building, district, or object listed in or eligible for listing in the National Register of Historic Places.

Commission staff specifically determined that exempting the proposed project would have no effect on National Register or eligible properties based on the Exemptee proposal to use the existing project works for its historic purpose.²⁹ Article 11 was included to require the Exemptee to notify the Commission of any property transfers.³⁰ Commission staff found that no properties of historic significance would be adversely affected by continued use of the project for hydropower as proposed. In addition, the possibility exists that properties could be adversely affected by unforeseen ground-disturbing activities or by project operation not already considered in the Environmental Assessment. For these reasons, Articles 12³¹ and 13³² were

²⁹ In fact, on February 22, 1993, the Project was included in the National Register of Historical Places as part of the Ludlow Village Historic District.

³⁰ Article 11 states that "In addition to the notification of the Commission required by standard article 9, and within 30 days of transferring any property interests, the exemption holder must inform the Commission's New York Regional Director of the identity and address of the transferee."

³¹ Article 12 states that "The Exemptee shall, before undertaking any construction activities at the project that would result in any modification of the existing historic facilities: (1) consult with the State Historic Preservation Officer (SHPO) concerning preliminary design of the new facilities to be constructed at the project to establish specific design criteria consistent with the Secretary of the Interior's "Standards for Rehabilitation; (2) afford the SHPO the opportunity to review preliminary and final design drawings of the new facilities; and (3) file the final design drawings, along with the SHPO's comments on the final design drawings, for Commission approval. The Exemptee shall undertake no construction activities at the project that would result in any modification of the existing historic facilities until informed by the Commission that the final design drawings have been approved."

³² Article 13 states that "The Exemptee, before starting any land-clearing or land-disturbing activities within the project boundaries, including recreation developments at the project and any construction activities or alterations at or within the historic Red Bridge Generating Station -- other than those land-clearing and land-disturbing activities, and construction activities and alterations at and within the historic Red Bridge Generating Station that are specifically authorized in this license -- shall consult with the State Historic Preservation Officer (SHPO).

"If the Exemptee discovers previously unidentified archeological or historic properties during the course of constructing or developing project works or other facilities at the project, the Exemptee shall stop all land-clearing and land-disturbing activities in the vicinity of the properties and consult with the SHPO.

"In either instance, the Exemptee shall file for Commission approval a cultural resource management plan (plan) prepared by a qualified cultural resource specialist after having consulted with the SHPO. The plan shall include the following items: (1) a description of each discovered property indicating whether it is listed on or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered

included to ensure that the Exemptee, before engaging in any ground disturbance not already considered in the Environmental Assessment, takes protective measures.

In 1999, the Exemptee proposed to install an automated slide gate at the spillway instead of minimum flow unit powerhouse. The new slide gate would be capable of releasing the required minimum flow from a single point on the spillway during full and low pond conditions. The CEEI indicated in the December 6, 1999 letter that the use of a new slide gate at the spillway is also acceptable to both the FWS and the MDFW.

Articles 12 and 13 of the exemption preclude adverse impacts to historic resources. Article 12 required CEEI to: (1) consult with the State Historic Preservation Officer (SHPO) before undertaking any construction activity that would result in any modification of the project's existing historic facilities; and (2) file, for Commission approval, its final design drawings, including SHPO's comments on these drawings. Article 13 required that CEEI consult with the SHPO and, if necessary, develop and implement a cultural resource management plan before undertaking any project-related construction activity that is not specifically authorized by the 1992 exemption order. Since the proposed automatic slide gate was not authorized by the subject order, CEEI was required to fulfill the measures delineated by Articles 12 and 13 before proceeding with its proposed installation.

Before the construction of the automated slide gate, MHC was consulted for its approval of the installation of the slide gate. With its letter, dated July 2, 2002, MHC consented to the installation of the slide gate and appropriate mitigation. In addition, in its letter September 27, 2011, MHC noted no known deficiencies of the Project.

property; (3) proposed measures for avoiding or mitigating effects; (4) documentation of the nature, extent, and results of consultation; and (5) a schedule for mitigating effects and conducting additional studies. The Commission may require changes to the plan.

“The Exemptee shall not begin land-clearing or land-disturbing activities within the project boundaries, including recreation developments at the project and any construction activities or alterations at or within the historic Red Bridge Generating Station complex -- other than those land-clearing and land-disturbing activities, and construction activities and alterations at and within the historic Red Bridge Generating Station complex that are specifically authorized in this license -- or resume such activities in the vicinity of a property, discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.”

APPENDIX F-1

Red Bridge Project

Massachusetts Historical Commission Letter, Dated July 2, 2002

The Massachusetts Historical Commission letter, dated July 2, 2002, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix F-1 Massachusetts Historical Commission Letter, Dated 2002_07_02.”



Chicopee River Immediately Downstream of Spillway

APPENDIX F-2

Red Bridge Project

Massachusetts Historical Commission Letter, Dated September 27, 2011

The Massachusetts Historical Commission letter, dated September 27, 2011, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix F-2 Massachusetts Historical Commission Letter, Dated 2011_09_27.”

APPENDIX G

Red Bridge Project

Recreation

The Facility is in compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license. In addition, the facility allows access to the reservoirs and downstream reaches without fees or charges.

