

23 FERC 162,043

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Boott Mills and Proprietors of the)
Locks and Canals on Merrimack River

Project No. 2790-000

ORDER ISSUING LICENSE (MAJOR)

(Issued April 13, 1983)

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

Boott Mills and Proprietors of the Locks and Canals on the Merrimack River (Boott Mills) filed an application for license under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Lowell Hydroelectric Project No. 2790. 1/ The project would be located at the Pawtucket Dam and adjoining canal system on the Merrimack River, a navigable waterway of the United States, in Middlesex County, Massachusetts. 2/

Notice of the application has been published and comments have been received from interested Federal, state, and local agencies. No protests have been received, and none of the agencies objected to issuance of the license. The Massachusetts Municipal Wholesale Electric Company, Massachusetts Hydro Associates, Atlantic Associates, New Hampshire Hydro Associates, Dr. Patrick J. Morgan, Appleton Trust and James T. Lichoulas, Jr., Trustee, and Lawrence Hydroelectric Associates and Essex Company were granted intervenor status. 3/ The significant concerns of the intervenors and commenting agencies are discussed below.

- 1/ Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under §375.308 of the Commission's regulations, 18 C.F.R. §375.308 (1982), FERC Statutes and Regulations §30,238. This order may be appealed to the Commission by any party within 30 days of its issuance pursuant to Rule 1902, 18 C.F.R. 385.1902, FERC Statutes and Regulations §29,052, 47 Fed. Reg. 19014 (1982). Filing an appeal and final Commission action on that appeal are prerequisites for filing an application for rehearing as provided in Section 313(a) of the Act. Filing an appeal does not operate as a stay of the effective date of this order or any other date specified in this order, except as specifically directed by the Commission.
- 2/ Merrimack River was found navigable in the Order Issuing License for Project No. 1893, issued May 5, 1949.
- 3/ Dr. Patrick J. Morgan, Appleton Trust and James T. Lichoulas, Jr., Trustee withdrew their intervention.

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Project History and Description

The project would consist of: (1) the existing masonry gravity Pawtucket Dam; (2) a reservoir with a storage capacity of about 3,960 acre-feet; (3) the Northern and Pawtucket Canal System comprised of several small dams and gatehouses; (4) four existing power plants located along the canal system in old mill buildings with a total installed capacity of 7,915 kW; (5) a new powerhouse drawing water from the Northern Canal, with an installed capacity of 15,000 kW (Lowell Power Station); (6) a new tailrace channel; (7) fishway facilities at the dam and proposed powerhouse; and (8) a new transmission line. A more detailed project description is contained in ordering paragraph (B).

The Assets Power Station was constructed in 1911 and additional capacity was installed in 1913. The Bridge Street Power Station was constructed in 1910 and additional capacity was installed in 1918, 1920 and 1921. The Hamilton Power Station was constructed in 1918 and additional capacity was installed in 1919, 1920 and 1922. The John Street Power Station was constructed in 1919 and additional capacity was installed in 1923 and 1949.

Safety and Adequacy

The Pawtucket Dam was analyzed for stability and found to be safe against sliding and overturning for loading conditions of flood-waters through submergence, normal reservoir, ice, and earthquake. During maximum flood flows the Pawtucket Dam would be submerged, but should it fail it would not significantly increase the downstream peak flow further endangering downstream life and property. The spillway capacity is adequate.

The water retaining structures in the canal system act as check structures maintaining an environmentally pleasing water surface elevation, impounding very little storage, and would not pose a threat to downstream life or property if they should fail.

The existing project structures are adequately maintained and are stable.

Economic Feasibility

The project would essentially be operated as a run-of-river facility, however, the project does have the capability of impounding a small amount of water for daily peaking capability. The new 15 MW powerhouse would generate 74,250,000 kWh with a 57% plant factor. When river flows exceed the hydraulic capacity of the proposed powerhouse, the existing hydroelectric equipment on the canals would be

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utilized producing an additional 5,750,000 kWh, with an 8% plant factor. The total hydroelectric energy produced by the project represents a fuel savings of 127,000 barrels of oil or 37,000 tons of coal annually.

