

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

New England Hydropower Company, LLC

Project No. 14550-001

ORDER GRANTING EXEMPTION FROM LICENSING
(10 MW OR LESS)

(Issued May 19, 2016)

1. On June 26, 2015, as supplemented on September 4, 2015, September 29, 2015, and March 4, 2016, New England Hydropower Company, LLC (NEHC or applicant) filed an application to exempt its proposed 220-kilowatt (kW) Hanover Pond Dam Hydroelectric Project (Hanover Pond Project or project) from the requirements of Part I of the Federal Power Act (FPA).¹ The project will be located on the Quinnipiac River in the city of Meriden, in New Haven County, Connecticut.² The project will not use or occupy any federal facilities or land. As discussed below, this order issues an exemption from licensing for the project.

BACKGROUND

2. On September 16, 2015, the Commission issued a notice accepting the application and indicating the application was ready for environmental analysis.³ The notice

¹ The Commission is authorized to exempt from the licensing requirements of Part I of the FPA, small hydroelectric projects with an installed capacity of 10 megawatts or less (formerly 5 megawatts or less) that use for the generation of electricity either an existing dam (*i.e.*, one in existence on or before July 22, 2005) or a "natural water feature" without the need for any dam or impoundment. *See* sections 405 and 408 of the Public Utility Regulatory Policies Act of 1978, 16 U.S.C. §§ 2705 and 2708 (2012), *amended by* the Hydropower Regulatory Efficiency Act of 2013, Pub. L. No. 113-23, 127 Stat. 493 (2013) (amending, *inter alia*, section 405 to define "small hydroelectric power projects" as having an installed capacity that does not exceed 10 megawatts).

² The Quinnipiac River is a tributary of the Long Island Sound, a navigable waterway of the United States. Because the project will be located on a stream over which Congress has jurisdiction under the commerce clause, affect interstate commerce through its connection to an interstate power grid, and involve post-1935 construction, it is required to be licensed (or exempted from licensing) by the Commission pursuant to section 23(b)(1) of the FPA. *See* 16 U.S.C. § 817 (2012).

³ 80 Fed. Reg. 58,245 (Sept. 28, 2015).

established October 16, 2015, as the deadline for filing motions to intervene, comments, recommendations, and terms and conditions. On October 15 and 16, 2015, the U.S. Department of the Interior (Interior) and the National Marine Fisheries Services (NMFS), respectively, filed timely comments and terms and conditions. No other filings were received in response to the notice.

3. An Environmental Assessment (EA) was prepared by Commission staff and is being issued concurrently with this order. The EA analyzes the effects of the proposed project and alternatives to it. The EA contains background information, an analysis of project impacts, and support for the requirements of this exemption from licensing. Based on the record of the proceeding, including the EA, granting an exemption from licensing for the Hanover Pond Project would not constitute a major federal action significantly affecting the quality of the human environment.

4. The comments and terms and conditions have been fully considered in determining whether, and under what conditions, to issue this exemption.

PROJECT DESCRIPTION

5. The project will use the water power potential of the existing 25-foot-high, 397-foot-long concrete and earthen Hanover Pond dam. The dam includes a 150-foot-long earthen embankment and a 247-foot-long concrete spillway that is composed of five sections, including: (1) a 40-foot-long portion with an ogee crest elevation of 87.3 feet National Geodetic Vertical Datum 1929 (NGVD 29), (2) a 147-foot-long portion with a broad crest elevation of 87.3 feet NGVD 29, (3) a 40-foot-long portion with an ogee crest elevation of 87.0 feet NGVD 29, (4) a 6-foot-long portion (i.e., low-flow notch) with an ogee crest elevation of 86.3 feet NGVD 29, and (5) a 14-foot-long portion with an ogee crest elevation of 88.3 feet NGVD 29. Adjacent to the dam is an existing 40-foot-long training wall with four 4-foot-wide, 4.5-foot-high intake sluice gates, an existing 12-foot-wide, 13-foot-high sluice outlet flume, and an existing 175-foot-long, 16-foot-wide, 15-foot-high enclosed concrete Denil fish ladder, owned by the city of Meriden and operated by the Connecticut Department of Energy and Environmental Protection (Connecticut DEEP). The dam creates a 71-acre impoundment (Hanover Pond) that has a normal water surface elevation of 87.3 feet NGVD 29.

6. In addition to the facilities described above, the project will include the following new facilities: (1) a 12-foot-wide, 8-foot-high intake structure with a trashrack with 9-inch clear bar spacing; (2) a 78-foot-long, 12-foot-wide, 8-foot-deep buried concrete penstock channel; (3) an 18-foot-long, 16-foot-wide, 12-foot-high brick and concrete powerhouse; (4) a 46.5-foot-long, 12-foot-diameter steel and concrete turbine bay, containing a 46.5-foot-long, 11.65-foot-diameter 220-kW Archimedes screw turbine-generator unit; (5) a 15-foot-long concrete tailrace; (6) a 45-foot-long, 3-foot-wide, 2-

foot-deep fish passage channel with boulder guide-wall;⁴ (7) an automatic controller and water-level sensor; (8) a 300-kilovolt-amp transformer; and (9) a 500-foot-long, 35-kilovolt above-ground transmission line connecting the powerhouse electrical panel to Connecticut Light and Power's regional distribution grid.

7. When operating, the project will bypass a 65-foot-long reach of the Quinnipiac River from the dam to the tailrace. During project operation, water will pass through the new trashrack, intake structure, and buried penstock channel into the new powerhouse and bay containing the Archimedes screw turbine-generator unit. Water passing through the turbine will be discharged into the new tailrace. Power will be transmitted through the new transmission line connecting the powerhouse to the regional distribution grid.

8. The proposed project boundary encloses all the project facilities described above, except for the toe of the dam spillway, which is discussed further below.

9. NEHC proposes to operate the project in a run-of-river mode, whereby outflow from the project will equal inflow at all times, and water levels in Hanover Pond will not be drawn down for electric generation. NEHC proposes to release a year-around minimum flow of 30 cubic feet per second (cfs) to the bypassed reach or flows sufficient to provide a depth of at least 2 feet in the new and existing fish passage channels (whichever is greater).⁵ During the fish passage seasons (i.e., from April 1 to June 30 and from October 1 to November 15), NEHC proposes to release 23.5 cfs through the low-flow notch and provide 6.5 cfs for operation of the Denil fish ladder.⁶ At all other times, NEHC proposes to release the entire 30-cfs through the low-flow notch.

⁴ The new fish passage channel would merge with an existing 65-foot-long, 5-foot-wide, 2-foot-deep fish passage channel that is located downstream of the entrance to the Denil fish ladder. The existing fish passage channel guides fish to the entrance to the Denil fish ladder and the new channel would guide any fish that are attracted to the turbine discharge, from the tailrace to the existing fish passage channel.

⁵ The agencies indicate that a minimum water depth of two feet is necessary in the channels to provide effective upstream passage.

⁶ The Connecticut DEEP currently operates the Denil fish ladder by pulling out and replacing all the boards at the fish ladder's exit into Hanover Pond. In a letter to NEHC dated June 16, 2015, Connecticut DEEP indicates that it will continue to operate and maintain the existing fish ladder after the project commences operation.

10. The Archimedes screw turbine-generator unit will have a minimum hydraulic capacity of 10 cfs and a maximum hydraulic capacity of 194 cfs. At flows less than 40 cfs (the minimum hydraulic capacity plus the minimum bypassed flow), the project will not operate, and all flow will be released through the low-flow notch or a combination of the low-flow notch and fish ladder. At flows between 40 cfs and 224 cfs (the maximum hydraulic capacity plus the minimum bypassed flow), the project will operate and 30 cfs will be released through the low-flow notch or a combination of the low-flow notch and the fish ladder. At flows greater than 224 cfs, the project will operate at its maximum capacity, and all remaining flow will pass over the spillway or a combination of the spillway and fish ladder. During floods, NEHC will shut the project down and all flow will pass over the spillway.

11. The project will have an estimated average annual generation of 900 megawatt-hours (MWh).

12. In addition to releasing the 30-cfs minimum flow and operating the project in run-of-river mode, NEHC proposes to: (1) implement best management practices to minimize soil erosion and in-river siltation during project construction; (2) prepare an Invasive Species Monitoring and Control Plan to map existing invasive species, monitor the project area for invasive species periodically, and initiate an early detection and rapid response protocol for infestations of invasive species; (3) develop and implement an operation, maintenance, and monitoring plan to ensure the project operates in run-of-river mode and provides the required minimum flow; (4) evaluate downstream fish passage survival through the sluice gates and Archimedes screw turbine; (5) conduct a pre-construction freshwater mussel survey to locate and identify any mussels present in the project area and relocate the mussels prior to construction, if necessary; (6) conduct a fish ladder use study; (7) install a trap to collect juvenile eels attracted to the project tailrace for release upstream of the dam; (8) conduct a water quality monitoring survey for up to 3 years after the project begins operation to determine if project modifications are needed to protect water quality; (9) implement an impoundment refill procedure after drawdowns associated with dam maintenance or emergencies where no more than 10 percent of inflow is stored and 90 percent of inflow is released to protect habitat and water quality downstream of the dam; (10) install signage to identify an existing portage around the western end of the dam; and (11) plant vegetation to minimize the visual impacts of project facilities.

WATER QUALITY CERTIFICATION

13. On April 15, 2016, the Connecticut DEEP issued a water quality certification for the Hanover Pond Project. The certification contains 28 conditions (14 special conditions and 14 general conditions). Those conditions are contained in Appendix C to this order and made conditions of the exemption by ordering paragraph (A).

