

UNITED STATES OF AMERICA 123 FERC ¶ 62,254
FEDERAL ENERGY REGULATORY COMMISSION

City of Hamilton, Ohio

Project No. 12667-003

ORDER ISSUING ORIGINAL LICENSE (MAJOR PROJECT)

(June 25, 2008)

INTRODUCTION

1. On October 6, 2006, the City of Hamilton, Ohio (Hamilton) filed, pursuant to Part I of the Federal Power Act (FPA),¹ an application for an original license to construct, operate, and maintain the proposed 105-megawatt (MW) Meldahl Hydroelectric Project. The project would be located on the Ohio River, near the City of Augusta, Bracken County, Kentucky.² The project will occupy about 81 acres of federal lands at the existing Huntington District, U.S. Army Corps of Engineers' (Corps) Captain Anthony Meldahl locks and dam (Meldahl locks and dam). For the reasons discussed below, I am issuing an original license for this project.

BACKGROUND

2. Notice of the application was published in the Federal Register on December 28, 2006. No motions to intervene were filed.

3. On November 8, 2007, the Commission issued public notice that the project was ready for environmental analysis and solicited comments, recommendations, terms and conditions, and prescriptions. In response, late comments and recommendations were filed by the Kentucky Division of Water (Kentucky DOW).

¹ 16 U.S.C. §§ 791a - 825r (2000).

² FPA section 23(b)(1), 16 U.S.C. § 817(1) (2000), requires the project to be licensed because it would be located on a navigable waterway of the United States (25 FPC 1065 [1961]; 6 A.R. 50 [1926]).

4. An Environmental Assessment (EA) was prepared by Commission staff and issued on April 25, 2008. The Kentucky Department of Fish and Wildlife Resources (Kentucky DFWR), Hamilton, and the U.S. Fish and Wildlife Service (FWS) filed comments on the EA. Their substantive comments are discussed below.

5. The comments and recommendations have been fully considered in determining whether, and under what conditions, to issue this license.

PROJECT DESCRIPTION

6. The proposed project will be located on the south (Kentucky) bank of the Ohio River at the Corps' Meldahl locks and dam, which are situated on the Ohio River at river mile 436.2, between Kentucky and Ohio. The locks and dam are operated to maintain a minimum navigation depth for commercial navigation on the Ohio River.

7. The project will consist of an 1,850-foot-long approach channel, leading to an intake structure equipped with trash racks with 8-inch bar spacing; a 248-foot-long by 210-foot-wide powerhouse, integral with the dam, and containing three horizontal turbine-generating units with a total installed capacity of 105 MW discharging into a 1,850-foot-long tailrace channel. Project power will be transmitted through a 5-mile-long, 138-kilovolt (kV) transmission line to a new switching station to be located adjacent to East Kentucky Electric Cooperative's Boone-Spurlock transmission line. About two-thirds of the existing overflow weir of the Meldahl dam will be removed to make room for the proposed powerhouse.³

PROJECT OPERATION

8. The Corps will control the flows available for operation of the Meldahl Project. As such, project operation will be subordinate to the operation of the Meldahl locks and dam. The project will be operated in a run-of-river mode and operation will be coordinated with the Corps' operation of the locks and flood gates to maintain the navigational pool above the dam.

³ Prior to project construction, Hamilton will conduct a physical hydraulic model studying to, in part, determine the need for, and location and size of, a navigation groin to ensure the discharge from the project is compatible with navigation at the site. This structure, if determined to be necessary to protect navigation, will also be a project facility.

9. The project will be operated in a run-of-river mode between its minimum hydraulic capacity of 2,300 cubic feet per second (cfs) and its maximum hydraulic capacity of 65,000 cfs to maintain a constant headwater pool elevation of 485.0 feet mean sea level (msl), which is necessary for the proper operation of the Corps' locks and dam. The Corps will maintain control of the navigation releases, environmental flows, and spills for flood control. Flow releases at the project will be continuously controlled to equal pool inflow minus flows for navigation lockage, gate leakage, releases for environmental purposes, and spills. Hamilton will develop comprehensive communication and coordination procedures and protocols with the Corps for determining project discharges. Operation of the project will be subordinate to the authorized purposes of the Corps' dam.

10. The project operation will not change during low, normal, or high water years. In instances where flows are greater than about 250,000 cfs, the project will be shut down.

