

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

City of Kaukauna, Wisconsin

Project No. 2715-005

ORDER ISSUING NEW LICENSE (MAJOR)

(Issued March 31, 1986)

The City of Kaukauna, Wisconsin (Applicant/Licensee) has filed an application for a license under Part I of the Federal Power Act (Act) to redevelop, operate, and maintain the Combined Locks Hydro Project No. 2715. The project is located on the Fox River, a navigable waterway of the United States, in Outagamie County, Wisconsin, and affects .25-acre of U.S. lands under the jurisdiction of the U.S. Army Corps of Engineers.

Notice of the application has been published and comments have been received from interested Federal, state, and local agencies. All protests that have been submitted, motions to intervene that have been granted, together with all comments filed by Federal, state, and local agencies have been fully considered in determining whether to issue this license. No party or agency commenting on the application objected to the issuance of the license.

Project History and Description

The Combined Locks and Dam was originally constructed in 1889, and reconstructed in 1912. Until the 1970's, the power generated was primarily used for papermill operations. The Applicant issued a license on September 23, 1980, for the period, September 1, 1950, to September 30, 2000. 1/ Effective July 30, 1984, in order to facilitate redevelopment of the project, the license was amended to accelerate the termination date and an annual license was issued covering the existing project works. 2/ Subsequently, the Applicant filed a new license application for the redevelopment of the project.

The Combined Locks Hydro Project No. 2715 as licensed consists of: (1) a 1,005-foot-long dam comprised of a non-overflow section of concrete and stone on the left abutment, a gated spillway section, an ungated spillway section, a grinder building section, and a right abutment section with trashrack and forebay; (2) a small reservoir; (3) a powerhouse containing seven generating units for a total installed capacity of 2,890 kW; (4) a substation; (5) appurtenant facilities. The Applicant would make two modifications to the dam: (1) the right abutment would be tied into the powerhouse; and (2) an ice sluice would be added to the spillway adjacent to the powerhouse.

1/ City of Kaukauna, Wisconsin, 12 FERC 162,238 (1980).

2/ City of Kaukauna, Wisconsin, 28 FERC 161,167 (1984).

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The proposed project as developed would consist of: (1) an approximately 1,005-foot-long and 28-foot-high concrete and stone dam; (2) a 134-acre reservoir; (3) a forebay leading to an intake section; (4) a powerhouse containing two generating units for a total installed capacity of 7 MW and an average annual generation of 39.4 GWh 3/; (5) a tailrace channel; (6) a 12.47-kV transmission line; and (7) appurtenant facilities. A more detailed project description is contained in ordering paragraph (B).

Safety and Adequacy

All project structures, machinery, and appurtenant facilities were analyzed and inspected by the Commission's staff for safety and adequacy. Staff finds the dam, powerhouse, and spillway structures to be safe against sliding and overturning under various normal and extreme loading conditions. The existing dam is classified as a significant hazard by the Chicago Regional Office. The project structures will be safe and adequate if constructed in accordance with sound engineering practices and the requirements of this license.

ENVIRONMENTAL CONSIDERATIONS

Erosion, Sedimentation, and Spoil Disposal

Project-related construction activities will cause short-term, localized erosion and sedimentation. The U.S. Forest Service recommends that a sediment and erosion control plan be implemented during project construction and operation. Article 38 requires the licensee to prepare a detailed plan to control erosion and slope stability, and to minimize the quantity of sediment resulting from construction and operation of the project.

Excavation of sediments from the existing tailrace will produce spoil materials. Increased flows in the existing tailrace channel resulting from project operation will flush sediment that has accumulated into the Fox River. The presence of fine-grained sediment in the tailrace channel acts as a sink for toxic substances. Reported contamination of fish in the lower Fox River by polychlorinated biphenyls (PCB's) indicates that sediments may be contaminated with PCB's.