FPA SECTION 30(c) CONDITIONS

14. Pursuant to section 405 of Public Utility Regulatory Policies Act (PURPA),⁷ 10-megawatt exemptions are subject to the requirements of section 30(c) of the FPA,⁸ which provides, among other things, that the Commission “shall include in any such exemption ... such terms and conditions as the Fish and Wildlife Service, National Marine Fisheries Service, and the State [fish and wildlife] agency each determine are appropriate to prevent loss of, or damage to, [fish and wildlife] resources” Article 2 of all exemptions requires compliance with the terms and conditions filed by federal and state fish and wildlife agencies to protect fish and wildlife resources (section 30(c) conditions).⁹

15. On October 15, 2015, Interior submitted 14 section 30(c) conditions that require the exemptee to: (1) operate the project in an instantaneous run-of-river mode; (2) construct a new fish passage channel in the bypassed reach; (3) provide a continuous minimum flow of 30 cfs to the bypassed reach or flows sufficient to operate the fish ladder and provide a depth of at least 2 feet (whichever is greater) in the fish passage channels, subject to available inflow to Hanover Pond; (4) install a trashrack with no less than 9-inch clear bar spacing; (5) conduct water quality monitoring for a minimum of 3 years after the start of project operation; (6) develop a plan for monitoring and maintaining the minimum flow and run-of-river operation; (7) conduct a pre-construction freshwater mussel survey to document the identity and locations of mussels in the project area and develop a protocol to relocate mussels that may be affected by construction or head pond drawdowns; (8) ensure protection of migratory fish by: (i) evaluating upstream passage through the existing Denil fish ladder, (ii) evaluating downstream passage survival through the intake sluice gate and Archimedes screw turbine, and (iii) operating an eel trap to collect juvenile American eels that are attracted to the tailrace for release upstream of the dam; (9) implement impoundment refill procedures after drawdowns for maintenance or emergencies; (10) prepare an invasive species monitoring and control plan to map existing invasive species, monitor the area periodically, and initiate a response protocol for infestations; (11) notify Interior when the project commences operation and provide a set of as-built drawings; (12) allow Interior to inspect the project during project operation; (13) file with the Commission any additional or altered conditions required by Interior; and (14) incorporate in any conveyance (by lease, sale, or otherwise) of the project, the terms and conditions of the exemption.

⁷ 16 U.S.C. § 2705(b) (2012).

⁸ 16 U.S.C. § 823a(c) (2012).

⁹ *See* 18 C.F.R. § 4.106 (2015).

16. On October 16, 2015, NMFS submitted nine section 30(c) conditions that require the exemptee to: (1) operate the project in an instantaneous run-of-river mode; (2) provide a continuous minimum flow of 30 cfs to the bypassed reach or flows sufficient to operate the fish ladder and provide a depth of at least 2 feet (whichever is greater) in the fish passage channels, subject to available inflow to Hanover Pond; (3) construct a new fish passage channel in the bypassed reach; (4) install trashracks with no less than 9-inch clear bar spacing; (5) ensure protection of migratory fish by: (i) evaluating upstream passage through the existing Denil fish ladder, (ii) evaluating downstream passage survival through the Archimedes screw turbine, and (iii) operating an eel trap to collect juvenile American eels that are attracted to the tailrace for release upstream of the dam; (6) notify NMFS when the project commences operation and provide a set of as-built drawings; (7) allow NMFS to inspect the project area during project operation; (8) file with the Commission any additional or altered conditions required by NMFS; and (9) incorporate in any conveyance (by lease, sale, or otherwise) of the project, the terms and conditions of the exemption.

17. The section 30(c) conditions are set forth in Appendices A and B of this order and are incorporated into the exemption by ordering paragraph (A).

THREATENED AND ENDANGERED SPECIES

18. Section 7(a)(2) of the Endangered Species Act of 1973¹⁰ requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of the critical habitat of such species.

19. One federally listed species, the threatened Northern long-eared bat is known to occur in New Haven County;¹¹ however, the species has not been documented in the immediate project area and there is no known habitat for this species in the project area. In the EA, Commission staff concludes that because the Northern long-eared bat is not known to inhabit the project area and the construction, operation, and maintenance of the proposed project would not substantially alter the existing environment or any potential bat roosting habitat (i.e. no trees would be removed), issuing an exemption order for the proposed project would have no effect on the Northern long-eared bat.¹² Therefore, no further action under the Endangered Species Act is required.

¹⁰ 16 U.S.C. § 1536(a) (2012).

¹¹ <http://ecos.fws.gov/ipac/>

¹² See EA at 11.

NATIONAL HISTORIC PRESERVATION ACT

20. Under section 106 of the National Historic Preservation Act¹³ and its implementing regulations,¹⁴ federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Office (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

21. The Hanover Pond dam was constructed in 1855 to provide hydro-mechanical power to the Meriden Cutlery Company (Meriden). In addition to supporting Meriden's business, which ceased in 1984, the dam historically provided pond ice to local stores and homes during the winter. Hanover Pond dam was substantially reconstructed in 2005 and 2006.

22. By letter dated September 25, 2014, the Connecticut SHPO indicated that issuing an exemption from licensing for the proposed project would have "no potential to cause effects" on historic properties.¹⁵ The EA concludes that because there are no historic properties within the project's area of potential effects, issuing an exemption from licensing for the project will have no adverse effect on historic properties.¹⁶

23. However, certain project modifications not specifically authorized by this exemption could adversely affect cultural resources.¹⁷ Therefore, Article 29 requires the exemptee to consult with the Connecticut SHPO prior to conducting any such project modifications to determine the effects of the activities and the need for protection measures.

24. While the project will have no adverse effects on known historic properties, cultural resources could be discovered during the course of constructing or operating the project; therefore, Article 30 requires the exemptee to stop work and consult with the

¹³ Section 106 of the National Historic Preservation Act of 1966, as amended, 54 U.S.C. § 306108, Pub. L. No. 113-287, 128 Stat. 3188 (2014).

¹⁴ 36 C.F.R. Part 800 (2015).

¹⁵ See Appendix C of the Initial Consultation Document filed on October 27, 2014.

¹⁶ See EA at 11.

¹⁷ Such modifications could include painting project facilities or landscaping.

Connecticut SHPO if previously unidentified cultural resources are discovered during project construction or operation.

OTHER MEASURES

25. In its application, NEHC proposes to release 30 cfs into the bypassed reach through the fish ladder and/or low flow notch which it expects will be adequate to operate the fish ladder and maintain a 2-foot depth in the two fish passage channels. NEHC indicates that it would increase the minimum flow if necessary to maintain a 2-foot depth in the fish passage channels. Interior's 30(c) condition 3, NMFS's 30(c) condition 2, and Connecticut DEEP's certification special condition 2 require NEHC to, subject to inflow, provide a continuous flow of 30 cfs to the bypassed reach or, when the fish ladder and fish passage channels are operating, the greater of 30 cfs or the flows necessary to operate the existing fish ladder and provide 2 feet of depth in the two low flow fish passage channels. However, neither NEHC nor the agencies describe how water depth is to be measured in the fish passage channels. Therefore, Article 28 modifies the plan required by Interior's condition 6 in Appendix A and Connecticut DEEP's special condition 8 in Appendix C to include the methods and procedures for measuring and reporting the water depth in the fish passage channels after the project has commenced operation and has begun releasing the required minimum flow.

ADMINISTRATIVE PROVISIONS

26. All projects exempted from licensing under Part I of the FPA are subject to standard terms and conditions. These terms and conditions are included as standard Articles 1 through 9. Special Articles 10 through 30, which provide for administration of the exemption from licensing and dam safety, are also included in this exemption.

A. Annual Charges

27. The Commission collects annual charges from exemptees for the administration of its hydropower program.¹⁸ However, as explained in Article 10, under the regulations currently in effect, projects with an authorized installed capacity of 1,500 kW or less, like this project, are not currently assessed an annual charge.

B. Start of Construction

28. Standard Article 3 provides that the Commission may revoke the exemption if actual construction of the project's generating facilities has not begun within two years or has not been completed within four years from the date this exemption is granted. Additionally, Article 11 is included in this exemption and states that the Commission

¹⁸ See 18 C.F.R. § 11.1(b)(2) (2015).

may terminate the exemption if the construction of any other project works described in this exemption has not begun within two years or is not completed within four years of the date this exemption is issued.¹⁹

C. Exhibit F and G Drawings

29. The Commission requires exemptees to file sets of approved project drawings in electronic format. The Exhibit F drawings labeled CS-101, CS-106, and CD-501 filed on September 4, 2015, are approved and made part of this exemption. The Exhibit G drawing labeled CS-101 filed on September 29, 2015, is approved and made part of this exemption. The approved Exhibit F and G drawings must be filed in electronic file format as required by sections 4.39 and 4.41 of the Commission's regulations (Article 12).²⁰

30. The Exhibit G drawings labeled CS-102 and CS-103 filed on September 29, 2015, do not enclose the downstream toe of the dam spillway within the project boundary. Further, drawing CS-103 does not include three known reference points. For these reasons, the Exhibits G drawings labeled CS-102 and CS-103 are not approved. Article 13 requires the exemptee to file revised Exhibit G drawings that: (1) enclose within the project boundary all principal project works necessary for operation and maintenance of the project, including the downstream toe of the dam spillway; and (2) show three known reference points.

31. Where new construction or modifications to the project are involved, the Commission requires licensees to file revised drawings of project features as-built. Article 14 provides for the filing of these drawings.

D. Project Safety

32. Ensuring the safety of all jurisdictional dams is an important public interest function of the Commission. A dam failure could result in property damage and could also result in significant negative environmental effects. In the interest of ensuring the safety of this project, Article 15 is included in this exemption and requires the exemptee to comply with Part 12 (Safety of Water Power Projects and Project Works) of the

¹⁹ The start-of-construction deadline in standard Article 3 (contained in the attached Form E-2) refers to the project's generating facilities. The deadline in special Article 11 applies to on-the-ground construction of other project facilities.

²⁰ 18 C.F.R. §§ 4.39 and 4.41(g)-(h) (2015).

Commission's regulations, which governs the safety of water power projects and project works.²¹

E. Operation and Maintenance

33. Ensuring that the exempted project is operated and maintained as required by this exemption is an important public interest function of the Commission. Therefore, Article 16 is included in this exemption and states that if the exemptee causes or allows essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, the Commission will deem it the exemptee's intent to surrender the exemption.

F. Exemptee Liability

34. Section 10(c) of the FPA provides that licensees, and not the United States, are liable for "damages occasioned to the property of others by the construction, maintenance, or operation of the project works" ²² To clarify that exemptees are similarly liable, Article 17 is included in this exemption and states that the exemptee is liable for damages to the property of others.

G. Conservation and Development of Fish and Wildlife Resources

35. Changes in environmental conditions or identification of previously unknown project effects on fish and wildlife resources may warrant changes to project requirements to protect fish and wildlife. Therefore, Article 18 provides that the Commission may on its own motion, or on the recommendation of the federal or state fish and wildlife agencies, require the exemptee to modify project structures or operation or construct, maintain, and operate facilities for the conservation and development of fish and wildlife resources.

H. Project Financing

36. To ensure that there are sufficient funds available for project construction, operation, and maintenance, Article 19 requires the exemptee to file for Commission approval documentation of project financing for the construction, operation, and maintenance of the project at least 90 days before starting project construction.