PROJECT BOUNDARY

11. The proposed project boundary will encompass federal and non-federal lands, and enclose the intake channel, powerhouse, tailrace channel, transmission line corridor, switchyard, recreation facilities constructed as part of the project, and the area in which a navigation groin may be constructed. The intake channel, powerhouse, and tailrace channel will be located on federal lands owned by the Corps while the 150-foot-wide transmission line corridor and switchyard will be located on non-federal lands.

WATER QUALITY CERTIFICATION

12. Under section 401(a)(1) of the Clean Water Act (CWA),⁴ the Commission may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency either has issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed 1 year. Section 401(d) of the CWA provides that the certification shall become a condition of any federal license that authorizes construction or operation of the project.⁵

13. Hamilton requested water quality certification from the Kentucky DOW for this project on October 6, 2006. Kentucky DOW received the request on October 10, 2006,

⁴ 33 U.S.C. § 1341(a)(1) (2000).

⁵ 33 U.S.C. § 1341(d) (2000).

and did not act on the application within 1 year. Therefore, certification is deemed waived.

14. On January 26, 2008, the Kentucky DOW filed a request for an extension of time for issuing its water quality certification for the Meldahl Project. The request included the conditions the Kentucky DOW intended to include in the certification. These were identical to the five water quality certification conditions that Hamilton has proposed, and included in its request for certification.⁶ Although the water quality certification is deemed waived, staff considered the request and the five conditions⁷ to be late comments and recommendations filed by the Kentucky DOW in response to the Commission's November 8, 2007 public notice.⁸ The Kentucky DOW's water quality recommendations are provided for in this license in Articles 302 (Contract Plans and Specifications), 402 (Dissolved Oxygen Standards), and 403 (Dissolved Oxygen Monitoring Plan).

COASTAL ZONE MANAGEMENT ACT

15. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),⁹ the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

⁶ On February 21, 2008, the Kentucky DOW and Hamilton jointly filed a pleading withdrawing Kentucky DOW's request for extension of time to issue certification and concluding that the extension was not necessary since the state agency and licensee agree on the water quality conditions for the proposed project. Although there would not be a formal water quality certification issued by Kentucky DOW, the agency is satisfied that the licensee would be bound to comply with these conditions if they are included in the license, as requested by the Kentucky DOW and Hamilton in their joint filing.

⁷ Condition 1 is addressed in Item B (Erosion and Sediment Control). Condition 2 is addressed in Item C (Toxic Substances). Conditions 3, 4, and 5 are addressed in Item D (Dissolved Oxygen) of this license.

⁸ The notice set a deadline of January 7, 2008, for proposed terms and conditions, recommendations, prescriptions, and comments.

⁹ 16 U.S.C. § 1456(c)(3)(A).

16. The state of Kentucky does not have a federally approved coastal zone management program. Therefore, no consistency certificate is required for the Meldahl Project.

SECTION 18 FISHWAY PRESCRIPTIONS

17. Section 18 of the FPA¹⁰ provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. No fishway prescriptions or reservations of authority were filed under section 18 of the FPA.

THREATENED AND ENDANGERED SPECIES

18. Section 7(a)(2) of the Endangered Species Act of 1973 (ESA),¹¹ requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of their designated critical habitat.

19. Federally listed species with the potential to occur in the Meldahl Project vicinity include the fanshell mussel (*Cyprogenia stegaria*), pink mucket mussel (*Lampsilus abrupta*), ring pink mussel (*Obovaria retusa*), orangefoot pimpleback mussel (*Plethobasus cooperianus*), clubshell mussel (*Pleurobema clava*), and the Indiana bat (*Myotis sodalis*) (letter from V. Andrews, Field Supervisor, FWS, Frankfort, Kentucky, to M.R. Salas, Secretary, FERC, Washington, D.C., September 24, 2006).¹² No critical habitat has been designated for any of the mussel species.¹³ Of the five listed mussel

¹⁰ 16 U.S.C. § 811 (2000).

¹¹ 16 U.S.C. § 1536(a) (2000).

¹² The fanshell and clubshell mussel are also listed by Kentucky as endangered and known to occur in Bracken County. See <http://www.naturepreserves.ky.gov/NR/rdonlyres/3AFAC9F5-55CC-44F2-98E3-B83E617E4C4C/0/countylisthabitat2007.pdf>.