Boott Mills has entered into an agreement to sell all project power output to the Commonwealth Electric Company, a Massachusetts corporation. 4/ 5/ Based upon the terms of the agreement and the estimated annual cost of the project, the project is deemed economically feasible.

Cultural Resources

The area to be affected by the proposed project is located within the Locks and Canals Historic District, a property listed on the National Register of Historic Places. In addition, the project would be within the boundaries of the Lowell National Historical Park, and is situated in the Preservation District established by the Lowell Historic Preservation Commission. The area is also designated as a National Landmark, attesting to its significance in the history of the United States. The area also remains as one of the most important historic engineering resources in the northeast.

Historical properties within the immediate impact area include the Northern Canal, the Great River Wall, River Walk, Pawtucket Dam, Northern Canal Gatehouse and Lock, and the Northern Canal Waste gate structure.

The New Hampshire State Historic Preservation Officer (SHPO) concluded that the proposed project would have no effect on significant historic and archeological resources, located on upstream portions of the Merrimack River in New Hampshire.

Pursuant to extensive consultations with the Massachusetts SHPO and the National Park Service (NPS), Boott Mills has agreed to relocate the proposed powerhouse in order to avoid destroying the historic Waste Gates on the Northern Canal, and to repair, at its own expense, the Northern Canal Gates, and to restore them to their original condition. At the same time, Boott Mills has modified its plans for fish passage facilities so as to avoid any impacts to the Northern Canal Gatehouse, while still providing for the movement of anadromous fish past project facilities.

4/ Power Sales Contract dated January 10, 1983.

5/ The Massachusetts Municipal Wholesale Electric Company was granted intervenor status as a possible purchaser of power from the project.

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Finally, Boott Mills has proposed the construction of a set of locks at the site of the new diversion/control structure in the Northern Canal to provide for passage of boat traffic, and to avoid any loss of historic function of the canal system.

As mitigation for the remaining effects of the project on historic properties, Boott Mills has advanced a series of proposals designed to minimize the impacts of introducing new structures into the historic district and historic park. These proposals include: (1) to compensate for impacts to the canal wall, cut ledge, and walkway, historical research designed to provide cultural and engineering data, and to produce plans and elevations for affected features; (2) field recording of any historic and engineering features, to include photographs, sketches, and notes; (3) reconstruction of a segment of the Northern Canal Walkway, using the original stones from the existing walkway; (4) landscaping treatments that would emphasize the revegetation of disturbed areas with native plant material, the integration of new facilities into existing state and Federal park designs, and the placement of transmission lines in inconspicuous or underground locations.

The Massachusetts SHPO has concluded that the proposed project would result in no adverse effect on the Locks and Canals Historic District provided that: (1) the SHPO would have an opportunity to review and comment upon the preliminary design of the power structure, that the structure would be designed to meet the Secretary of the Interior's standards for new construction adjacent to historic properties, and that the power structure would be compatible with the historic properties in size, scale, massing, and materials; (2) the SHPO would be provided with an opportunity to review and comment upon the design of the fish ladder with respect to its impacts on the Pawtucket Dam, and Boott Mills would develop a program to record the structural details of the dam in accordance with the standards of the Historic American Engineering Record; (3) any future action related to the hydroelectric project that would change the mean seasonal water level in the canal system, or would impair navigability, would be reviewed in accordance with the Advisory Council on Historic Preservation's regulations; and (4) the project would include a set of locks to allow passage around the diversion/control structure to be constructed across the Northern Canal. Boott Mills has agreed to all of the Massachusetts SHPO's conditions.

The NPS has concurred with the conditions of agreement between the SHPO and Boott Mills. According to the NPS, the conditions are consistent with NPS positions on the proposed project, and the NPS has reached an agreement with Boott Mills on two of the issues addressed by the SHPO--the regulation of water levels in the lower Pawtucket Canal and the construction of the bypass lock around the diversion/control structure.