²¹ 18 C.F.R. Part 12 (2015). Special Article 15 is broader than standard Article 8 (contained in the attached Form E-2), which essentially is subsumed in special Article 15.

²² 16 U.S.C. § 803(c) (2012).

I. Property Rights

37. Pursuant to 18 C.F.R. § 4.31(c)(2)(ii), an applicant for exemption is required to demonstrate that, at the time it files its exemption application, it has sufficient rights to any non-federal land and facilities required for the construction and operation of the project. NEHC's application, as supplemented, contains documentation that it has the necessary property rights to develop and operate the project. However, because an exemption is issued in perpetuity, Article 20 is included in this exemption and reserves the Commission's authority to terminate the exemption if in the future the exemptee fails to maintain sufficient rights to comply with the terms and conditions of the exemption.

J. Commission Approval of Resource Plans, Notification, and Filing of Reports and Amendments

38. Certain of the section 30(c) conditions (Appendices A and B) and water quality certification conditions (Appendix C) do not require the exemptee to file plans with the Commission for approval; do not require the exemptee to file reports with the Commission; require notice to Interior or NMFS, but not the Commission, of emergencies and other activities; or contemplate unspecified long-term changes to project operation or facilities without prior Commission approval. Therefore, Article 27 requires the exemptee to file plans with the Commission for approval, file reports with the Commission, notify the Commission of planned and unplanned deviations from the exemption requirements, and file amendment applications, as appropriate.

K. Review of Final Plans and Specifications

39. To ensure the exemptee is constructing and operating a safe and adequate project, Articles 21 through 26 require the exemptee to provide the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Office, for its review and approval: contract plans and specifications; cofferdam and deep excavation construction drawings, as appropriate; an independent consultant's inspection report; a project owner's dam safety program; a public safety plan; and project modifications resulting from environmental requirements.

40. The exemptee may not begin any construction until the D2SI – New York Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized, in writing, the start of construction.

The Director orders:

(A) Effective the date this order is issued, the Hanover Pond Dam Hydroelectric Project is exempted from Part I of the Federal Power Act (FPA), subject to the conditions submitted by the U.S. Department of the Interior and the National Marine Fisheries

Service under section 30(c) of the FPA as those conditions are set forth in Appendices A and B of this order, the conditions in Appendix C, and the articles specified below.

(B) The project consists of:

(1) All lands, to the extent of the exemptee's interests in these lands, enclosed by the project boundary shown by the Exhibit G drawing labelled CS-101 filed September 29, 2015:

<u>Exhibit G Drawing</u>	<u>FERC No. 14550-001</u>	<u>Application Drawing No.</u>	<u>Description</u>
G-1	1	CS-101	Project Boundary Map

(2) The following project works: (1) an existing 25-foot-high, 397-foot-long concrete and earthen Hanover Pond dam with a 150-foot-long earthen embankment and a 247-foot-long concrete spillway composed of five sections, including: (i) a 40-foot-long portion with an ogee crest elevation of 87.3 feet National Geodetic Vertical Datum 1929 (NGVD 29), (ii) a 147-foot-long portion with a broad crest elevation of 87.3 feet NGVD 29, (iii) a 40-foot-long portion with an ogee crest elevation of 87.0 feet NGVD 29, (iv) a 6-foot-long portion (i.e. low-flow notch) with an ogee crest elevation of 86.3 feet NGVD 29, and (v) a 14-foot-long portion with an ogee crest elevation of 88.3 feet NGVD 29; (2) an existing 71-acre impoundment (Hanover Pond) with a storage capacity of 1,800-acre-feet at elevation of 87.3 feet NGVD 29; (3) an existing 40-foot-long training wall with four 4-foot-wide, 4.5-foot-high intake sluice gates; (4) an existing 12-foot-wide, 13-foot-high sluice outlet flume; (5) an existing 175-foot-long, 16-foot-wide, 15-foot-high enclosed concrete Denil fish ladder; (6) a new 12-foot-wide, 8-foot-high intake structure; (7) a new 12-foot-wide, 8-foot-high trashrack with 9-inch clear bar spacing; (8) a new 78-foot-long, 12-foot-wide, 8-foot-deep buried concrete penstock channel; (9) a new 18-foot-long, 16-foot-wide, 12-foot-high brick and concrete powerhouse; (10) a new 46.5-foot-long, 12-foot-diameter steel and concrete turbine bay containing a 46.5-foot-long, 11.65-foot-diameter 220-kilowatt Archimedes screw turbine-generator unit; (11) a new 15-foot-long concrete tailrace; (12) a new 45-foot-long, 3-foot-wide, 2-foot-deep fish passage channel and boulder guide wall; (13) a new automatic controller and water-level sensor; (14) a new 300-kilovolt-amp transformer; (15) a new 500-foot-long, 35-kilovolt above-ground transmission line connecting the powerhouse electrical panel to Connecticut Light and Power's regional distribution grid; and (16) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A, F, and G above and below:

Exhibit A: Pages A-1 through A-8 filed on June 26, 2015, and the project description filed September 4, 2015.

Exhibit F: The following Exhibit F drawings filed on September 4, 2015:

<u>Exhibit F Drawing</u>	<u>FERC No. 14550-001</u>	<u>Application Drawing No.</u>	<u>Description</u>
F-1	2	CS-101	Existing Conditions Plan
F-2	3	CS-106	Proposed Structure and Turbine Channel Layout Plan
F-3	4	CD-501	Archimedes Screw Generator Assembly Details

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A, F, and G described above are approved and made part of the exemption.

(D) This exemption is also subject to the articles set forth in Form E-2 entitled, "Standard Terms and Conditions of Exemption from Licensing," as reproduced at the end of this order, and the following additional articles:

Article 10. Administrative Annual Charges. The exemptee must pay the United States annual charges, effective as of the start of project construction, as determined in accordance with the provisions of the Commission's regulations in effect from time to time, for the purpose of reimbursing the United States for the cost of administration of the Commission's hydropower program. The authorized installed capacity for that purpose is 220 kilowatts. Under the regulations currently in effect, projects with authorized installed capacities of less than or equal to 1,500 kilowatts will not be assessed an annual charge.

Article 11. Start of Construction. The Commission may terminate this exemption if the actual construction of any project works has not begun within two years or has not been completed within four years from the issuance date of this exemption. If an exemption is terminated under this article, the Commission will not accept from the prior exemption holder a subsequent application for exemption from licensing for the same project within two years of the termination.

Article 12. Exhibit Drawings. Within 45 days of the date of issuance of this exemption, as directed below, the exemptee must file two sets of the approved exhibit drawings in electronic file format on compact disks with the Secretary of the Commission, ATTN: OEP/DHAC.

(a) Digital images of the approved exhibit drawings must be prepared in electronic format. Prior to preparing each digital image, the FERC Project-Drawing Number (i.e., P-14550-1 through P-14550-4) must be shown in the margin below the title block of the approved drawing. Exhibit F drawings must be segregated from other project exhibits and identified as critical energy infrastructure information (CEII) material under 18 C.F.R. § 388.113(c). Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this exemption, and file extension in the following format [P-14550-4, G-1, Project Boundary, MM-DD-YYYY.TIF]. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY – black & white raster file

FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
(also known as T.6 coding scheme)

RESOLUTION – 300 dots per inch (dpi) desired, (200 dpi minimum)

DRAWING SIZE FORMAT – 22” x 34” (minimum), 24” x 36” (maximum)

FILE SIZE – less than 1 megabyte desired

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points (i.e., latitude and longitude coordinates, or state plane coordinates). The points must be arranged in a triangular format for GIS georeferencing the project boundary drawing to the polygon data, and must be based on a standard map coordinate system. The spatial reference for the drawing (i.e., map projection, map datum, and units of measurement) must be identified on the drawing and each reference point must be labeled. In addition, each project boundary drawing must be stamped by a registered land surveyor.

(b) The exemptee must file two separate sets of the project boundary GIS data on compact disks with the Secretary of the Commission, ATTN: OEP/DHAC. The data must be in a georeferenced electronic file format (such as ArcView shape files, GeoMedia files, MapInfo files, or a similar GIS format). The filing must include both polygon data and all reference points shown on the individual project boundary drawings. An electronic boundary polygon data file(s) is required for each project development. Depending on the electronic file format, the polygon and point data can be included in single files with multiple layers. The georeferenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) must include: FERC Project Number, data description, date of this License, and file extension in the following format [P-1234, boundary polygon/or point data, MM-DD-YYYY.SHP]. The data must be accompanied by a separate text file describing the spatial reference for the georeferenced data: map projection used (i.e., UTM, State Plane, Decimal Degrees, etc.), the map datum (i.e., North American 27, North American 83, etc.), and the units of measurement

(i.e., feet, meters, miles, etc.). The text file name must include: FERC Project Number, data description, date of this License, and file extension in the following format [P-1234, project boundary metadata, MM-DD-YYYY.TXT].

Article 13. *Exhibit G Drawing.* Within 45 days of issuance of this exemption, the exemptee must file, for Commission approval, revised Exhibit G drawings (i.e., CS-102 and CS-103) that enclose within the project boundary all principal project works necessary for operation and maintenance of the project, including the downstream toe of the spillway, and show three known reference points. The Exhibit G drawings must comply with sections 4.39 and 4.41 of the Commission's regulations.

Article 14. *As-built Exhibits.* Within 90 days of completion of construction of the facilities authorized by this exemption, the exemptee must file for Commission approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as built.

Article 15. *Part 12 Requirements.* This project is subject to Part 12 of the Commission's regulations, 18 C.F.R. Part 12 (as they may be amended from time to time). For the purposes of applying these provisions of Part 12, the exempted project is deemed to be a licensed project development and the owner of the exempted project is deemed to be a licensee.

Article 16. *Operation and Maintenance.* The Commission may determine that the exemptee has impliedly surrendered this exemption if essential project property is removed or destroyed or becomes unfit for use, without adequate replacement; or if the project is abandoned or good faith project operation or maintenance is discontinued; or if the exemptee refuses or neglects to comply with the terms of the exemption and the orders of the Commission.

Article 17. *Liability.* This exemption is subject to the provisions of section 10(c) of the Federal Power Act, 16 U.S.C. § 803(c) (2012). That section provides that the exemptee must be liable for all damages occasioned to the property of others by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto, constructed under this exemption; and in no event shall the United States be liable therefore.