¹³ Mussel habitat is known to exist along Big Snag Creek sandbar, which is about 3,200 feet long and located along the Kentucky shoreline immediately downstream from the proposed Meldahl Project. Eleven species of mussels have been found in this area, including the listed fanshell mussel and the sheepsnose mussel, a federal candidate species and Kentucky listed endangered species. See EA at 23.

species, the fanshell is the only species to have been found recently in the project area. The fanshell was found downstream from the proposed project in the Markland pool, which is located immediately downstream of the Meldahl dam, in 1997, but it has not been found in the Meldahl pool since 1929.¹⁴

20. There are no records of summer or winter occurrences of the Indiana bat in Bracken County. Although critical habitat has been designated for the Indiana bat, none is located in the project vicinity or Bracken County.

21. In the EA, staff recommended that Hamilton implement the following environmental measures: 1) conduct a physical hydraulic modeling study which will, in part, facilitate the development of measures to avoid or minimize any potential effects to mussels and their habitat adjacent to the Big Snag Creek sandbar; 2) conduct final pre-construction surveys for freshwater mussels in the project action area; 3) conduct final pre-construction surveys of the transmission line route for any potentially affected federally listed plants;¹⁵ 4) conduct final pre-construction surveys for evidence of Indiana bat use within the proposed transmission line corridor; 5) top, but not remove, some trees within the proposed transmission line corridor to maintain potential Indiana bat summer roosting habitat; and 6) restrict tree clearing within the proposed transmission line corridor to between October 15 through March 31 for the protection of potential summer roosting Indiana bats. Also, Hamilton will, after completing the surveys and consultation with the FWS and Kentucky State Nature Preserves Commission (Kentucky SNPC), implement any additional measures identified to protect listed mussels and Indiana bats.

22. On April 29, 2008, Commission staff sent FWS a letter outlining staff's findings for the fanshell mussel, pink mucket mussel, ring pink mussel, orangefoot pimpleback mussel, clubshell mussel, and Indiana bat. Staff asked FWS to concur with its finding that the project, with staff's recommended measures, was not likely to adversely affect the listed species. FWS responded in a letter filed May 30, 2008. FWS stated that it did not concur with staff's determination. FWS recommended measures to address impacts to the species, including (a) limiting tree clearing to winter months in areas where the Indiana bat might roost in the summer, (b) surveying for winter hibernacula, and (c) conducting presence/absence surveys for the endangered mussels. FWS concluded that it

¹⁴ See U.S. Army Corps of Engineers, Louisville District, Louisville, KY. Ohio River Mainstem Systems Study (ORMSS), System Investment Plan/Programmatic Environmental Impact Statement. Environmental Appendix. Volume 1. 2006.

¹⁵ Staff recommended that the transmission line corridor also be surveyed for the Virginia mallow, a Kentucky species of concern, which is discussed below in Item H.

“is comfortable with the FERC issuing the license prior to Hamilton completing their requirements under the ESA so long as Hamilton is required to receive concurrence on the [endangered species] [r]eport and the BA prior to the initiation of any construction related activities for the Meldahl Project.”

23. The license requires Hamilton to complete the mussel and bat surveys recommended by FWS, as well as precludes construction until FWS has concurred with the study results (Articles 406 and 409). While FWS states that it does not concur with the Commission’s April 29, 2008 letter, it, at the same time, supports issuance of a license prior to additional information being gathered. Further, FWS conditions its approval, not on any future action by, or consultation with the Commission, but rather on Hamilton’s completing survey work and receiving FWS’ concurrence. In light of FWS’ statements, because the license includes all of the measures recommended by FWS with respect to endangered species, and because I concur in staff’s finding that issuance of the license, as conditioned herein, will be unlikely to result in adverse effects to threatened and endangered species, I conclude that the Commission has satisfied its obligations under the Endangered Species Act.

NATIONAL HISTORIC PRESERVATION ACT

24. Under section 106 of the National Historic Preservation Act (NHPA),¹⁶ and its implementing regulations,¹⁷ federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

25. In a letter filed on November 27, 2006, the Kentucky SHPO determined that no historic properties that are listed on or eligible for listing on the National Register of Historic Places will be affected. However, in the event that previously unidentified archeological or historic properties are discovered during construction, operation, or maintenance of the project, Article 413 requires Hamilton to stop all land-clearing and land-disturbing activities, consult with the SHPO, and file a Historic Properties

¹⁶ 16 U.S.C. § 470 *et seq.* (2000).

