

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Deschutes Valley Water District) Project No. 5891-000

ORDER ISSUING LICENSE (MAJOR)

(Issued November 2, 1982)

Deschutes Valley Water District (Applicant) has filed an application for a license under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Opal Springs Hydroelectric Project No. 5891. ^{1/} The project would be located on the Crooked River, near Culver, in Jefferson County, Oregon, and would occupy lands of the United States administered by the Bureau of Land Management (BLM).

Notice of the application has been published and comments have been received from interested Federal, State, and local agencies. None of the agencies objected to issuance of the license. The Portland General Electric Company (PGE) submitted a petition to intervene. PGE, while taking no position in this case, requested that it be a party to this proceeding. The PGE petition was granted. The significant concerns of the 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). 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, 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 of any other date specified in this order, except as specifically directed by the Commission.

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Project Description

The proposed project includes improvements to the Applicant's existing water pumping system and the addition of a hydroelectric turbine-generating unit. The project would consist of: (1) an existing 6-foot-high diversion dam proposed to be raised by 10 feet; (2) two new 12-foot-diameter conduits to be buried in an existing canal; (3) a new 12-foot-diameter penstock; (4) a new powerhouse containing a single 4.3 MW generating unit; (5) three existing units with a total installed capacity of 0.6 MW; (6) a new 250-foot-long transmission line; and (7) associated appurtenances. A more detailed project description is contained in ordering Paragraph (B) of this license.

Safety and Adequacy

The proposed project would be operated as a run-of-the-river plant. The diversion dam as proposed would not impound a significant amount of water (about 31 acre-feet) and its failure would not endanger downstream human life or property. The project structures would be safe and adequate if constructed in accordance with sound engineering practice.

In accordance with Standard Commission practice, this license includes a condition (Article 33) that requires the filing of contract drawings and specifications prior to start of construction.

It is concluded that the project, under the conditions of this license, would be safe and adequate.

Fish and Wildlife Resources

The Oregon Department of Fish and Wildlife (ODFW) initially commented that it needed more information to complete its evaluation of minimum streamflow requirements in the project reach and to decide if screens would be necessary to exclude game fish from the proposed generating facilities. The U.S. Department of the Interior (Interior) recommended certain measures to protect fish and wildlife resources, including a minimum flow recommended by ODFW, installation of fish protective devices and maintenance of suitable approach velocities at the intake, protection of aquatic and riparian habitat during construction, site restoration in case of abandonment, and transmission lines designed to prevent electrocution of large birds of prey.

In response to the ODFW comments, the Applicant conducted supplemental environmental studies. Based on the results of these studies, the Applicant and ODFW agreed that: (1) a minimum flow of 50 cfs should be maintained near the base of the diversion structure; (2) the Applicant would evaluate annual fish mortality caused by power generation within the first year of project operation; (3) the Applicant would annually replace the amount of fish lost through power generation as determined by the evaluation described in (2) above; and (4) the Applicant may maintain such habitat enhancement features ODFW agrees would adequately compensate for any fish mortality caused by the project in lieu of replacement.

The agreement between the Applicant and ODFW addresses Interior's recommendations regarding minimum flow and fish protection. In response to other comments, the Applicant plans to construct the project in a prudent manner that will protect aquatic and riparian habitat during construction, and to transmit the power generation mostly via an underground transmission line.

It is concluded that a minimum flow of 50 cfs would allow maintenance of the existing trout populations. It is also concluded that determination of annual mortality of trout due to passage through the turbines, the replacement of the number of trout or enhancement of the available habitat would mitigate for project induced losses to the trout fishery.

Articles 36 of the license requires the Licensee to discharge a continuous flow of 50 cfs. Article 37 requires the Licensee, in consultation with ODFW and the U.S. Fish and Wildlife Service, to conduct a study to determine total annual fish mortality caused by the project and file with the Commission a report on the fish mortality study including any mitigative measures determined appropriate.

Also, Article 38 of the license requires the Licensee to design and construct, after consultation with Interior and ODFW, the overhead transmission facilities to prevent electrocution of large birds of prey.

Standard Articles 19 and 30 of the license would require the protection of water quality and riparian habitat during construction, and restoration of the project area in the case of abandonment, respectively.