Article 18. *Conservation and Development of Fish and Wildlife Resources.* The exemptee must, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior, the Secretary of Commerce, or the fish and wildlife agency or agencies of any state in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 19. Documentation of Project Financing. At least 90 days before starting construction, the exemptee must file with the Commission, for approval, the exemptee's documentation for the project financing. The documentation must show that the exemptee has acquired the funds, or commitment for funds, necessary to construct the project in accordance with this order. The documentation must include, at a minimum, financial statements, including a balance sheet, income statement, and a statement of actual or estimated cash flows which provide evidence that the exemptee has sufficient assets, credit, and projected revenues to cover project construction, operation, and maintenance expenses, and any other estimated project liabilities and expenses.

The financial statements must be prepared in accordance with generally accepted accounting principles and signed by an independent certified public accountant. The exemptee must not commence project construction until the filing is approved.

Article 20. Property Rights. The Commission reserves the right to require the exemptee to obtain additional property rights, if such rights become necessary to develop, operate, or maintain the project or to achieve compliance with the terms and conditions of the exemption. The Commission may terminate this exemption if, at any time, the exemptee does not hold sufficient property rights in the land or project works necessary to develop, maintain, and operate the project.

Article 21. Commission's Review of Contract Plans and Specifications. At least 60 days prior to the start of any construction, the exemptee must submit one copy of its plans and specifications and a supporting design document to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer, and two copies to the Commission (one of these must be a courtesy copy to the Director, D2SI). The submittal to the D2SI – New York Regional Engineer must also include as part of preconstruction requirements: a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan required by special condition 3 of the water quality certification issued by Connecticut Department of Energy and Environmental Protection. The exemptee may not begin any construction activities until the D2SI – New York Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized the start of construction.

Article 22. Cofferdam and Deep Excavation Construction Drawings. Should construction require cofferdams or deep excavation, the exemptee must: (1) have a Professional Engineer who is independent from the construction contractor, review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction; and (2) ensure that construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of any cofferdams or deep excavations, the exemptee must submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer and two copies to the Commission (one of these copies must be a courtesy copy

to the Director, D2SI) of the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval.

Article 23. Inspection by Independent Consultant. In accordance with Part 12D §12.38 of the Commission's Regulations, the initial independent consultant's inspection of the project must be completed and the report on the inspection filed within two years of the issuance date of the exemption. Information on specific inspection and report requirements can be found in Part 12D §12.35 and §12.37 of the Commission's Regulations.

Article 24. Project Owner's Dam Safety Program. Within 90 days of the issuance date of the exemption, the exemptee must submit to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer, a Project Owner's Dam Safety Program which at a minimum must demonstrate a clear acknowledgement of the project owner's responsibility for the safety of the project, an outline of the roles and responsibilities of the dam safety staff, and access of the dam safety official to the Chief Executive Officer. For guidance on preparing a Project Owner's Dam Safety Program the exemptee should reference the information posted on the FERC website.

Article 25. Project Modification Resulting From Environmental Requirements. If environmental requirements under this exemption require modifications to the project that may affect project works or operations, the exemptee must consult with the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer. Consultation must allow sufficient review time for the Commission to ensure that the proposed work does not adversely affect the project works, dam safety, or project operation.

Article 26. Public Safety Plan. Within 60 days of the issuance date of the exemption, the exemptee must submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer and two copies to the Commission (one of these copies must be a courtesy copy to the Commission's Director, D2SI) of a Public Safety Plan. The plan must include an evaluation of public safety concerns at the project site and assess the need for the installation of safety devices or other safety measures. The submitted plan must include a description of all public safety devices and signage, as well as a map showing the location of all public safety measures. For guidance on preparing public safety plans the exemptee can review the *Guidelines for Public Safety at Hydropower Projects* on the FERC website.

Article 27. Commission Approval, Reporting, Notification, and Filing of Amendments.

- (a) Requirement to File Plans for Commission Approval

Various conditions of this exemption found in the U.S. Department of the Interior's (Interior) and the U.S. Department of the Commerce, National Marine Fisheries Service's (NMFS) conditions issued pursuant to section 30(c) of the Federal Power Act (Appendix A and Appendix B, respectively) and the Connecticut Department of Energy and Environmental Protection's (Connecticut DEEP) water quality certification (certification) conditions issued pursuant to section 401 of the Clean Water Act (Appendix C), require the exemptee to prepare plans, but do not require all plans to be submitted to the Commission for approval or specify a date for filing. The following table indicates the deadlines for filing the plans with the Commission for approval.

Interior 30 (c) condition no.	NMFS 30 (c) condition no.	Connecticut DEEP certification	Plan Name	Date Due
		Special Condition 3 and General Terms and Condition 10	Erosion, Sediment, and Spill Control Plan	Within 6 months of exemption issuance
2	3	Special Condition 4	Fish Passage Channel Plan	Within 6 months of exemption issuance
5		Special Conditions 6 and 7	Water Quality Monitoring Plan	Within 1 year of exemption issuance
6		Special Condition 8	Operation Maintenance and Monitoring Plan	Within 6 months of exemption issuance
7a		Special Condition 9a	Freshwater Mussel Survey Plan	Within 6 months of exemption issuance
8a	5A	Special Condition 10a	Fish Ladder Utilization Study Plan	Within 6 months of exemption issuance
8c		Special Condition 10c	Sluice Gate Evaluation Plan	Within 2 years of exemption issuance
8d	5B	Special Condition 10d	Archimedes Screw Turbine Injury and Mortality Assessment Plan	Within 2 years of exemption issuance
8e	5C	Special Condition 10e	Eel Trap Plan	Within 2 years of exemption issuance

Interior 30 (c) condition no.	NMFS 30 (c) condition no.	Connecticut DEEP certification	Plan Name	Date Due
10			Invasive Species Monitoring and Control Plan	Within 9 months of exemption issuance

The exemptee must include with each plan, documentation that the plan has been approved by Interior, NMFS, and Connecticut DEEP, as appropriate. The Commission reserves the right to make changes to the plan. Upon Commission approval, the plan becomes a requirement of the exemption, and the exemptee must implement the plan, including any changes required by the Commission.

(b) Requirement to File Reports

Certain conditions specified by Interior, NMFS, and Connecticut DEEP require the exemptee to provide information or reports. These reports will document compliance with requirements of this exemption and may have bearing on future actions. Each such report must also be submitted to the Commission. These reports are listed below.

Interior 30(c) condition no.	NMFS 30(c) condition no.	Connecticut DEEP certification	Description	Due date
5		Special Conditions 6 and 7	Water Quality Monitoring Report	Within 5 years of exemption issuance
7a		Special Condition 9a	Freshwater Mussel Survey Report	Within 18 months of exemption issuance
8a	5A	Special Condition 10a	Fish Ladder Utilization Study Report	Within 3 years of exemption issuance
8c		Special Condition 10c	Sluice Gate Evaluation Report	Within 3 years of exemption issuance
8d	5B	Special Condition 10d	Archimedes Screw Turbine Injury and Mortality Assessment Report	Within 3 years of exemption issuance

8e	5C	Special Condition 10e	Eel Trap Collection Report	By December 1 each year after the project commences operation
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The exemptee must submit to the Commission documentation of any consultation with Interior, NMFS, and Connecticut DEEP, and copies of any comments and recommendations made by the agencies in connection with each report. The Commission reserves the right to require changes to project operations or facilities based on the information contained in the report and any other available information.

(c) Requirement to Notify Commission of Deviations from Exemption Requirements

Various conditions required by Interior, NMFS, and Connecticut DEEP allow the exemptee to temporarily modify project operation under certain conditions. The exemptee must notify the Commission of these temporary modifications according to the schedule provided below.

Interior 30(c) condition no.	NMFS 30(c) condition no.	Connecticut DEEP certification	Notification requirement	Due date
1	1	Special Condition 1	Notification of temporary modification of project operation	Within 10 days of each occurrence
9		General Terms & Conditions 11	Notification of temporary refill procedure modification	Within 10 days of each occurrence

In addition to the notifications required above, the exemptee must notify the Commission within 30 days of the project commencing operation.

(d) Requirement to File Amendment Applications

Some conditions required by Interior, NMFS, and Connecticut DEEP contemplate the agencies ordering unspecified long-term changes to project operations or facilities based on new information or results of studies or monitoring required by the conditions, but do not require Commission approval for such changes (e.g., operational changes to mitigate for low dissolved oxygen). Such changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the exemption.

Article 28. Fish Passage Channel Depths. The plan for maintaining and monitoring minimum flows and run-of-river operation required by the U.S. Department of the Interior's (Interior) condition 6 in Appendix A and Connecticut Department of Energy and Environmental Protection's (Connecticut DEEP) special condition 8 in Appendix C is modified to include the following additional provisions:

- (1) a description of the procedures for measuring water depths in the new and existing fish passage channels after the project commences operation and has begun releasing the required minimum flow; and
- (2) a schedule for collecting and reporting the depth measurements to Interior, National Marine Fisheries Service, Connecticut DEEP, and the Commission.

The modified plan must be filed with the Commission according to the schedule described in Article 27(a).

Article 29. Protection of Cultural Resources. Prior to implementing any project modifications not specifically authorized by this exemption, including but not limited to maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities, the exemptee must consult with the Connecticut State Historic Preservation Office (Connecticut SHPO) to determine the effects of the activities and the need for any cultural resource studies or measures. If no studies or measures are needed, the exemptee must file with the Commission documentation of its consultation with the Connecticut SHPO.

If a project modification is determined to affect a historic property the exemptee must file for Commission approval a historic properties management plan (HPMP) prepared by a qualified cultural resource specialist after consultation with the Connecticut SHPO. In developing the HPMP, the exemptee must use the Advisory Council on Historic Preservation and the Commission's *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects*, dated May 20, 2002. The HPMP must include the following items: (1) a description of each historic property; (2) a description of the potential effect on each historic property; (3) proposed measures for avoiding or mitigating adverse effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for implementing mitigation and conducting additional studies. The Commission reserves the right to require changes to the HPMP.

The exemptee must not implement any project modifications, other than those specifically authorized in this exemption, until informed by the Commission that the requirements of this article have been fulfilled.