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Staff's review of the effects of the Lowell Hydroelectric Project on the Locks and Canals Historic District indicates that Boott Mills' design changes, and its proposed mitigative measures, will safeguard the historic characteristics that qualify the district, and its individual components, for listing on the National Register of Historic Places. Boott Mills has agreed, at considerable additional cost, to design its project to avoid impacts to the historic waste gate structures, to provide for fish passage without affecting the historic Northern Canal Gatehouse, to repair and restore the Northern Canal Gates, to restore and preserve the Northern Canal Walkway, and to provide visitor facilities illustrating the similarities and contrasts between historic and modern power generation on the Lowell canal system. In addition, although the project will introduce new structures and features into the historic district, Boott Mills has agreed that the SHPO will be provided an opportunity to ensure compatibility with existing historic features. Moreover, when physical changes are made that would affect historic properties, the modifications will be preceded by a documentation program carried out in conformance with the standards of the Historic American Engineering Record. The Advisory Council on Historic Preservation has concurred with the staff's evaluation of effects on historic properties.

For the above reasons, it is concluded that the project as modified, with the mitigative measures agreed to among Boott Mills, the SHPO, and the NPS, will result in no adverse effect on the Locks and Canals Historic District. License Article 33 specifies the mitigative measures agreed to with the Massachusetts SHPO and concurred in by the Advisory Council on Historic Preservation.

Fish and Wildlife Resources

The U.S. Fish and Wildlife Service (FWS) stated that except for occasional transient individuals, no federally listed or proposed threatened or endangered species are known to exist in the project impact area.

FWS and the Massachusetts Division of Fish and Wildlife stated that the conceptual design of the fishway, modified channel, and fish elevator were adequate, and that submission of final plans to Federal and state agencies for approval prior to starting construction of the fish passage facilities would be necessary. These agencies concluded that: (1) the operating schedule for the fish passage facilities should be developed by the appropriate Federal and state agencies; (2) flows proposed by Boott Mills for operation of the fish passage facilities would have to be assessed for adequacy; and (3) downstream migrant facilities would be required.

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Boott Mills stated that additional study and observation must be made in order to precisely define flows and the extent of channel modifications needed, and that studies utilizing tagged fish would have to be conducted to determine the suitability of the proposed fish passage facilities. Until studies are completed, however, Boott Mills requested that the project be licensed with their proposed mode of operation of the fish passage facilities, and further stated that operation could be modified in coordination with the Commission and other appropriate agencies if the studies indicate that such operation is inadequate.

It is concluded that the success of fish passage through the Northern Canal and Gatehouse should be assessed and studies conducted to determine if Boott Mills' proposed flows of 300 and 500 cubic feet per second (cfs) are adequate. Further, specific operating criteria and flow releases would have to be developed for the fish lift. Downstream migrant facilities would be needed at the project. This would require the Licensee to design such facilities, and file functional design drawings for approval. License Articles 34 and 35 require that appropriate studies be conducted, and functional design drawings be filed with the Commission for approval.

Water Quality and Quantity

The U.S. Department of Interior (Interior) noted that Boott Mills' proposal contained no information on providing flows through the canal system for maintenance of canal water quality. Boott Mills responded that flows would be provided for that purpose. Further, the Massachusetts State Division of Water Pollution Control (WPC) requires in its water quality certificate issued for the project on July 26, 1982, a study to determine the impacts of the project flows on the canal system water quality.

FWS recommended Aquatic Base Flows (ABF) of 4.0, 0.5, and 1.0 cubic feet per second per square mile of drainage area (cfs/m) for the spring, summer and fall critical periods, respectively. Interior stated that the major concern was the impact of flows on late, adult migrant salmon in June and on juvenile shad migration in the fall. The FWS later stated that the above flow recommendations were preliminary and that an ABF of 0.5 cfs/m or 1,990 cfs was appropriate to protect and maintain fishery resources. FWS also indicated that the ABF of 0.5 cfs/m could be lowered provided that additional studies demonstrate that lower flows provide adequate protection and enhancement of resident and anadromous fishery resources.

The Environmental Protection Agency recommended that the project be operated in a manner that provides for an instantaneous minimum flow release equal to or greater than 862 cfs. WPC in its water

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quality certificate requires Boott Mills to release a minimum continuous flow of 905 cfs. This flow would be released as a combination of flows from the fish passage facilities, the dam, as leakage through the dam, the proposed powerhouse, the John Street Power Station, and other points of leakage.