Cultural Resources

The National Park Service (NPS) recommended that measures should be implemented to protect any archeological sites that may be discovered during construction of the project. The Applicant responded that if such sites are discovered, the Oregon State Historic Preservation Officer (SHPO) would be notified.

Staff has reviewed the National Register of Historical Places and has not identified any archeological or historic sites listed or eligible for inclusion in the Register that would be affected by the project.

In accordance with standard Commission practice, ^{2/} Article 39 of the license requires the Licensee to consult with the SHPO to ensure the protection of cultural resources.

Other Environmental Considerations

There would be minor impacts on water and air quality and increased noise levels at the construction site that would be limited to the construction period. Disturbance to wildlife and vegetation would be minimal and of short-term duration. On October 7, 1982, the Applicant submitted a water quality certificate issued by the Oregon Department of Environmental Quality, in accordance with Section 401 of the Federal Water Pollution Control Act.

It is concluded that issuance of a license for this project, as conditioned, is not a major Federal action significantly affecting the quality of the human environment.

Other Aspects of Comprehensive Development

The proposed project is in conflict with any planned development and its proposed operation would be best adapted to a comprehensive plan for improving or developing the Crooked River.

^{2/} See S.D. Warren, Project No. 2897, Order Denying Rehearing (10 FERC ¶61,153).

The proposed project would generate an estimated average annual energy output of 23.3 million kWh. ^{3/} The energy generated by the project will be partly utilized by the Applicant to meet its electric pumping requirements, and excess energy would be sold to Bonneville Power Administration (BPA).

Based on staff's analysis, it is concluded that the proposed project is economically feasible.

It is ordered that:

(A) This license is issued to the Deschutes Valley Water District of Oregon (Licensee), under Part I of the Federal Power Act (Act), for a period of 50 years, effective the first day of the month in which this order is issued, for the construction, operation, and maintenance of the Opal Springs Hydroelectric Project No. 5891, located on the Crooked River in Jefferson County, Oregon, and occupying lands of the United States administered by the BLM. 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 Opal Springs Hydroelectric Project No. 5891 consists 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.</u>	<u>Titled</u>
G-1	5891-5	Project Plan and Profile
G-2	5891-6	Project Plan and Profile
G-3	5891-7	Project Plan and Profile

^{3/} The proposed project would utilize a renewable resource that will save the equivalent of approximately 35,500 barrels of oil or 8,200 tons of coal per year.

(2) Project works consisting of:

(1) a 16-foot-high, 160-foot-long rockfill diversion dam creating a pool with a storage capacity of 31 acre-feet and area of 4.8 acres at a pool elevation of 2,000 feet; (2) the intake structures located on the left abutment of the diversion dam to be upgraded; (3) two 12-foot-diameter, 1,200-foot-long conduits buried in the earth-lined canal; (4) a forebay; (5) a 12-foot-diameter, 175-foot-long penstock; (6) three existing turbine-driven water pumps with a total capacity of 0.6 MW; (7) a powerhouse containing a single 4.3-MW generating unit; (8) a 250-foot-long, 20.8-kV underground transmission line interconnecting to the Pacific Power and Light (PP&L) existing transmission system; and (9) associated electric and transmission equipment.

The location, nature, and character of these project works are generally shown and described by the exhibits 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 No.</u>	<u>Titled</u>
F-1	5891-1	Intake Structures Modifications,
F-2	5891-2	Diversion Section, Forebay Plan and Sections
F-3	5891-3	Powerhouse Plan and Sections, and Estimated Operating Head
F-4	5891-4	Existing Turbines and Penstocks Plan and Typical Section

(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 G-1 through G-3 and F-1 through F-4, designated in ordering paragraph (B) above, are approved and made a part of the license only to the extent that they show the general location, description, and layout of the project works.

(D) This license is also subject to Articles 1 through 32 which are conditions set forth in Form L-2 (revised October 1975) entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States" attached to and made a part of this license. The license is also subject to the following additional articles:

Article 33. The Licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy each of the contract drawings and specifications at least 60 days prior to start of construction. The Director, Office of Electric Power Regulation may require changes in the plans and specifications to assure a safe and adequate project.