¹⁷ 36 C.F.R. Part 800 (2007).

Management Plan for Commission approval. This satisfies the Commission's responsibilities under section 106 of the National Historic Preservation Act.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES PURSUANT TO SECTION 10(j) OF THE FPA

26. Section 10(j)(1) of the FPA,¹⁸ requires the Commission, when issuing a license, to include conditions based on recommendations by federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act,¹⁹ to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

27. No federal or state fish and wildlife agency filed section 10(j) recommendations for the Meldahl Project.

OTHER ISSUES

A. Physical Hydraulic Modeling Study

28. The Big Snag Creek sandbar is located along the southern edge of the river about 2,700 feet downstream from the dam and the proposed powerhouse site. This sandbar is a transient feature which is continually being added to and eroded by river currents and sediment deposition and is known mussel habitat and is a popular informal recreation site.

29. Hamilton proposes to use a physical hydraulic model to further understand flow characteristics so as to minimize effects on recreational uses of the sand bar, mussel habitat, and to ensure that project features, including the project's approach and tailrace channels, minimize potential effects on river navigation. Hamilton indicates that a navigation groin may be needed to prevent adverse effects on navigation immediately downstream from the Meldahl locks and located close to the opposite shore from the powerhouse. The EA concluded that the physical hydraulic modeling will be useful in coordinating project operations with the Corps to avoid adverse effects on navigation, recreation, and aquatic resources.²⁰ The EA recommended adoption of this measure.

¹⁸ 16 U.S.C. §803(j)(1) (2000).

¹⁹ 16 U.S.C. §§ 661 *et seq.* (2000).

²⁰ EA at 25.

30. In the EA, staff assumed that the physical hydraulic modeling will address the possible raising of upstream water levels during flood events due to cofferdams and one of the twelve spillway gates being inoperable during construction.²¹ In its comments on the EA, Hamilton clarified that it will identify any potential effects of the cofferdam on flood events via numerical modeling.

31. Article 401 requires development and implementation of a physical hydraulic model for the project, as well as a numeric model to assess the effects of the cofferdam on upstream water surface elevations during high flow events.

B. Erosion and Sediment Control

32. Project construction will require dredging and excavation of the riverbed and other ground disturbances, and could potentially result in sediment releases into the Ohio River. To control erosion and sediment entering the Ohio River during construction, Hamilton proposes to develop an erosion and sediment control plan in conformance with the Kentucky Best Management Practices for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites (BMPs). Hamilton's plan would provide for the inspection and maintenance of sediment control structures throughout the construction period. The plan also would provide for stabilization of disturbed areas immediately after construction with native grasses to minimize erosion and avoid possible effects on water quality, and would provide for isolation and containment of any fuels.

33. The EA concluded that: (1) properly implemented erosion and sediment control measures, consistent with the Kentucky's BMPs, will minimize erosion and effects on water quality and turbidity;²² and (2) post-construction stabilization and effective site restoration with native plants will minimize long-term effects.²³

34. Accordingly, Article 302 requires that the erosion and sediment control plan, which is to be filed with the project construction contract plans and specifications, be consistent with the Kentucky BMPs, and be prepared after consultation with the Kentucky DOW, Kentucky DFWR, FWS, and the Corps.

²¹ EA at 24-25.

²² EA at 18.

²³ EA at 18-19.

C. Toxic Substances

35. Hamilton proposes to develop a toxic substance investigation and disposal plan to provide for testing of all materials that are dredged or excavated from the floodplain and riverbed. The EA concluded that testing all disturbed material inside and outside of the cofferdam area, consistent with Kentucky's BMPs and the Commission's guidelines, will ensure that toxic substances will be identified and disposed of properly.²⁴ The EA recommended that tested material should include material excavated as part of cofferdam and powerhouse construction, construction of any navigation groin needed, and sediment in the settling ponds associated with continual dewatering of the cofferdam.²⁵ In the event toxic substances are discovered in the disturbed material, the EA recommended the plan include approved provisions to contain, and treat or dispose of, contaminated material so it does not adversely affect environmental resources.²⁶

36. In commenting on the EA, Hamilton did not agree with the EA recommendation for on-going testing of sediment in settling ponds from continual cofferdam dewatering. However, because construction-related machinery and vehicles working within the cofferdam may leak various fluids associated with their operation, Article 302 requires Hamilton to test the settling pond sediments.