It is concluded that a minimum flow release of 905 cfs from the project would maintain downstream water quality, but may not adequately protect and enhance resident and anadromous fishes below the project. Similarly, it has not been demonstrated that the ABF of 0.5 cfs, or 1,990 cfs, would provide the necessary protection and enhancement to fishery resources. Article 35 requires Boott Mills to perform studies to determine the effectiveness of passage facilities in assisting the migration of anadromous fish. It is concluded that a study is also warranted to determine the minimum flow release from the project for the protection and enhancement of aquatic habitat and for the mitigation of anadromous fish. License Articles 36 and 37 require the Licensee to release an interim flow of 905 cfs from the project, and to conduct studies to determine the flow releases needed to protect and enhance fishery resources.

Recreation

The Massachusetts Department of Environmental Management (DEM) stated that it has reached agreement with Boott Mills concerning acquisition of certain canal properties and water rights for the Lowell Heritage State Park, subject to issuance of an FERC license. Further, DEM stated that Boott Mills' responsibility to provide recreational benefits as a condition of an FERC license has been partially satisfied through Boott Mills' commitments to: (1) construct a navigation lock at the Northern Canal control structure; (2) construct a visitor facility at the powerhouse; (3) restore portions of the Northern Canal Walkway near the powerhouse; and (4) repair the Northern Canal gates. DEM, however, requested that since various details related to the agreement are in the process of being resolved, Boott Mills' Report on Recreational Resources (formerly Exhibit R) should not be approved until all elements of the agreement can be included therein. As noted previously, the National Park Service stated that since Boott Mills has agreed to lower canal water levels approximately 6 inches during the May 15 to October 15 recreational season and to provide a navigation lock at the Northern Canal control structure, it would not object

Boott Mills did not object to delaying approval of the recreation report pending resolution of details dealing with land transfers and other recreational matters still under discussion. Boott Mills also stated that any remaining issues associated with the agreements would not adversely affect its ability to operate the project as

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proposed. License Article 38 requires the Licensees to file for Commission approval a revised Report on Recreational Resources.

Environmental Impacts

Construction activities would produce some minor short-term environmental impacts such as dust and noise from vehicles and machinery, and periods of turbidity and attendant sedimentation in the Merrimack River near the powerhouse, tailrace channel, and fishway sites. Further, minor long-term impacts to historic properties are expected to occur. Boott Mills, in cooperation with the appropriate state and Federal agencies, has proposed mitigative measures to safeguard the historic characteristics of the project area.

During project operation, natural river flows would be reduced in the reach of the river from the Pawtucket Dam to below the proposed project and for periods of time in the reach of the river from the proposed project to Essex Dam at Lawrence. While the changes in the natural flow regime of the Merrimack River could impact anadromous fish migration, resident fish populations, and water quality, Boott Mills proposed mitigative measures, license articles contained herein, and the conditions imposed on Boott Mills through the water quality certification should ensure that no significant long-term adverse impacts would occur to those resources.

Boott Mills has agreed to provide fish passage and visitor facilities at the powerhouse, to restore several historic structures along the canal system, and to maintain canal navigability and water quality in cooperation with the appropriate state and Federal agencies.

On the basis of the record, and staff's independent analysis, we conclude that issuance of a license for the project as conditioned herein would not constitute a major Federal action significantly affecting the quality of the human environment.

Other Aspects of Comprehensive Development

Massachusetts Hydro Associates and Atlantic Associates were granted intervenor status to protect their interests as owners and operators of certain hydroelectric facilities and mill powers adjacent to the proposed project. 6/

6/ Pursuant to written agreement with Applicant dated February 1, 1982, intervenors state that they support license application.

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New Hampshire Hydro Associates, Permittee for Moore's Falls Project No. 3094, ^{7/} and Lawrence Hydroelectric Associates and Essex Company, Licensees for the Lawrence Project No. 2800, both on the Merrimack River, were granted intervenor status to ensure that the proposed project does not adversely affect their respective projects.

It is concluded that the project will make good use of the flow and fall of the Merrimack River, is not in conflict with any existing, planned or potential development and will be best adapted to the comprehensive development of the river basin, as conditioned in this license.

License Term and Annual Charges

The proposed new capacity project using an existing dam is similar to relicensing an existing licensed project at which a moderate amount of new development is proposed; therefore, consistent with the Commission's policy, this license will terminate on April 30, 2023. ^{8/}

The existing project was the subject of a jurisdictional proceeding prior to the filing of this application for license. As noted earlier, power generation was first installed at the site in 1916.