Article 30. Protection of Undiscovered Cultural Resources. If the exemptee discovers previously unidentified cultural resources during the course of constructing, maintaining, or operating project works or other facilities at the project, the exemptee must stop all land-clearing and land-disturbing activities in the vicinity of the resource and consult with the Connecticut State Historic Preservation Office (Connecticut SHPO) to determine the need for any cultural resource studies or measures. If no studies or measures are needed, the exemptee must file with the Commission documentation of its consultation with the Connecticut SHPO.

If a discovered cultural resource is determined to be eligible for the National Register of Historic Places (National Register), the exemptee must file for Commission approval a historic properties management plan (HPMP) prepared by a qualified cultural resource specialist after consultation with the Connecticut SHPO. In developing the HPMP, the exemptee must use the Advisory Council on Historic Preservation and the Commission's *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects*, dated May 20, 2002. The HPMP must include the following items: (1) a description of each discovered property that is eligible to be listed in the National Register; (2) a description of the potential effect on each discovered property; (3) proposed measures for avoiding or mitigating adverse effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for implementing mitigation and conducting additional studies. The Commission reserves the right to require changes to the HPMP.

The exemptee must not resume land-clearing or land-disturbing activities in the vicinity of a cultural resource discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.

(E) The exemptee must serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the FPA, 16 U.S.C. § 8251 (2012), and section 385.713 of the Commission's regulations, 18 C.F.R. § 385.713 (2015). The filing of a request for rehearing does not operate as a stay of the effective date of this exemption or of any other date specified in this order. The exemptee's failure to file a request for rehearing shall constitute acceptance of this order.

Ann F. Miles
Director
Office of Energy Projects

Form E-2

FEDERAL ENERGY REGULATORY COMMISSION

Section 4.106 - Standard Terms and Conditions of Exemption from Licensing

Any exemption from licensing granted under this subpart for a small hydroelectric power project is subject to the following standard terms and conditions:

Article 1. The Commission reserves the right to conduct investigations under sections 4(g), 306, 307, and 311 of the Federal Power Act with respect to any acts, complaints, facts, conditions, practices, or other matters related to the construction, operation, or maintenance of the exempt project. If any term or condition of the exemption is violated, the Commission may revoke the exemption, issue a suitable order under section 4(g) of the Federal Power Act, or take appropriate action for enforcement, forfeiture, or penalties under Part III of the Federal Power Act.

Article 2. The construction, operation, and maintenance of the exempt project must comply with any terms and conditions that the United States Fish and Wildlife Service and any state fish and wildlife agencies have determined are appropriate to prevent loss of, or damage to, fish or wildlife resources or to otherwise carry out the purposes of the Fish and Wildlife Coordination Act, as specified in Exhibit E of the application for exemption from licensing or in the comments submitted in response to the notice of the exemption application.

Article 3. The Commission may revoke this exemption if actual construction of any proposed generating facilities has not begun within two years or has not been completed within four years from the date on which this exemption was granted. If an exemption is revoked under this article, the Commission will not accept from the prior exemption holder a subsequent application for exemption from licensing or a notice of exemption from licensing for the same project within two years of the revocation.

Article 4. This exemption is subject to the navigation servitude of the United States if the project is located on navigable waters of the United States.

Article 5. This exemption does not confer any right to use or occupy any Federal lands that may be necessary for the development or operation of the project. Any right to use or occupy any Federal lands for those purposes must be obtained from the administering Federal agencies. The Commission may accept a license application by any qualified license applicant and revoke this exemption, if any necessary right to use or occupy Federal lands for those purposes has not been obtained within one year from the date on which this exemption was granted.

Article 6. In order to best develop, conserve, and utilize in the public interest the water resources of the region, the Commission may require that the exempt facilities be modified in structure or operation or may revoke this exemption.

Article 7. The Commission may revoke this exemption if, in the application process, material discrepancies, inaccuracies, or falsehoods were made by or on behalf of the applicant.

Article 8. Any exempted small hydroelectric power project that utilizes a dam that is more than 33 feet in height above streambed, as defined in 18 C.F.R. § 12.31(c) of this chapter, impounds more than 2,000 acre-feet of water, or has a significant or high hazard potential, as defined in 33 C.F.R. Part 222, is subject to the following provisions of 18 C.F.R. Part 12, as it may be amended:

- (1) Section 12.4(b)(1)(i) and (ii), (b)(2)(i) and (iii), (b)(iv), and (b)(v);
- (2) Section 12.4(c);
- (3) Section 12.5;
- (4) Subpart C; and
- (5) Subpart D.

For the purposes of applying these provisions of 18 C.F.R. Part 12, the exempted project is deemed to be a licensed project development and the owner of the exempted project is deemed to be a licensee.

Article 9. Before transferring any property interests in the exempt project, the exemption holder must inform the transferee of the terms and conditions of the exemption. Within 30 days of transferring the property interests, the exemption holder must inform the Commission of the identity and address of the transferee.

APPENDIX A

Conditions submitted under section 30(c) of the Federal Power Act by the U.S. Department of the Interior on October 15, 2015.

1. The Exemptee shall operate the Project in an instantaneous run-of-river mode, whereby inflow to the Project will equal outflow from the Project at all times, and water levels above the Dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Exemptee, or for short periods upon mutual agreement between the Exemptee, the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and the National Marine Fisheries Service.
2. The Exemptee shall install a fishway attraction channel within the bypass reach. The purpose of the channel is to attract fish away from the tailrace discharge and up to the entrance of the fish ladder. The channel shall be designed in consultation with, and require approval by, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. The effectiveness of the channel shall be evaluated pursuant to condition 8b below. The Exemptee shall be responsible for maintaining the channel to its design specifications. The channel shall be constructed and operational upon commencement of Project generation.
3. The Exemptee shall provide a continuous flow to the bypass reach of 30 cfs. During periods when the fish ladder is operating, the Exemptee shall provide a continuous bypass reach flow of 30 cfs or flows sufficient to operate the fish ladder and wet the two low-flow channels to a depth of at least 2 feet (whichever is greater). Bypass flow requirements are subject to available inflow to Hanover Pond.
4. The Exemptee shall install a coarse trashrack in front of the Project intake with clear spacing of no less than 9 inches. The trashrack shall be installed and operational concurrent with Project start-up. The rack shall be required to be kept free of debris and maintained to design specifications.
5. The Exemptee shall conduct a post-operation water quality monitoring survey. The survey protocol shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection. Data shall be collected for up to three (3) years, and shall be initiated the first low-flow season after the turbine becomes operational. If results indicate that the Project is not meeting water quality standards, the Exemptee shall implement mitigation measures sufficient to achieve applicable standards.

6. The Exemptee shall, within six (6) months of the date of issuance of an exemption from licensing, prepare in consultation with, and require approval by, the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection, a plan for maintaining and monitoring bypass flows and run-of-river operation at the Project. The plan shall include a description of the mechanisms and structures that will be used, the level of manual and automatic operation, the methods to be used for recording data on bypass flows and run-of-river operation, an implementation schedule, and a plan for maintaining the data for inspection by the U.S. Fish and Wildlife Service, the Federal Energy Regulatory Commission, and the Connecticut Department of Energy and Environmental Protection.

7. The Exemptee shall undertake the following measures and studies related to freshwater mussels:

- a. The Exemptee shall undertake a Pre-Construction Freshwater Mussel Survey. The study plan for the survey shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection. The objectives of the study will be to: (1) document the identity of any mussels living in the Project area prior to Project construction; (2) document the location of identified mussels; and (3) determine if any mussel beds would be affected by construction activities (including drawing down the headpond). The study shall be completed prior to the initiation of construction activities. If results of the survey indicate that construction-related activities will impact mussel beds, the Exemptee shall implement protective measures as directed by the U.S. Fish and Wildlife Service and/or the Connecticut Department of Energy and Environmental Protection.
- b. If the survey conducted pursuant to condition 7.a documents that mussels residing in Hanover Pond would be impacted by future headpond drawdowns, the Exemptee shall be required to develop a Freshwater Mussel Monitoring and Relocation Protocol. The protocol shall be developed in consultation with, and require the approval of, the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection. The objectives of the protocol will be to: (1) monitor specific locations within Hanover Pond during headpond drawdowns; and (2) relocate exposed mussels from those locations to areas that will remain wetted during the drawdown. If required, the protocol shall be submitted for approval within 9 months after the turbine becomes operational.

8. In order to ensure that the Project does not inhibit the safe, timely and effective movement of fish, the Exemptee shall undertake the following fish passage measures and studies:

a. Upstream Fish Ladder Utilization Study

The Exemptee shall undertake a Fish Ladder Utilization Study (FLUS). The study plan shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. The goal of the study will be to compare pre-operation use of the fishway with post-operation use of the fishway to determine if Project operations impact utilization of the fishway. Study objectives include: (1) documenting the species and numbers of fish that use the existing Denil fishway; (2) documenting the periodicity of such passage; and (3) determining relative passage efficiency through both the zone of passage (i.e., bypass reach) and existing fish ladder, under both existing and post-operation conditions. Study methodology shall be developed under the guidance of the Connecticut Department of Energy and Environmental Protection, but broadly shall consist of using video monitoring to document passage of both wild fish and tagged test fish. The study shall be conducted for 1 year pre-operation and 3 years post-operation. The study shall be conducted between April 1 and June 15 annually for all four years. In order for a year's study to be considered complete, the video system and all components of the study must be effective and operational for 65 days during the study time period for each year of study. If the study for that year is not deemed complete, it will not count as one of the required four years and the study must be repeated for another year.

A report summarizing the methods and results of the FLUS shall be submitted to the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection by October 1, annually. In reviewing the annual reports, if the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection determine that a study methodology is not performing adequately to meet the study's objectives, the Exemptee shall modify the methodology prior to the next year's study, as directed by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection.

At the end of the FLUS, the Exemptee shall turn over the operation of the video system to the Connecticut Department of Energy and Environmental

Protection for its use in monitoring fish runs in the River and the Connecticut Department of Energy and Environmental Protection shall operate the system without further obligation on the part of the Exemptee.