The U.S. Environmental Protection Agency (EPA) recommends that: representative samples of sediment be analyzed for suspected pollutants; if the sediments are determined to be polluted, then

3/ Operation of the project utilizing a renewable resource would save the equivalent of approximately 64,700 barrels of oil or 18,500 tons of coal per year.

appropriate disposal methods be implemented. Article 39 requires the Licensee, in consultation with EPA and the Wisconsin Department of Natural Resources (DNR): to conduct laboratory analysis for the presence of PCB's in sediment that is removed from the tailrace channel; to provide the results of this analysis to the consulted agencies; and to develop and implement a plan for the disposal of sediments in a spoil area that is approved by EPA and the DNR.

Mode-of-Operation

The U.S. Department of the Interior (Interior) recommends that the license for the Combined Locks Project include a condition requiring run-of-river operation. The Wisconsin Department of Natural Resources expresses concern that any modifications to the flow regime of the Fox River could alter pollutant loadings of the river, resulting in adverse impacts to water quality. The Applicant proposes a run-of-river operation. Operation of the project in an instantaneous run-of-river mode will minimize impacts to water quality. Article 40 requires the Licensee to operate the project in a run-of-river mode such that the instantaneous discharge from the project is equal to the inflow to the project reservoir.

Bypassed Reach

Operation of the project will reduce flows in the reach of river located between the project dam and tailrace to leakage from the spillway gates and river flows in excess of 5,000 cubic feet per second (cfs). Interior expresses concern that a reduction of flow in the bypassed reach would increase water temperature and, in addition, would result in the deposition of fine sediment there.

The maximum water temperature measured during the summer low-flow period in the slackwater area of the tailrace was determined to be 26 degrees Centigrade. Water temperature of the bypassed reach is not expected to exceed this temperature since, unlike the tailrace, which receives no inflow under existing conditions, leakage from the spillway gates will be discharged through it. Consequently, it is not expected that the water temperature of the bypassed reach will increase sufficiently to adversely impact the warmwater fishery indigenous to the project area.

The reduction in spillage flows associated with the increased hydraulic capacity of the project will not significantly alter the sediment transport characteristics of the bypassed reach. The majority of peak discharge flows (i.e., flows greater than 15,000 cfs) that typically transport significant concentrations of fine silt and clay-size sediments will continue to pass through the bypassed reach. Sediment transported by the river

during these peak flow periods will tend to be deposited within the project impoundment rather than in the more riverine habitat of the bypassed reach.

Cultural Resources

The project area does not include any sites that are listed or eligible for inclusion in the National Register of Historic Places. Article 41 requires the licensee to implement measures for the protection of any cultural resources that may be discovered during the proposed construction or during any future construction at the project.

Other Environmental Concerns

Water quality certification of the Combined Locks hydroelectric Project, FERC No. 2715-005, as required by Section 401 of the Clean Water Act, was waived on February 15, 1984, by the Wisconsin Department of Natural Resources.

No Federally listed threatened or endangered species or critical habitat will be affected by the project.

FINDING OF NO SIGNIFICANT IMPACT

Construction-related vehicles and machinery will produce some minor, short-term, adverse impacts, including noise, dust, and emissions, and minor traffic delays in the project vicinity. Construction activities also will cause some minor sedimentation and turbidity in the Fox River for a short distance below the powerhouse site.

Project operation would result in the diversion of 80 percent of all river flows from a 0.4-mile-long segment of the Fox River. By eliminating most spill over the existing dam, project operation will cause a slight reduction in existing dissolved oxygen levels in the Fox River downstream of the Combined Locks Dam.

Mitigative measures and provisions of the license articles included herein will protect water quality and fish resources, provide for the detection and disposal of contaminated sediments, and protect any cultural resource discovered during the proposed construction and any future construction at the project site.

In accordance with the National Environmental Policy Act of 1969, an environmental assessment was prepared for the Combined Locks Hydroelectric Project (FERC No. 2715-005) on January 31, 1986.

On the basis of the record, and Staff's independent environmental analysis, issuance of a license for the project, as conditioned herein, will not constitute a major Federal action significantly affecting the quality of the human environment.

OTHER ASPECTS OF COMPREHENSIVE DEVELOPMENT

The proposed Combined Locks Hydroelectric Project is economically feasible when compared to the purchase of non-firm power from Wisconsin Electric Power Company, and adjusted for escalation. The project would have an installed capacity of 7.0 MW and generate an estimated 39.4 GWh annually.