For projects having no valid (pre-1920) Federal permit and located on a navigable stream, past Commission policy under the Androscoggin rule ^{9/} has been to issue a license effective as of April 1, 1962, or the date when a Commission finding of navigability has been made, whichever is earlier. Because of the 50-year maximum statutory license period, however, this license will be made effective May 1, 1973.

In accordance with the order issuing a license for the Shoshone Falls Project, ^{10/} annual charges will be based upon the effective date, but this license will also be conditioned upon payment of an amount equivalent to the annual charges that would otherwise have been due for the period from May 1, 1949 (the first day of the month in which the river was found navigable) to April 30, 1973. This payment is not a penalty, but is intended to place the Applicant as nearly as possible in the same position it would

^{7/} New Hampshire Hydro Associates surrendered its permit and is no longer pursuing the development of Project No. 3094.

^{8/} Village of Lyndonville Electric Department, 7 FERC 961,324 (June 29, 1979).

^{9/} See Public Service Company of New Hampshire, Project No. 2288, 27 FPC 830 (1962).

^{10/} See Idaho Power Company, Project No. 2778, issued June 13, 1979.

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have been in before our change in termination date policy, and the same position as similarly situated Licensees who received their license before that change in policy.

It is ordered that:

(A) This license is issued to Boott Mills and Proprietors of the Locks and Canals on Merrimack River (Licensee) under Part I of the Federal Power Act (Act) for a period of 50 years, effective May 1, 1973, for construction, operation, and maintenance of the Lowell Hydroelectric Project No. 2790, located in Middlesex County, Massachusetts, on the Merrimack River, a navigable waterway of the United States. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The Lowell Hydroelectric Project No. 2790 would consist of:

(1) All lands, to the extent of the Licensee's interests in those lands, constituting the project area and enclosed by the project boundary. The project area and boundary are shown and described by certain exhibits that form part of the application for license and that are designated and described as:

<u>Exhibit</u>	<u>FERC No. 2790-</u>	<u>Showing</u>
G-1	38	General Map of Project Area
G-2	39	Detail Map of Project Area
G-3	40	Detail Map of Project Area
G-4	41	Detail Map of Project Area
G-5	41	Detail Map of Project Area
G-6	42	Detail Map of Project Area
G-7	43	Detail Map of Project Area
G-8	44	Detail Map of Project Area

(2) Project works consisting of: (1) the 1,093-foot-long and 15-foot-high Pawtucket Dam with 5-foot-high collapsible flashboards; (2) a reservoir with a storage capacity of 3,960 acre-feet; (3) the 5.5-mile-long Northern and Pawtucket Canal System; (4) four power stations housed in nineteenth century mill buildings along the canal system; and (5) a new power station drawing water from the Northern Canal.

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The five power stations components description follows:

- a. The Hamilton Power Station consists of: (1) five turbine-generator units with a total installed capacity of 1,180 kW; (2) 600-volt generator leads and 600-volt switchgear for each of the five generators; (3) a 600-volt generator bus and 600-volt main feeder breaker; (4) a single 600-volt station service feeder and associated 600-volt switchgear; (5) a single 600 VAC/125 VDC motor-generator exciter; and (6) other appurtenances.
- b. The Assets Power Station consists of: (1) three turbine-generator units with a total installed capacity of 795 kW; (2) 600-volt generator leads and 600-volt switchgear for each of the three generators; (3) a single 600-volt switchgear; (4) a single 50 600-volt VAC/125 VDC motor-generator exciter; and (5) other appurtenances.
- c. The Bridge Street Power Station consists of: (1) six turbine-generator units with a total installed capacity of 2,440 kW; (2) 600-volt generator leads and 600-volt switchgear for each of the six generators; (3) three 600-volt station service feeders and associated 600-volt switchgear; (4) three 600-volt VAC/125 VDC motor-generator exciters; and (5) other appurtenances.
- d. The John Street Power Station consists of: (1) five turbine-generator units with a total installed capacity of 2,500 kW; (2) 600-volt generator leads and 600-volt switchgear for each of the five generators; (3) two 600-volt generator busses and two 600-volt main feeder breakers; (4) three 600-volt station service feeders and associated 600-volt switchgear; (5) five 600 VAC/125 VDC motor-generator exciter sets; and (6) other appurtenances.
- e. The Lowell Power Station would consist of: (1) a powerhouse with 4 turbine-generator units with a total installed capacity of 15,000 kW; (2) a 1,000-foot-long tailrace; (3) fish passage facilities; (4) a canal control structure and navigation lock; (5) four 4.16 kV generator leads and 5 kV switchgear; (6) a 4.16 kV generator bus and 5 kV cables connecting the bus to the main step-up transformer and the station service transformer; (7) a 4.16/23 kV main step-up transformer; (8) a 141-foot-long, 23 kV cable and a 4,200-foot-long, 23 kV overhead line; (9) a 23 kV oil circuit recloser; and (10) other appurtenances.