If study results indicate that Project operation is affecting utilization of the fish ladder, the Exemptee shall implement mitigation measures as directed by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection.

b. Upstream Fish Ladder Attraction Study

If the U.S. Fish and Wildlife Service and/or the Connecticut Department of Energy and Environmental Protection determine that the results of the study conducted under Condition 8a do not address the issue of false attraction sufficiently, the Exemptee shall undertake a stand-alone False Attraction Study. The study plan shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection. The objectives of the study will be to determine if the turbine discharge falsely attracts upstream migrants and/or verify that the new secondary low-flow channel is successfully attracting and passing migrants up to the ladder entrance. The study will be initiated the first upstream passage season after receiving notification from the U.S. Fish and Wildlife Service and/or the Connecticut Department of Energy and Environmental Protection that the study is needed. This study will be repeated annually, for up to three (3) years. If study results document false attraction or problems with the secondary low-flow channel, the Exemptee shall implement mitigation measures as directed by the U.S. Fish and Wildlife Service and/or the Connecticut Department of Energy and Environmental Protection.

c. Downstream Passage: Sluice Gate Evaluation

The Exemptee shall undertake a Sluice Gate Evaluation. The evaluation plan shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection. The objective of the evaluation will be to determine if the downward-closing sluice gate affects downstream movement of migratory fish. The study will use one or more underwater cameras, or other similar methodology deemed acceptable by the agencies, to monitor fish behavior at the sluice gate during the downstream migration period. The study will be initiated the first upstream passage season after the turbine becomes operational, and will be repeated annually, for up to

three (3) years. The turbine shall not begin operating until the study plan has been approved by the U.S. Fish and Wildlife Service. If results of the evaluation indicate that operation of the sluice gate inhibits movement down through the Archimedes screw turbine-generator unit turbine, the Exemptee shall implement mitigation measures protective of public safety, as directed by the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection.

d. Downstream Passage: Archimedes screw turbine-generator unit Injury/Mortality Assessment

The Exemptee shall undertake an Archimedes screw turbine-generator unit Injury/Mortality Assessment. The assessment methodology shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and the National Marine Fisheries Service. The objective of the assessment will be to determine if passage through the Archimedes screw turbine-generator unit turbine causes injury or mortality to fish. The assessment will be initiated the first passage season after the turbine becomes operational, and will be repeated annually, for up to three (3) years. The turbine shall not begin operating until the assessment methodology has been approved by the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and the National Marine Fisheries Service. If results of the assessment indicate that the Archimedes screw turbine-generator unit turbine imposes injury or mortality to greater than 5 percent of transiting fish, the Exemptee shall implement mitigation measures as directed by the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and/or the National Marine Fisheries Service.

e. Upstream Passage for American Eels

The Exemptee shall install and operate an eel ramp trap at the Project tailrace. The purpose of the eel ramp is to intercept juvenile eels attempting to migrate upstream that are attracted to the Archimedes screw turbine-generator unit tailrace discharge. The location and design of the ramp shall be determined in consultation with, and require approval by, the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and the National Marine Fisheries Service. The Exemptee shall be responsible for installing and operating the ramp annually from May 1 through October 31. Operation of the ramp shall include periodically (at least weekly) collecting trapped eels, recording numbers and size classes caught, and releasing the eels into the Hanover

Pond headpond. The ramp shall be constructed and operational the first passage season after the turbine becomes operational. A report detailing the biological data of eels collected and moved shall be provided to the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and the National Marine Fisheries Service by December 1 of each operation year.

9. During refilling of the Project reservoir after Dam maintenance or emergency drawdown, the Exemptee shall operate the Project such that 90 percent of inflow to the Project is released below the Project and the impoundment is refilled on the remaining 10 percent of inflow until the headpond is restored to normal levels and run-of-river operation is restored. This refill procedure may be modified on a case-by-case basis with the prior approval of both the U.S. Fish and Wildlife Service and the Connecticut Department of Energy and Environmental Protection.

10. The Exemptee shall, within nine (9) months of the date of issuance of an exemption from licensing, prepare and file for approval by the U.S. Fish and Wildlife Service, an Invasive Species Monitoring and Control Plan. The objectives of the plan will be to map existing invasive species, monitor the area periodically, and initiate an early detection, rapid response protocol for infestations of target species. The plan shall be developed in consultation with, and require approval of, the U.S. Fish and Wildlife Service.

11. The Exemptee shall notify the U.S. Fish and Wildlife Service in writing when the Project commences operation. Such notice shall be sent within 30 days of Project start-up to: Supervisor, New England Field Office, 70 Commercial Street, Suite 300, Concord, New Hampshire 03301. The Exemptee shall provide the U.S. Fish and Wildlife Service with a set of as-built drawings concurrent with filing said plans with the Federal Energy Regulatory Commission.

12. The Exemptee shall allow the U.S. Fish and Wildlife Service to inspect the Project area at any time while the Project operates under this exemption from licensing, to monitor compliance with its terms and conditions.

13. The U.S. Fish and Wildlife Service reserves the right to add to and alter terms and conditions for this exemption as appropriate to carry out its responsibilities with respect to fish and wildlife resources. The Exemptee shall, within thirty (30) days of receipt, file with the Federal Energy Regulatory Commission any additional terms and conditions imposed by the U.S. Fish and Wildlife Service.

14. The Exemptee shall incorporate the aforementioned terms and conditions in any conveyance—by lease, sale or otherwise—of its interests so as to assure compliance with said conditions for as long as the Project operates under an exemption from licensing. These conditions are required with the understanding that the Federal Energy Regulatory

Project No. 14550-001

- 31 -

Commission will likely want to retain concurrent approval authority over some or all of the plans and actions described above, and the above conditions should not be read as preventing this.

APPENDIX B

Conditions submitted under section 30(c) of the Federal Power Act by the National Marine Fisheries Service on October 16, 2015.

The Terms and Conditions are being proposed pursuant to the Public Utilities Regulatory Policy Act, which incorporates Section 30 (c) of the Federal Power Act.

1. The Exemptee shall operate the Project in an instantaneous run-of-river mode, whereby inflow to the Project will equal outflow from the project at all times and water levels above the Dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Exemptee, or for short periods upon mutual agreement between the Exemptee, the U.S. Fish and Wildlife Service, the Connecticut Department of Energy and Environmental Protection, and the National Marine Fisheries Service.
2. The Exemptee shall provide a continuous flow to the bypass reach of 30 cfs, or flows sufficient to operate the fish ladder (seasonally) and wet the two low-flow channels to a depth of at least 2 feet (whichever is greater), subject to available inflow to Hanover Pond.
3. The Exemptee shall install a fishway attraction channel within the bypass reach. The purpose of the channel is to attract fish away from the tailrace discharge and up to the entrance of the fish ladder. The channel shall be designed in consultation with and require approval by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. The Exemptee shall be responsible for maintaining the channel to its design specifications. The channel shall be constructed and operational upon commencement of Project generation.
4. The Exemptee shall install a trashrack with clear spacing of no less than 9 inches. The trashrack shall be installed and operational concurrent with Project start-up. The racks shall be required to be kept free of debris and maintained to design specifications.
5. To ensure the Project does not inhibit the safe, timely and effective movement of fish, the Exemptee shall undertake the following fish passage measures and studies:

- a. Upstream Fish Ladder Utilization Study

The Exemptee shall undertake a Fish Ladder Utilization Study. The study plan shall be developed in consultation with, and require approval by, the U.S. Fish & Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. The goal of the study will be to compare pre-operation use of the fishway with

post-operation use of the fishway to determine if project operations impact utilization of the fishway. Study objectives include: (1) documenting the species and numbers of fish that use the existing Denil fishway, (2) documenting the periodicity of such passage, and (3) determining relative passage efficiency through both the zone of passage (i.e., bypass reach) and existing fish ladder.

Study methodology shall be developed under the guidance of the Connecticut Department of Energy and Environmental Protection, but broadly consist of using video monitoring to document passage of both wild fish and tagged test fish. The study shall be conducted for 1 year pre-operation and 3 years post-operation. The study shall be conducted between April 1 and June 15 annually for all four years. In order for a year's study to be considered complete, the video system and all components of the study must be effective and operational for 65 days during the study time period. If a study year is not deemed complete it will not count as one of the required four years and the study must be repeated.

A report summarizing the methods and results of the Fish Ladder Utilization Study shall be submitted to the U.S. Fish & Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection by October 1, annually. In reviewing the annual reports, if the U.S. Fish & Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection determines that a study methodology is not performing adequately to meet the study's objectives, the Exemptee shall modify the methodology prior to the next year's study, as directed by the U.S. Fish & Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection.

Upon completion of the Fish Ladder Utilization Study, the Exemptee shall turn over the operation of the video system to the Connecticut Department of Energy and Environmental Protection for its use in monitoring fish runs in the river and the Connecticut Department of Energy and Environmental Protection shall operate the system without further obligation on the part of the Exemptee.

If study results indicate that Project operation is affecting utilization of the fish ladder, the Exemptee shall implement mitigation measures as directed by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection.

b. Downstream Passage: Archimedes screw turbine-generator unit Injury/Mortality Assessment

The Exemptee shall undertake an Archimedes screw turbine-generator unit Injury/Mortality Assessment. The assessment methodology shall be developed in consultation with, and require approval by, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. The objective of the assessment will be to determine if passage through the Archimedes screw turbine-generator unit causes injury or mortality to fish. The assessment will be initiated the first passage season after the turbine becomes operational, and will be repeated annually, for up to 3 years. The turbine shall not begin operating until the assessment methodology has been approved by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. If results of the assessment indicate that the Archimedes screw turbine-generator unit imposes injury or mortality to greater than 5 percent of transiting fish, then the Exemptee shall implement mitigation measures as directed by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and/or the Connecticut Department of Energy and Environmental Protection.

c. Upstream Passage for American Eels

The Exemptee shall install and operate a blind eel ramp at the Project. The purpose of the eel ramp is to intercept juvenile eels attempting to migrate upstream that are attracted to the Archimedes screw turbine-generator unit tailrace discharge. The location and design of the ramp shall be determined in consultation with, and require approval by, the U.S. Fish & Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection. The Exemptee shall be responsible for installing and operating the ramp annually from May 1 through October 31. Operation of the ramp shall include periodically (at least weekly) collecting trapped eels, recording numbers and size classes caught, and releasing the eels into the Hanover Pond headpond. The ramp shall be constructed and operational the first passage season after the turbine becomes operational. A report detailing the biological data of eels collected and moved shall be provided to the U.S. Fish & Wildlife Service, the National Marine Fisheries Service, and the Connecticut Department of Energy and Environmental Protection by December 1 of each operation year.