The Red Bridge Project is located in a suburban/rural section of western Massachusetts. The major types of recreation at the Project are boating, fishing and hiking.

During the 1970's WMECO developed various recreational facilities in the Red Bridge Project area and then deeded these lands around the impoundment and below the powerhouse (with these recreation facilities) to the Commonwealth of Massachusetts. The facilities consist of a small boat access along the impoundment near the Red Bridge gatehouse, picnic facilities along the impoundment, a hiking trail following an abandoned railroad right-of-way generally paralleling the north shore of the impoundment and a small boat/canoe put-in below the Red Bridge powerhouse tailrace.

These facilities were developed by WMECO as a result of perceived demand at that time. The impoundment was (and still is) very scenic and supported a warmwater fishery. Walking for pleasure and jogging for exercise were then coming into vogue. Waterfowl hunting was popular in the fall, as was ice fishing during the winter. A large population could easily reach this area within a very few minutes of driving time.

At the impoundment, WMECO elected to develop a car-top boat access to allow fishermen, hunters and canoeists, etc. to gain access to the water.³³ A formal boat launch was decided against, based upon the small size of the impoundment periphery available for development. Picnic areas were developed along the impoundment where they would serve a dual usage, i.e., from walkers using the trail system to boaters using the impoundment. Walk-in fishermen, hunters, etc. also used the picnic facilities.

Below the power station, WMECO developed an access road leading to the tailrace area, where another small boat access (not a full-size boat launch) and picnic area were developed. All of these facilities (with the land) were turned over to the Commonwealth of Massachusetts, allowing the commonwealth to then inaugurate a "park" to serve the people in this area.

Although a scenic area, no portions of the Project area or areas affected by the Project have been identified or included in the National Wild and Scenic Rivers in the Nationwide Rivers Inventory. There are no areas along the Project that have been identified under the provisions of the Wilderness Act.

³³ Subsequently, the Commonwealth of Massachusetts developed a formal boat launch at the impoundment.

In its recent inspection report on the Project, the Commission noted two items that did not meet the requirements of the Project's Exemption from License. First, that the recreational facilities were not being maintained and, second, that lands had been transferred to others without first informing the Commission. On the first matter, the Commission orally and in e-mails stated that its findings were in error and that it had failed to delete from the inspection report the inapplicable portions of an inspection report of a different project when they prepared the Red Bridge inspection report.

On the second matter, the Commission requested a report on the subsequent transfers of recreational lands of the Project to others since it appeared to the inspector that these transfers had recently occurred. In a letter dated March 7, 2011,³⁴ NAEA informed the Commission that, among other things, these lands were conveyed to the Commonwealth of Massachusetts in 1973, nearly 16 years prior to the application for and 19 years since the issuance of the Exemption from Licensing.

Subsequently, FERC, Essential Power and others reviewed the responsibility for the maintenance of the Commonwealth of Massachusetts upstream boat ramp and downstream car-top boat launch. It was determined that two Commonwealth agencies (Massachusetts Department of Conservation and Recreation and Massachusetts Department of Fish and Game) are responsible for the maintenance of the boat ramp and boat launch while Essential Power is ultimately responsible for maintenance.

³⁴ See Appendix G-3, NAEA Letter, dated March 7, 2011, responding to FERC Environmental Inspection Report.

APPENDIX G-1

Red Bridge Project

Existing Recreational Facilities

A map of the Existing Recreational Facilities at the Red Bridge project may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Existing Recreational Facilities at the Red Bridge Project.”



Downstream Commonwealth of Massachusetts Car-top Boat Launch and Picnic Area at the confluence of the Tailrace and Spillway waters

APPENDIX G-2

RED BRIDGE PROJECT

FERC Environmental Inspection Report

A copy of FERC Environmental Inspection Report, dated November 4, 2010, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix G-2 FERC Environmental Inspection Report 2010_11_04.”



Chicopee River Downstream of Red Bridge Dam Spillway

APPENDIX G-3
RED BRIDGE PROJECT

NAEA Letter
Dated March 7, 2011

A copy of NAEA Letter, dated March 7, 2011, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix G-3 NAEA Letter 2011_03_07."



**Commonwealth of Massachusetts Boat Ramp
and Parking Lot Adjacent to Gatehouse**

APPENDIX G-4

RED BRIDGE PROJECT

FERC Letter, Dated October 12, 2011

A copy of FERC Letter, dated October 12, 2011, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled “Appendix G-4, FERC Letter, Dated 2011_10_12.”



Gatehouse with the Red Bridge on the far left

APPENDIX G-5

RED BRIDGE PROJECT

Massachusetts Department of Fish and Game Letter, Dated December 1, 2011

A copy of Massachusetts Department of Fish and Game Letter, dated December 1, 2011, may be found on the portion of the LIHI website devoted to the Red Bridge application and is titled "Appendix G-5, MDFG Letter, Dated 2011_12_01."

APPENDIX H

Red Bridge Project

Facilities Recommended for Removal

There is no resource agency recommendation for removal of the dam associated with the Facility.



Looking up the Chicopee River (Spillway) from the Commonwealth of Massachusetts Car-top Boat Launch and Picnic Area