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The location, nature, and character of these project works are more specifically shown and described by the exhibits cited above and by certain other exhibits which also form part of the application for license and which are designated and described as:

<u>Exhibit</u>	<u>FERC No. 2790-</u>	<u>Subject</u>
F-1	5	Key Plan
F-2	6	Powerhouse Control Structure and Lock
F-3 (revised)	7	Powerhouse and Fish Passageway
F-4 (revised)	8	Powerhouse and Fish Passageway
F-5	9	Tailrace Channel
F-6	10	Pawtucket Dam
F-7 (revised)	11	Pawtucket Dam and Passageway
F-8	12	Assets Power Station
F-9	13	Assets Power Station
F-10	14	Bridge Street Power Station
F-11	15	Bridge Street Power Station
F-12	16	Hamilton Power Station
F-13	17	Hamilton Power Station
F-14	18	John Street Power Station
F-15	19	John Street Power Station
F-16	20	Northern Canal Gatehouse
F-17	21	Northern Canal Wastegates, Old Guard Locks and Gate
F-18	22	Moody Street Feeder Gatehouse
F-19	23	Lawrence Dam, Tremont Wasteway and Hall Street Dam

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<u>Exhibit</u>	<u>FERC No. 2790-</u>	<u>Subject</u>
F-20	24	Lower Lake and Dam, and Swamp Locks and Dam
F-21	25	Rolling Dam, Merrimack Dam, and Bottom Dam
F-22	26	Canal and River Plan
F-23	27	Canal and River Plan
F-24	28	Canal and River Plan
F-25	29	Canal and River Plan
F-26	30	Canal and River Plan
F-27	31	Canal and River Plan
F-28	32	Canal and River Plan
F-29	33	River Sections
F-30	34	River Sections
F-31	35	Canal Sections
F-32	36	Canal Sections
F-33	37	Canal Sections

(3) All of the structures, fixtures, equipment, or facilities used or useful in the operation or maintenance of the project and located within the project boundary, all portable property that may be employed in connection with the project, located within or outside the project boundary, as approved by the Commission, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits F and G, designated in ordering paragraph (B) above are approved and made a part of the license.

(D) This license is also subject to Article 1 through 28 set forth in Form L-4 (revised October, 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Navigable Waters of the United States," attached to and made a part of this license. This license is also subject to the following additional articles:

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Article 29. The Licensee shall review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction and shall ensure that construction of cofferdams and deep excavations are consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the Licensee shall file with the Commission's Regional Engineer and Director, Office of Electric Power Regulation, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Article 30. The Licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy each of the final contract drawings and specifications for pertinent features of the project such as water retention structures, powerhouse and water conveyance structures, at least 60 days prior to the start of construction. The Director, Office of Electric Power Regulation may require changes in the plans and specifications to ensure a safe and adequate project.

Article 31. The Licensee shall commence the construction of the project within one year of the date of issuance of the license and shall thereafter in good faith and with due diligence prosecute and complete such construction of project works within three years of the date of issuance of the license.

Article 32. The Licensee shall pay the United States the following annual charges, 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 Part I of the Act:

(1) For the period from May 1, 1949, through April 30, 1973, an amount equal to the annual charges that would have applied for the period if the project had been licensed during that period. The authorized installed capacity for this purpose is 10,550 horsepower.