6. The Exemptee shall notify the National Marine Fisheries Service in writing when the Project commences operation. Such notice shall be sent within 30 days of start-up to Regional Administrator, National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, Massachusetts, 01930. The Exemptee shall furnish us with a set of as-built drawings concurrent with filing said plans with the Commission.
7. The Exemptee shall allow the National Marine Fisheries Service to inspect the Project area at any time while the Project operates under an exemption from licensing to monitor compliance with its terms and conditions.
8. The National Marine Fisheries Service reserves the right to add to and alter terms and conditions for this exemption as appropriate to carry out its responsibilities with respect to fish and wildlife resources. The Exemptee shall, within thirty (30) days of receipt, file with the Federal Energy Regulatory Commission any additional terms and conditions imposed by the National Marine Fisheries Service.
9. The Exemptee shall incorporate the aforementioned terms and 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.

These conditions are required with the understanding that the Federal Energy Regulatory Commission likely will want to retain concurrent approval authority over some or all of the plans and actions described above, and the above conditions should not be read as preventing this.

APPENDIX C

Water Quality Certification Conditions issued by the Connecticut Department of Energy and Environmental Protection (Connecticut DEEP) on April 15, 2016.

SPECIAL CONDITIONS

1. The Permittee shall operate the Project in an instantaneous run-of-river mode, whereby inflow to the Project will equal outflow from the Project at all times and water levels above the Dam are not drawn down for the purpose of generating power. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Permittee, or for short periods upon mutual agreement between the Permittee, the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.
2. The Permittee shall provide a continuous flow to the bypass reach of 30 cfs, or flows sufficient to operate the fish ladder (seasonally) and wet the two low flow channels to a depth of at least 2 feet (whichever is greater), subject to available inflow to Hanover Pond.
3. The Permittee shall, prior to commencing construction, file for Connecticut Department of Energy and Environmental Protection approval of an erosion and sediment control plan, which structures shall be in place before dewatering and construction. Erosion and sediment control structures shall be removed within one year after construction is complete and site is stabilized.
4. The Permittee shall construct a fishway attraction channel within the bypass reach of the natural stream channel. The purpose of the channel is to collect and direct flow to attract fish away from the tailrace discharge and up to the entrance of the existing fish ladder. The channel shall be designed in consultation with and require approval by the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The effectiveness of the channel shall be evaluated pursuant to Condition number ten (10) b., below. The Permittee shall be responsible for maintaining the channel to its design specifications. The channel shall be constructed and operational upon commencement of Project generation.
5. The Permittee shall install at the water intake for the Archimedes Screw Generator (ASG) Turbine, a trashrack with clear spacing of no less than nine (9) inches. The trashracks shall be installed and operational concurrent with Project start-up. The racks shall be required to be kept free of debris and maintained to design specifications.

6. The Permittee shall conduct a post-operation water quality monitoring survey. The survey protocol shall be developed in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service.

Data shall be collected for up to three (3) years, and shall be initiated the first low-flow season after the ASG turbine becomes operational. If results indicate that the Project is not meeting water quality standards, the Permittee shall implement mitigation measures as sufficient to achieve said standards.

7. The Permittee shall, within six (6) months from the effective date of the exemption from the Federal Energy Regulatory Commission license concerning "Hanover Pond Dam Hydroelectric Project No. 14550-000/001-CT", or by March 30, 2017, whichever is sooner, file for Connecticut Department of Energy and Environmental Protection approval of a water quality monitoring plan, consistent with the requirement stated in Condition number six (6) above. The plan shall include, but not necessarily be limited to:
 - a. A description of locations, time period, methods, equipment, maintenance, and calibration procedures to monitor dissolved oxygen concentrations and water temperature at a location in the Quinnipiac River immediately upstream of the dam and in the Quinnipiac River downstream of the tail race;
 - b. Description of the protocol for annually reporting water quality monitoring data to the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service including any recommendations for modifications to Project operations or facilities, and any other enhancement measures that are proposed by the licensee if the water quality constituents monitored in Project-affected waters fall below state water quality standards; and
 - c. An implementation schedule.
8. The Permittee shall, within 30 days of commencement of project generation, prepare in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service, a plan for maintaining and monitoring bypass flows and run-of-river operation at the Project. The plan shall include a description of the mechanisms and structures that will be used, the level of manual and automatic operation, the methods to be used for recording data on bypass flows and run-of-river operation, an implementation schedule, and a plan for maintaining the data for inspection by the Connecticut

Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the Federal Energy Regulatory Commission.

9. The Permittee shall undertake the following measures and studies related to freshwater mussels:
 - a. The Permittee shall undertake a Pre-Construction Freshwater Mussel Survey. The study plan shall be developed in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. The objectives of the study will be to (1) document the identity of any mussels living in the Project area prior to Project construction, (2) document the location of identified mussels, and (3) determine if any mussel beds would be affected by construction activities (including drawing down the headpond). The study shall be completed prior to the initiation of construction activities. If results of the survey indicate that construction-related activities will impact mussel beds, the Permittee shall implement protective measures as directed by the Connecticut Department of Energy and Environmental Protection and/or the U.S. Fish and Wildlife Service.
 - b. If the survey conducted pursuant to Condition number nine (9) a. above, documents mussels residing in Hanover Pond that would be impacted by future headpond drawdowns, the Permittee shall be required to develop a Freshwater Mussel Monitoring and Relocation Protocol. The protocol shall be developed in consultation with, and require the approval of, the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. The objectives of the protocol will be to (1) monitor specific locations within Hanover Pond during headpond drawdowns and (2) relocate exposed mussels from those locations to areas that will remain wetted during the drawdown. If required, the protocol shall be submitted for approval prior to the first drawdown required for construction.
10. In order to ensure that the Project does not inhibit the safe, timely and effective movement of fish, the Permittee shall undertake the following fish passage measures and studies:
 - a. Upstream Fish Ladder Utilization Study

The Permittee shall undertake a Fish Ladder Utilization Study (FLUS). The study plan shall be developed in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection, the U.S. Fish & Wildlife Service and the National Marine Fisheries Service. The

goal of the study will be to compare pre-operation use of the fishway with post-operation use of the fishway to determine if Project operations impact utilization of the fishway. Study objectives include: (1) documenting the species and numbers of fish that use the existing Denil fishway, (2) documenting the periodicity of such passage, and (3) determining relative passage efficiency through both the zone of passage (i.e., bypass reach) and existing fish ladder.

Study methodology shall be developed under the guidance of the Connecticut Department of Energy and Environmental Protection, but broadly shall consist of using video monitoring to document passage of both wild fish and tagged test fish. The study shall be conducted for 1 year pre-operation and 3 years post-operation. The study shall be conducted between April 1 and June 15 annually for all four years. In order for a year's study to be considered complete, the video system and all components of the study must be effective and operational for 65 days during the study time period. If the study for that year is not deemed complete it will not count as one of the required four years and the study must be repeated for another year.

A report summarizing the methods and results of the FLUS shall be submitted to the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service by October 1, annually. In reviewing the annual reports, if the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service determines that a study methodology is not performing adequately to meet the study's objectives, the Permittee shall modify the methodology prior to the next year's study, as directed by the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service.

At the end of the FLUS, the Permittee shall turn over the operation of the video system to the Connecticut Department of Energy and Environmental Protection for its use in monitoring fish runs in the river and the Connecticut Department of Energy and Environmental Protection shall operate the system without further obligation on the part of the Permittee.

If the Connecticut Department of Energy and Environmental Protection determines that the study results indicate that Project operation is negatively affecting utilization of the fish ladder, the Permittee shall implement mitigation measures as directed by the Connecticut Department of Energy and Environmental Protection in consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to be in compliance with

this permit. Once those changes are implemented, the Permittee shall undertake studies to demonstrate their effectiveness. The Permittee shall submit a Plan for the Connecticut Department of Energy and Environmental Protection's approval for such additional study and the study must be conducted for a minimum of three years, consistent with requirements provided in Condition number ten (10) unless otherwise determined by the Connecticut Department of Energy and Environmental Protection.

b. Upstream Fish Ladder Attraction Study

If the Connecticut Department of Energy and Environmental Protection and/or the U.S. Fish and Wildlife Service determine that the results of the study conducted under Condition number ten (10) a. above, do not address the issue of false attraction sufficiently, the Permittee shall undertake a stand-alone False Attraction Study. The study plan shall be developed in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. The objectives of the study will be to determine if the ASG turbine discharge attracts upstream migrants away from the fishway entrance and/or verify that the new secondary low flow channel is successfully attracting and passing migrants up to the fishway entrance. The study will be initiated the first upstream passage season after receiving notification from the Connecticut Department of Energy and Environmental Protection and/or the U.S. Fish and Wildlife Service that the study is needed and will be repeated annually, for up to three (3) years. If study results document false attraction or problems with the secondary low flow channel, the Permittee shall implement mitigation measures as directed by the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. Once those changes are implemented, the Permittee shall undertake studies to demonstrate their effectiveness. The Permittee shall submit a Plan for the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service's approval for such additional study and the study must be conducted for a minimum of three years, consistent with requirements provided in Condition number ten (10) unless otherwise determined by the Connecticut Department of Energy and Environmental Protection and/or the U.S. Fish and Wildlife Service.

c. Downstream Passage: Sluice Gate Evaluation

The Permittee shall undertake a Sluice Gate Evaluation. The evaluation plan shall be developed in consultation with, and require approval by the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. The objective of the evaluation will be to

determine if the downward-closing sluice gate affects downstream passage of migratory fish. The study will use one or more underwater cameras to remotely monitor fish behavior at the sluice gate during the downstream migration period, or other similar methodology deemed acceptable by the agencies. The study will be initiated the first upstream passage season after the ASG turbine becomes operational, and will be repeated annually, for up to three (3) years. The ASG turbine shall not begin operating until the study plan has been approved by the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. If results of the evaluation indicate that operation of the sluice gate inhibits movement down through the ASG turbine, the Permittee shall implement mitigation measures protective of public safety, as directed by the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service. Once those changes are implemented, the Permittee shall undertake studies to demonstrate their effectiveness. The Permittee shall submit a Plan for the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service's approval for such additional study and the study must be conducted for a minimum of three years, consistent with requirements provided in Condition number ten (10) unless otherwise determined by the Connecticut Department of Energy and Environmental Protection and/or the U.S. Fish and Wildlife Service.

d. Downstream Passage: ASG Turbine Injury/Mortality Assessment

The Permittee shall undertake an ASG Turbine Injury/Mortality Assessment. The assessment methodology shall be developed in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The objective of the assessment will be to determine if passage through the ASG turbine causes injury or mortality to fish. The assessment will be initiated the first passage season after the ASG turbine becomes operational, and may be repeated annually, for up to three (3) years, upon the determination of the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service, and/or the National Marine Fisheries Service. The ASG turbine shall not begin operating until the assessment methodology has been approved by the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. If results of the assessment indicate that the ASG turbine imposes injury or mortality to greater than 5 percent of transiting fish, then the Permittee shall implement mitigation measures as directed by the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service, and/or the National Marine Fisheries Service. Once those changes are implemented, the

The Permittee shall undertake studies to demonstrate their effectiveness. The Permittee shall submit a Plan for the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service's approval for such additional study and the study may be conducted for a minimum of three years, as determined by the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service, and/or the National Marine Fisheries Service.

e. Upstream Passage for American Eels

The Permittee shall install and operate a blind eel ramp at the Project. The purpose of the eel ramp is to intercept juvenile eels attempting to migrate upstream that are attracted to the ASG tailrace discharge. The location and design of the ramp shall be determined in consultation with, and require approval by, the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The Permittee shall be responsible for installing and operating the ramp annually from May 1 through October 31. Operation of the ramp shall include periodically (at least weekly) collecting trapped eels, recording numbers and size classes caught, and releasing the eels into the Hanover Pond headpond. The ramp shall be constructed and operational the first passage season after the ASG turbine becomes operational. A report detailing the biological data of eels collected and moved shall be provided to the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service by December 1 of each operation year.