The proposed project would adequately develop the flow and head at the existing dam site, is not in conflict with any planned or existing developments, and would be best adapted to the comprehensive development of the Fox River basin for beneficial uses under present conditions upon compliance with the terms and conditions of the license.

LICENSE TERM

Consistent with the Commission's policy, a 40-year license is reasonable in this instance since the proposed development involves the relicensing of an existing licensed project and a moderate amount of new development is proposed. Accordingly, this license will expire on July 29, 2024, 40 years from the expiration date of the prior long-term license.^{4/}

The Director orders:

(A) The license is issued to the City of Kaukauna, Wisconsin (Licensee) under Part I of the Federal Power Act (Act), for a period effective the first day of the month in which this order is issued, and terminating July 29, 2024, for the redevelopment, operation, and maintenance of the Combined Locks Hydro Project No. 2715, located in Outagamie County, Wisconsin, on the Fox River, a navigable waterway of the United States and occupying lands 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.

^{4/} The Montana Power Company, 56 F.P.C. 2008 (1976).

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(B) The Combined Locks Hydro Project No. 2715 consists of:

(1) All lands, to the extent of the licensee's interest in those lands, constituting the project area and enclosed by the project boundary. The project areas and boundary being shown and described by a certain exhibit which forms part of the application for license and which is designated and described as:

<u>Exhibit</u>	<u>FERC Drawing No. 2715-</u>	<u>Title</u>
G-1	25	Project Boundary

(2) Project works consisting of: (1) a concrete and cyclopean stone dam approximately 1,005 feet long and 26 feet high with additional 24-inch high flashboards mounted upon the spillway crest at elevation 675.56 feet m.s.l.; (2) a 134-acre reservoir at normal pool elevation 677.56 feet m.s.l.; (3) a forebay leading to the intake section; (4) a powerhouse approximately 68 feet wide and 105 feet long housing two 3,500-kw generators for a total installed capacity of 7,000 kW; (5) a tailrace channel; (6) a 12.47-kV transmission line approximately 850 feet long; and (8) appurtenant facilities.

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

<u>Exhibit</u>	<u>FERC Drawing No. 2715-</u>	<u>Title</u>
F-1	20	General Plan Two Unit New Powerhouse
F-2	21	Plan View Turbine
F-3	22	Longitudinal Section Turbine Generator Units
F-4	23	Dam Plan and Elevation
F-5	24	Dam Plan and Sections

Exhibit A: Table A-1 entitled "PRELIMINARY TURBINE AND GENERATOR DATA - PROPOSED NEW POWERPLANT"; Section A.5 entitled "TRANSMISSION LINES", sentences 1 and 3.

(3) All of the structures, fixtures, equipment, or facilities used or useful in the maintenance and operation of the project and located within the project boundary all portable property as may be used or useful in connection with the project or any part thereof, whether located within or outside the project boundary, if and to the extent that the inclusion of such property as part of the project is approved by the Commission; together with all riparian or other rights, the use or possession of which is necessary or appropriate in the maintenance of the project.

(C) Exhibits A, F, and G designated and described above are hereby approved.

(D) This license is subject to Articles 1 through 37 set forth in PERC Form L-6 (revised October 1975) entitled "Terms and Conditions of License for Unconstructed Major Projects Affecting Navigable Waters and Lands of the United States" which are attached to and made a part of this license. This license is also subject to the following special conditions set forth as additional articles:

Article 38. Licensee, after consultation with the Wisconsin Department of Natural Resources and the U.S. Soil Conservation Service, shall prepare and file with the Commission, within one year from the date of issuance of this license, a plan to control erosion and dust, to stabilize slopes and to minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project, including spoil disposal areas. The plan shall also include: functional design drawings and map locations of control measures; an implementation schedule; monitoring and maintenance programs for project construction and operation; provisions for periodic review of the plan and for making any necessary revisions to the plan. Documentation of agency consultation on the plan and copies of any agency comments or recommendations shall be included in the filing.