Article 34. The Licensee shall, within six months of completion of construction, file for approval, in accordance with the Commission's rules and regulations, revised Exhibits F and G drawings showing the project as-built.

Article 35. The Licensee shall commence construction of the project within two years from the effective date of the license and shall thereafter in good faith and with due diligence prosecute such construction and shall complete construction of such project works within three years from the starting date of construction.

Article 36. Licensee shall discharge from the Opal Springs Dam, a continuous minimum flow of 50 cubic feet per second or the inflow to the reservoir, whichever is less, for the purpose of protecting and enhancing aquatic resources in the Crooked River. These flows may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods for fishery management purposes upon mutual agreement between the Licensee and the Oregon Department of Fish and Wildlife.

Article 37. Licensee shall, in consultation with the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service, conduct a study to determine total annual fish mortality caused by project operation and, within one year from the date of issuance of this license, shall file with the Commission a report on the study to include recommendations on the number of trout to be stocked annually to mitigate for project induced losses, as determined by the study, and to include comments on the study from the consulted agencies. Further, Licensee may, with approval of the ODFW, provide and maintain habitat enhancement features to compensate

for fish mortality, in lieu of replacement. Any arrangement to this effect must be filed with the Commission at least 30 days before its implementation.

Article 38. Licensee shall, in consultation with the U.S. Department of the Interior and the Oregon Department of Fish and Wildlife, design the project transmission facilities to prevent or minimize electrocution hazards to large birds of prey.

Article 39. Licensee shall, prior to commencement of any future construction at the project, consult with the Oregon State Historic Preservation Officer (SHPO) about the need for any cultural resource survey and salvage work. The Licensee shall make available funds in a reasonable amount for any such work as required. If any previously unrecorded archeological or historical 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 the Licensee shall consult with the SHPO to develop a mitigation plan for the protection of significant archeological or historical resources. If the Licensee and the SHPO cannot agree on the amount to be expended on archeological or historical work related to the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any such work found necessary.

Article 40. The Licensee shall pay the United States the following annual charges:

(a) 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 such purposes is 6,530 horsepower.

(b) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 5.7 acres of its lands, a reasonable annual charge as determined in accordance with its regulations in effect from time to time.

Article 41. The Commission reserves the authority to order, upon its own motion or upon the recommendation of federal or state fish and wildlife agencies or affected Indian Tribes, alterations of project structures and operations to take into account to the fullest extent practicable the regional fish and wildlife program developed pursuant to the Pacific Northwest Electric Power Planning and Conservation Act.

Article 42. The Licensee shall continue to consult and cooperate with the U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife (ODFW), and other appropriate agencies for the protection and development of the environmental resources and values of the project area. The Commission reserves the right to require changes in the project works or operations that may be necessary to protect and enhance those resources and values.

Article 43. (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, and to monitor the use of, and 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; 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

(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 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 title 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:

(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.

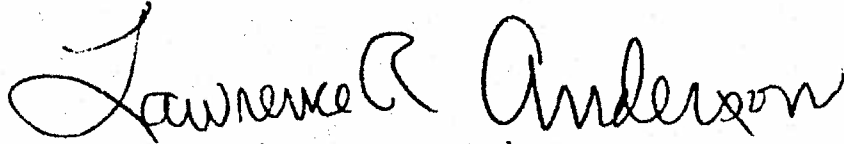
(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions 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. 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.

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

A handwritten signature in cursive script that reads "Lawrence R. Anderson". The signature is written in dark ink and is positioned above the printed name and title.

Lawrence R. Anderson
Director, Office of Electric
Power Regulation

Project No. 5891-000

IN TESTIMONY of its acknowledgment of acceptance of all of the terms and conditions of this Order, Deschutes Valley Water District, on this _____ day _____, 1982, 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 of the _____ day of _____, 1982, a certified copy of the record of which is attached hereto.

By _____
President

Attest:

Secretary

FEDERAL POWER COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR
UNCONSTRUCTED MAJOR PROJECT
AFFECTING 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 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 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 Commission may prescribe for the 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. 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 22. 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 23. 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 24. 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 25. 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 26. 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 27. 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 28. 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 transmission 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 29. 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. 601, 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 30. 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 31. 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 12. 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.