37. Article 302 requires that the erosion and sediment control plan to be filed with the project construction contract plans and specifications identify: (1) methods to be employed in testing for the presence of heavy metals and other toxic substances in any materials to be dredged or excavated from the Ohio River bed and other project construction areas; (2) measures to minimize inputs of sediment and other potentially toxic substances to surface waters; and (3) measures to avoid disturbing or to safely handle and dispose of disturbed toxic substances and spoils.

D. Dissolved Oxygen

38. The Kentucky DOW recommended that the project be operated to maintain a minimum daily average DO concentration of 5.0 milligrams per liter (mg/L) and an instantaneous minimum concentration of 4.0 mg/L in the Ohio River. Furthermore, the Kentucky DOW stated that when operating the project during periods of low DO levels in the Ohio River, the licensee should ensure that project operation will produce as high or

²⁴ EA at 19.

²⁵ *Id.*

²⁶ *Id.*

higher DO levels as those that occur naturally at the dam at present (without the hydropower project), unless this mode of project operation will conflict with the flow and discharge requirements of the Corps' operation of the dam.

39. Article 402 requires that the licensee operate the project to maintain a minimum daily average DO concentration of 5.0 mg/L and an instantaneous minimum concentration of 4.0 mg/L in the Ohio River, as recommended by the Kentucky DOW. Under Article 403, the licensee will also be required to prepare a DO monitoring plan that will address actions to be taken by the licensee in those instances when, and if, project operations cause a reduction in DO levels below the state water quality standards. The DO monitoring plan will also identify actions to be taken by the licensee during those times of the year when ambient DO levels in the Ohio River upstream of the project may be naturally lower than the state water quality standards.

40. As part of Condition 4, the Kentucky DOW recommended that the Kentucky DFWR, the Kentucky Department of Natural Resources DNR, the Kentucky Environmental and Public Protection Cabinet (Kentucky EPPC), Ohio River Valley Sanitation Commission (Sanitation Commission), and the Corps should be consulting entities in license articles relating to water quality. The Kentucky DOW recommended that the measures agreed to among the aforementioned entities be implemented consistent with license requirements. This license requires, in Articles 402 and 403 that these entities be consulted in developing the dissolved oxygen monitoring plan for the project.

41. Kentucky DOW also recommends the licensee notify Kentucky DOW's Water Quality Branch and the Florence Regional Office if a violation of the state's water quality standards occurs as a result of project operations. As part of Article 402 and the dissolved oxygen monitoring plan required in Article 403, the licensee is required to notify Kentucky DOW's Water Quality Branch and the Florence Regional Office when project discharges and/or DO levels in the Meldahl pool upstream of the dam do not meet the requirements of Article 402.

E. Run-of-River Operation

42. Hamilton proposes to operate the project in a run-of-river mode, whereby Hamilton would act to minimize fluctuation of the Meldahl pool elevation by maintaining a discharge from the project such that, at any point in time, flows, as measured immediately downstream from the project tailrace approximate the sum of inflows to the Meldahl pool, consistent with the Corps' requirement that operation of the hydropower facility not affect flows or reservoir levels available for navigation or other Corps purposes. Operating the project in a run-of-river mode, as required by Article 404, will provide a natural river-flow situation for fish and aquatic resources downstream from the dam, as well as minimize any effects on water quality. However, because the dam is

operated by the Corps, the operations required by this license, can be modified if needed to comply with the Corps' primary purpose to provide navigation in the Ohio River.

43. Article 405 requires that Hamilton provide the Commission with a plan describing what flow monitoring instrumentation will be used, as well as the requisite maintenance and calibration procedures employed, to verify run-of-river operation. This plan will help ensure the project is operating as required by this license and within the constraints required by the Corps.