In the event that the Licensee does not concur with any agency recommendations, Licensee shall provide a discussion of the reasons for not concurring based on actual site geological, soil, and groundwater conditions. The Commission reserves the right to require changes to the plan. Unless the Director, Office of Hydropower Licensing, directs otherwise, the Licensee may commence ground disturbing or spoil-producing activities at the project 90 days after filing the above plan.

Article 39. Licensee shall, after consultation with the Wisconsin Department of Natural Resources (DNR), and the U.S. Environmental Protection Agency (EPA), prepare and file within 1

year from the date of issuance of this license: (1) the results of laboratory analysis of vertical sediment core samples to determine the polychlorinated biphenyl (PCB) content of sediment at various depths and locations in the tailrace channel; and (2) the results of particle size analysis of sediment samples. Licensee shall also file a plan to: minimize the discharge of sediments and any potential toxic substances into the Fox River that would occur due to dredging, construction, or operation of project facilities; safely dispose of any toxic substances discovered; and adequately dispose of spoils resulting from project construction. This plan shall include an implementation schedule, monitoring and maintenance programs for project construction and operation, and provisions for periodic review of the plan and for making any necessary revisions to the plan. In addition, the licensee shall identify a site for disposal of sediments to be approved by the DNR and the EPA. Documentation of agency consultation on the laboratory analyses and plan and copies of any agency comments or recommendations shall be included in the filing. The Commission reserves the right to require changes to the plan. Unless the Director, Office of Hydropower Licensing, directs otherwise, licensee may commence excavation and dredging activities at the project 90 days after filing the results of laboratory analyses and the above plan.

Article 40. Licensee shall operate the Combined Locks Hydroelectric Project in an instantaneous run-of-river mode for the protection and enhancement of fish and wildlife resources. Licensee, in operating the Combined Locks Hydroelectric Project in an instantaneous run-of-river mode, shall at all times act to minimize the fluctuation of the reservoir surface elevation by maintaining a continuous discharge from the project that approximates the instantaneous sum of all the inflow to the reservoir. Instantaneous run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods upon mutual agreement between the licensee and the Wisconsin Department of Natural Resources.

Article 41. Licensee shall, prior to any future construction at the project, consult with the Wisconsin State Historic Preservation Officer (SHPO) about the need for cultural resource survey and salvage work. Documentation of the nature and extent of consultation, including a cultural resources management plan, a schedule to conduct any necessary investigation prior to such construction, and a copy of a letter from the SHPO accepting the plan, shall be filed with the Commission within 6 months of any construction activity in the location of such investigations. Licensee shall make available funds in a reasonable amount for

any such work as required. If any previously unrecorded archeological or historic sites are discovered during the course of construction or development of any project works or other facilities at the project, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and Licensee shall consult with the SHPO to develop a mitigative plan for the protection of significant archeological or historic resources. If Licensee and the SHPO cannot agree on the amount of money to be expended on archeological or historical work related to the project, the Commission reserves the right to require Licensee to conduct, at its own expense, any such work found necessary.

Article 42. Licensee shall commence construction of project works within two years from the issuance date of the license and shall complete construction of the project within four years from the issuance date of the license.

Article 43. Licensee shall provide the Commission's Regional Director (one copy) and the Director, Division of Inspections, (two copies) 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 start of construction. The Director, Division of Inspections, may require changes in the plans and specifications to assure a safe and adequate project.

Article 44. 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 is consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the Licensee shall provide the Commission's Regional Director and Director, Division of Inspections, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Article 45. Licensee shall within 90 days of completion of construction file with the Commission for approval by the Director, Division of Project Management, revised Exhibits A, F, and G to describe and show the project as-built.

Article 46. Licensee shall pay the United States the following annual charge, effective the first day of the month in which this license is issued:

(i) For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations in effect from time to time. The authorized installed capacity for that purpose is 9,340 horsepower;

(ii) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 0.25 acres of its lands, a reasonable amount as determined by the Commission in accordance with the provisions of its regulations in effect from time to time.