(2) For the period from May 1, 1973, through April 30, 1983, the annual charges ordinarily due in accordance with the Commission's regulations. The authorized installed capacity for this purpose is 10,550 horsepower.

(3) From May 1, 1983, the full annual charge computed in accordance with the Commission's regulations. The authorized installed capacity for this purpose is 30,500 horsepower.

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Article 33. The Licensee shall, prior to the commencement of any construction activities that would affect historical properties, cooperate with the Massachusetts State Historic Preservation officer (SHPO) and the National Park Service (NPS) to carry out a mitigation program, as concurred in by the Advisory Council on Historical Preservation, for avoiding or minimizing adverse effects on the Locks and Canals Historic District and the Lowell National Historical Park. The Licensee, as part of its mitigation program, shall: (1) conduct historical research designed to provide cultural and engineering data on structures to be affected by the project, and to produce plans and elevations for affected features; (2) record the historic and engineering characteristics of properties to be altered, through photographs, sketches, and field notes; (3) reconstruct impacted segments of the Northern Canal Walkway, using the original stones from the existing walkway; (4) employ landscaping treatments that emphasize revegetation of disturbed areas with native plant materials, the integration of new facilities into existing state and Federal park designs, and the placement of transmission lines in inconspicuous or underground locations; (5) provide the SHPO with an opportunity to review and comment upon the preliminary design of the power structure, to ensure that the structure would be designed to meet the Secretary of the Interior's standards for new construction adjacent to historic properties, and design the power structure to be compatible with existing historic properties in size, scale, massing, and materials; (6) allow the SHPO to review and comment upon the design of the proposed fish ladder with respect to its impacts on the Pawtucket Dam, and design a program to record the structural details of the dam that would be affected by the new ladder; (7) allow the Advisory Council on Historic Preservation to review and comment upon any future actions related to the project that would change the mean seasonal water levels in the canal system or that would impair navigability in the system; (8) construct a set of locks to allow passage around the control structure to be constructed across the Northern Canal; (9) repair the Northern Canal Gates and restore them to their original condition; and (10) provide visitor facilities, illustrating the similarities and contrasts between historic and modern power generation on the Lowell canal system. Licensee shall also make available funds in a reasonable amount for the mitigative measures required and shall ensure that any recording work is performed in accordance with the standards of the Historic American Engineering Record.

If any previously undiscovered archeological sites are found during the course of project construction, those activities shall be halted, a qualified archeologist shall be consulted to determine the significance of the resources, and the Licensee shall consult with the SHPO to develop a mitigation plan for the protection of

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significant archeological resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on historical and archeological work at the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any work found necessary.

Article 34. The Licensee shall, within 3 months from the date of issuance of this license, file for Commission approval functional design drawings of the upstream and downstream fish passage facilities to include drawings of the improved natural channel, a construction schedule, and cost estimates for the facilities, prepared in consultation with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Massachusetts Division of Fisheries and Wildlife, and the Massachusetts State Historic Preservation Officer. Letters of comment on the proposed facilities from the above agencies shall be attached to the filing. Further, Licensee shall file "as-built" drawings with the Commission within 6 months after completion of the passage facilities.

Article 35. The Licensee shall, in cooperation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the Massachusetts Division of Fisheries and Wildlife, conduct or pay for others to conduct an operational study to determine the effectiveness of the fish passage facilities, as required by Article 34, during a 2-year period following completion of construction.

A final report containing the results of the study, and recommendations for further studies or for changes in operation of the fish passage facilities, shall be filed with the Commission within 6 months following completion of the study. The Commission reserves the right, after notice and opportunity for hearing, to require additional studies or such reasonable changes in the project's fish passage facilities and operations as may be found necessary to maintain anadromous fish migrations past the project.

Article 36. The Licensee shall, after consultation with the Massachusetts Division of Fisheries and Wildlife, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service, develop (1) an instream flow study plan to determine the relationship between project discharges and downstream aquatic habitat, and (2) a fishery study plan to determine project discharges necessary to provide for the migration of anadromous fish. Within 4 months from the date of issuance of this license, the Licensee shall file with the Commission for approval with copies to the agencies consulted, the instream flow and fishery study plans, and a schedule for completion. Documentation of agency consultation on the study plans shall be included in the filing.