11. During refilling of the Project reservoir after dam maintenance or emergency drawdown, the Permittee shall operate the Project such that 90 percent of inflow to the Project is released below the Project and the impoundment is refilled on the remaining 10 percent of inflow. This refill procedure may be modified on a case-by-case basis with the prior approval of both the Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service.
12. Species of Special Concern -The Connecticut Department of Energy and Environmental Protection records indicate the following extant populations of species of special concern: the Eastern box turtle (*Terrapene Carolina Carolina*) and wood turtle (*Glyptemys insculpta*). The following precautions should be taken to protect these species of special concern:
 - Silt fencing should be installed around the work area prior to construction;
 - After silt fencing is installed and prior to construction, a sweep of the

work area should be conducted to look for turtles;

- Workers should be apprised of the possible presence of turtles, and provided a description of the species (www.ct.gov/deep/cwp/view.asp?a=2723&g=473472&deepNavGID=I655);
- Any turtles that are discovered should be moved, unharmed, to an area immediately outside of the fenced area, and position in the same direction that it was walking; No vehicles or heavy machinery should be parked in any turtle habitat;
- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and
- All silt fencing should be removed after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.

Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this Project by December 31, 2017. Silt fencing should be installed around the work area prior to activity.

13. The Permittee shall notify the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in writing when the Project commences operation. Such notice shall be sent within 30 days of start-up. The Permittee shall furnish the Connecticut Department of Energy and Environmental Protection with a set of as-built drawings concurrent with filing said plans with the Federal Energy Regulatory Commission.
14. The Permittee shall allow the Connecticut Department of Energy and Environmental Protection, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to inspect the Project area at any time while the Project operates under an exemption from licensing to monitor compliance with its terms and conditions.

GENERAL TERMS AND CONDITIONS

1. Rights. This certificate is subject to and does not derogate any present or future property rights or other rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further Subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby. This

certification does not comprise the permits or approvals as may be required by Chapters 440, 446i, 446j and 446k of the Connecticut General Statutes.

2. **Expiration of Certificate.** This certificate shall expire upon the expiration of the Federal Energy Regulatory Commission permit no. P-14550-000/001-CT for the same activity.
3. **Compliance with Certificate.** All work and all activities authorized herein conducted by the Permittee at the site shall be consistent with the terms and conditions of this certificate. Any regulated activities carried out at the site, including but not limited to, construction of any structure, excavation, fill, obstruction, or encroachment, that are not specifically identified and authorized herein shall constitute a violation of this certificate and may result in its modification, suspension, or revocation. In carrying out the certified discharge(s) authorized herein, the Permittee shall not store equipment or construction material, or discharge any material including without limitation, fill, construction materials or debris in any wetland or watercourse on or off site unless specifically authorized by this certificate. Upon initiation of the activities authorized herein, the Permittee thereby accepts and agrees to comply with the terms and conditions of this certificate.
4. **Transfer of Certificate.** This authorization is transferable with the written consent of the Connecticut Department of Energy and Environmental Protection. The Permittee shall incorporate the aforementioned terms and 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.
5. **Reliance on Application.** In evaluating the Permittee's application, the Connecticut Department of Energy and Environmental Protection has relied on information provided by the Permittee. If such information subsequently proves to be false, deceptive, incomplete or inaccurate, this certificate may be modified, suspended or revoked.
6. **Approval of Project Changes.** Any change to the project that would have a significant or material effect on the findings, conclusions or conditions of this certification, including project operation, must be submitted to the Connecticut Department of Energy and Environmental Protection for prior review and written approval where appropriate and authorized by law and only as related to the change proposed.
7. **Continuing Jurisdiction.** The Connecticut Department of Energy and Environmental Protection, in consultation with the U.S. Fish and Wildlife

Service and the National Marine Fisheries Service, reserve the right to add and alter the terms and conditions of this certification, when authorized by law and as appropriate to carry out its responsibilities with respect to water quality, fish and wildlife resources during the life of the project.

8. Reopening of Certification. The Connecticut Department of Energy and Environmental Protection may reopen and alter or amend the conditions of this Certification over the life of the Project when such action is necessary to assure compliance with the Connecticut Water Quality Standards and to respond to any changes in the classification or management objectives for the affected waters.
9. Enforcement. Certification conditions are subject to enforcement mechanisms available to the federal agency issuing the license and to the state of Connecticut. Other mechanisms under Connecticut state law may also be used to correct or prevent adverse water quality impacts from construction or operation of activities for which certification has been issued.
10. Best Management Practices. In constructing or maintaining the activities authorized herein, the Permittee shall employ best management practices, consistent with the terms and conditions of this certificate, to control storm water discharges and erosion and sedimentation and to prevent pollution. Such practices to be implemented by the Permittee at the site include, but are not necessarily limited to:
 - a. Prohibiting dumping of any quantity of oil, chemicals or other deleterious material on the ground;
 - b. Immediately informing the Connecticut Department of Energy and Environmental Protection's Oil and Chemical Spill Response Division at (860) 424-3338 (24 hours) of any adverse impact or hazard to the environment, including any discharges, spillage, or loss of oil or petroleum or chemical liquids or solids, which occurs or is likely to occur as the direct or indirect result of the activities authorized herein;
 - c. Separating staging areas at the site from the regulated areas by silt fences or straw/hay bales at all times;
 - d. Prohibiting storage of any fuel and refueling of equipment within twenty-five (25) feet from any wetland or watercourse;
 - e. Preventing pollution of wetlands and watercourses in accordance with the document "Connecticut Guidelines for Soil Erosion and Sediment Control" as revised. Said controls shall be inspected by the Permittee for deficiencies at least once per week and immediately after each rainfall and

at least daily during prolonged rainfall. The Permittee shall correct any such deficiencies within 48 hours of said deficiencies being found;

- f. Stabilizing disturbed soils in a timely fashion to minimize erosion. If a grading operation at the site will be suspended for a period of thirty (30) or more consecutive days, the Permittee shall, within the first seven (7) days of that suspension period, accomplish seeding and mulching or take such other appropriate measures to stabilize the soil involved in such grading operation. Within seven (7) days after establishing final grade in any grading operation at the site the Permittee shall seed and mulch the soil involved in such grading operation or take such other appropriate measures to stabilize such soil until seeding and mulching can be accomplished.
- g. Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the five hundred (500) year flood. Any other material or equipment stored at the site below said elevation by the Permittee or the Permittee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.
- h. Immediately informing the Connecticut Department of Energy and Environmental Protection's Planning and Program Development Office at (860) 424-3003 of the occurrence of pollution or other environmental damage resulting from construction or maintenance of the authorized activity or any construction associated therewith in violation of this certificate. The Permittee shall, no later than 48 hours after the Permittee learns of a violation of this certificate, report same in writing to the Connecticut Department of Energy and Environmental Protection. Such report shall contain the following information:
 - i. The provision(s) of this certificate that has been violated;
 - ii. The date and time the violation(s) was first observed and by whom;
 - iii. The cause of the violation(s), if known;
 - iv. If the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and time(s) it was corrected;
 - v. If the violation(s) has not ceased, the anticipated date when it will be corrected;

- vi. Steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented; and
- vii. The signatures of the Permittee and of the individual(s) responsible for actually preparing such report, each of whom shall certify said report in accordance with General Condition number 13 of this certificate.

For information and technical assistance, contact the Connecticut Department of Energy and Environmental Protection's Planning and Program Development Office at (860) 424-3003.

11. Other Regulated Activities. Should the Permittee wish to conduct any regulated activity in the future which requires the issuance of a permit from the Connecticut Department of Energy and Environmental Protection, the Permittee must obtain the appropriate permit(s) prior to conducting such activity. Please be aware that performing an activity without a permit required by Title 22a of the General Statutes may subject the Permittee to an injunction and penalties.
12. Public Use. The Connecticut Department of Energy and Environmental Protection and the U.S. Fish and Wildlife Service recommend that the Permittee permit access to the Project area wherever possible to allow for public utilization of fish and wildlife resources, taking into consideration any necessary restrictions to maintain public safety and protect Project civil works.
13. Certification of Documents. Any document, including but not limited to any notice, which is required to be submitted to the Connecticut Department of Energy and Environmental Protection under this certificate shall be signed by the Permittee, a responsible corporate officer of the Permittee, a general partner of the Permittee, or a duly authorized representative of the Permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense in accordance with section 22a-6 under section 53a-157b of the Connecticut General Statutes."

14. Submission of Documents. The date of submission to the Connecticut Department of Energy and Environmental Protection of any document required by this certificate shall be the date such document is received by the Connecticut Department of Energy and Environmental Protection. Except as otherwise specified in this certificate, the word "day" as used in this certificate means the calendar day. Any document or action which falls on a Saturday, Sunday, or legal holiday shall be submitted or performed by the next business day thereafter. Any document or notice required to be submitted to the Connecticut Department of Energy and Environmental Protection under this certificate shall, unless otherwise specified in writing by the Connecticut Department of Energy and Environmental Protection, be directed to:

Office of Planning & Program Development
Department of Energy and Environmental Protection
79 Elm Street, Third Floor
Hartford, Connecticut 06106-5127

Document Content(s)

P-14550-001Order.DOC.....1-48