Article 47. (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, 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) other access roads; (5) telephone, gas, and 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 Hydropower Licensing, 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:

(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 grantor 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.

(5) 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.

(E) This order is final unless appealed to the Commission by any party within 30 days from the issuance date of this order under 18 C.F.R. 385.1902 (1985). The Licensee's failure to file an appeal shall constitute acceptance of this license. In acknowledgment of acceptance of this license 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.

Don Carber

Kenneth M. Pusateri
Acting Director, Office of
Hydropower Licensing

Project No. 2715-005

IN TESTIMONY of its acknowledgment of acceptance of all of the terms and conditions of this order, the City of Kaukauna, Wisconsin, this _____ day of _____, 19____, has caused its corporate name to be signed hereto by _____, its Mayor, and its corporate seal to be affixed hereto and attested by _____, its Clerk, pursuant to a resolution of its Council duly adopted on the day of _____, 19____; a certified copy of the record which is attached hereto.

By _____
Mayor

Attest:

Clerk

(Executed in quadruplicate)

FEDERAL POWER COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED
MAJOR PROJECT AFFECTING NAVIGABLE WATERS
AND LANDS 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.

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.

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.

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.

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 Licensee 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 Licensee 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.

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.

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 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. Timber on lands of the United States cut, used, or destroyed in the construction and maintenance of the project works, or in the clearing of said lands, shall be paid for, and the resulting slash and debris disposed of, in accordance with the requirements of the agency of the United States having jurisdiction over said lands. Payment for merchantable timber shall be at current stumpage rates, and payment for young growth timber below merchantable size shall be at current damage appraisal values. However, the agency of the United States having jurisdiction may sell or dispose of the merchantable timber to others than the Licensee: Provided, That timber

so sold or disposed of, shall be cut and removed from the area prior to, or without undue interference with, clearing operations of the licensee and in coordination with the licensee's project construction schedules. Such sale or disposal to others shall not relieve the licensee of responsibility for the clearing and disposal of all slash and debris from project lands.

Article 27. The licensee shall do everything reasonably within its power, and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon the request of officers of the agency concerned, to prevent, to make advance preparations for suppression of, and to suppress fires on the lands to be occupied or used under the license. The licensee shall be liable for and shall pay the costs incurred by the United States in suppressing fires caused from the construction, operation, or maintenance of the project works or of the works appurtenant or accessory thereto under the license.

Article 28. The licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having jurisdiction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit, or body of water, natural or artificial, used by the licensee in the operation of the project works covered by the license, or the use by said parties of water for sanitary and domestic purposes from any stream, conduit, or body of water, natural or artificial, used by the licensee in the operation of the project works covered by the license.

Article 29. The licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 30. The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across those project lands which are lands of the United States such conduits, chutes, ditches, railroads, roads, trails, telephone and power lines, and other routes or means of transportation and communication as are not inconsistent with the enjoyment of said lands by the Licensee for the purposes of the license. This license shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

Article 31. In the construction and maintenance of the project, the location and standards of roads and trails on lands of the United States and other uses of lands of the United States, including the location and condition of quarries, borrow pits, and spoil disposal areas, shall be subject to the approval of the department or agency of the United States having supervision over the lands involved.

Article 32. The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its jurisdiction.

Article 33. The Licensee shall make use of the Commission's guidelines and other recognized guidelines for treatment of transmission line rights-of-way, and shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officer; shall trim all branches of trees in contact with or liable to contact the trans-

mission lines; shall cut and remove all dead or leaning trees which might fall in contact with the transmission lines; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place.

Article 34. The Licensee shall cooperate with the United States in the disposal by the United States, under the Act of July 31, 1947, 61 Stat. 681, as amended (30 U.S.C. sec. 591, et seq.), of mineral and vegetative materials from lands of the United States occupied by the project or any part thereof: Provided, That such disposal has been authorized by the Commission and that it does not unreasonably interfere with the occupancy of such lands by the Licensee for the purposes of the license: Provided further, that in the event of disagreement, any question of unreasonable interference shall be determined by the Commission after notice and opportunity for hearing.

Article 35. 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 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 36. 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 37. 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.