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Licensee shall conduct the instream flow and fishery studies as approved by the Commission and in accordance with the schedule. Within 3 months from the date of completion of the studies, the Licensee shall file, with copies to the agencies consulted, a report on the results of the studies, and, for Commission approval, recommendations for flow releases from the project. Documentation of agency consultation on the report and recommendations shall be included in the filing.

Article 37. The Licensee shall discharge from the Lowell Hydroelectric Project an interim continuous minimum flow of 905 cubic feet per second, as measured immediately downstream from the project, or the inflow to the reservoir, whichever is less, for the purpose of protecting fish and wildlife resources. The interim minimum flow may be temporarily modified if required by operating emergencies beyond the control of the Licensee, for the minimum flow study required by Article 36, and for short periods for fishery management purposes upon mutual agreement between the Licensee and the Massachusetts Division of Fisheries and Wildlife.

Article 38. Licensee shall within 1 year from the date of issuance of this license and in consultation with the Massachusetts Department of Environmental Management, the Massachusetts State Historic Preservation Officer, and the National Park Service, prepare and file for Commission approval, a revised Report on Recreational Resources for the Lowell Hydroelectric Project. The report shall include, but not be limited to: (1) functional plans, site development costs, and schedules for constructing a navigation lock at the Northern Canal control structure, for restoring the Northern Canal walkway near the powerhouse, for repairing the Northern Canal Gates, and for providing a visitor facility at the powerhouse; and (2) a canal system water elevation maintenance plan to allow National Park Service tour boats to navigate on the lower canal system. The report shall also include copies of agreements with cooperating entities and letters of comment on the report from those agencies consulted.

Article 39. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain other types of use and occupancy, without prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the uses and occupancies for which it grants permission,

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and to monitor the use of, and to ensure compliance with the covenants of the instrument of conveyance for any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time where said facility is intended to serve single-family type dwellings; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the uses and occupancies for which it grants permission are maintained in good repair and comply with applicable State and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary State and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and

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electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The Licensee may convey fee titles to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary State and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary Federal and State water quality certificates or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary Federal and State approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the Licensee must file a letter to the Director, Office of Electric Power Regulation, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any Federal or State agency official consulted, and any Federal or State approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraphs (c) or (d) of this article:

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(1) Before conveying the interest, the Licensee shall consult with Federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the Licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

Article 40. Pursuant to Section 10(d) of the Act, after the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization

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reserves. One half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.


The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the reasonable rate of return is the product of its capital ratio and cost rate. The annual capital ratio for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts properly includable in the Licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 41. The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 42. Within 90 days from the date of acceptance of this license, the Licensee shall file a statement under oath showing the gross amount of power generation for the project in kilowatt-hours for each calendar year commencing May 1, 1949, in accordance with the provisions of Section 11.20(a)(4) of the Commission's regulations.

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(E) The Licensee's failure to file a petition appealing this order to the Commission shall constitute acceptance of this license. In acknowledgment of acceptance of this order and its terms and conditions, it shall be signed by the Licensee and returned to the Commission within 60 days from the date this order is issued.


Lawrence R. Anderson
Director, Office of Electric
Power Regulation

Project No. 2790-000

IN TESTIMONY of its acknowledgment of acceptance of all of the terms and conditions of this Order, Boot Mills and Proprietors of the Locks and Canals on Merrimack River this ____ day of _____, 19____, has caused its corporate name to be signed hereto by _____, its _____ President, and its corporate seal to be affixed hereto and attested by _____ its _____ Secretary, pursuant to a resolution of its Board of Directors duly adopted on the ____ day of _____, 19____, a certified copy of the record of which is attached hereto.

By _____
President

Attest:

Secretary

(Executed in quadruplicate)

Form L-4
(Revised October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR
UNCONSTRUCTED MAJOR PROJECT AFFECTING
NAVIGABLE WATERS OF THE UNITED STATES

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

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Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Power Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any feature or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

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Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

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Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

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Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensees shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensees to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

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Article 15. The Licensee shall, 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 the 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 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 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

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Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner

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as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee

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or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 27. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 28. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

Document Content(s)

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