F. Entrainment and Turbine Mortality

44. In its comments on the EA, the Kentucky DFW requested that Hamilton's proposed fish entrainment and mortality assessment be required. The Kentucky DFW said that several migratory fish species occupy the waters within the footprint of the proposed project, as well as several fish species that serve as hosts to federally endangered mussel species. The Kentucky DFW requested that an on-site field evaluation be conducted to quantify the numbers, sizes, and species distribution of impinged fish, along with the associated direct and latent mortality rates, and that any losses to the fishery as a result of hydropower generation be mitigated. The Kentucky DFW suggested that the mitigation be reflected in the fisheries enhancement plan and/or the recreational facilities plan.

45. The EA concluded that a fish entrainment and mortality study, as proposed by Hamilton, is not required because Hamilton's proposed project will not significantly affect the fishery and associated aquatic resources of the Ohio River.²⁷

46. The Meldahl dam, with a maximum head of 24.5 feet, is considered a low-head dam. Hamilton proposes to install three 35-MW horizontal Kaplan turbines with adjustable runner blades and wicket gates. In addition to the high survival rates associated with large bulb turbines²⁸ at low head dams, the distance between dams on this section of the Ohio River (approximately 95 miles between dams) is considerable and only a small proportion of the fish population in these large pools will be entrained. Further, the fish populations in the 95.3-mile-long Markland pool (the upstream extent of which is located just downstream from Meldahl) do not depend on recruitment from

²⁷ EA at 31-32.

²⁸ A Kaplan turbine is a type of large bulb turbine.

upstream of Meldahl dam, and there are no anadromous species present that will need to pass one or more dams in order to complete their life cycles.²⁹

47. Although some entrainment mortality will occur at the proposed project, staff's analysis found that entrainment losses will not significantly affect the population levels of any fish species in the Meldahl pool or the downstream Markland pool.³⁰ Entrainment studies show, in most cases, the highest survival rates have been observed for smaller fish passing through large bulb or Kaplan turbines installed at low-head dams.³¹ In addition, creel surveys at other low head hydropower plants on the Ohio River immediately upstream of and downstream from the Meldahl Project support the conclusion that no substantial effects on fish populations are likely.³²

48. For these reasons, I conclude that there is no reason to conduct the entrainment study proposed by Hamilton.

G. Wetland Protection Measures

49. Fish and Wildlife Service National Wetland Inventory maps show that wetlands are located in the area of the proposed powerhouse. However, no wetlands were identified during Hamilton's September 2006 pre-filing field surveys at the proposed powerhouse site.³³ Nonetheless, Hamilton proposes to resurvey the powerhouse area prior to construction to determine whether a section 404 permit from the Corps is necessary. The EA concluded that, while resurveying the proposed powerhouse site prior to construction will help verify if any wetlands occur in that area, no wetlands are likely to be affected. Since Hamilton has already conducted surveys in the area of the proposed powerhouse, I am not requiring any additional surveys of that area.

50. The proposed transmission line route has not been surveyed and the FWS National Wetland Inventory maps indicate that some small wetlands may be present along the proposed route. The construction and maintenance of the transmission line could affect any unidentified wetlands in the transmission line corridor. The EA concluded that

²⁹ EA at 31.

³⁰ EA at 63.

³¹ *Id.*

³² EA at 62.

³³ EA at 35.

surveying the transmission line route prior to initiating activities associated with project construction will help identify and avoid any wetlands potentially occurring along the transmission line corridor.³⁴ Therefore, I am requiring, in Article 407, that Hamilton develop and implement a final pre-construction wetland survey, as well as a wetland protection plan if necessary, for the transmission line corridor.

H. Botanical Survey

51. Ninety percent of the proposed 5-mile-long transmission line corridor will be constructed along existing road or utility line right-of-way traversing agricultural lands with second or third growth mixed hardwood woodlands.³⁵ Hamilton, though, has not done surveys along the route. Thus, there is no information on botanical resources, including any federally listed plant species, for the transmission line corridor. In addition, the Virginia mallow, a Kentucky plant species of special concern, was observed previously along the shoreline downstream from the dam. Therefore, the construction, operation, and maintenance of the project could affect any unidentified federally listed plants inhabiting the project area. To address these concerns, Hamilton proposes to conduct a final pre-construction survey of the proposed powerhouse site and transmission line corridor.

52. Hamilton, during its September 2006 pre-filing field surveys at the proposed powerhouse site, documented the presence of Virginia mallow, a Kentucky species of concern.³⁶ Nonetheless, Hamilton proposes to resurvey the powerhouse area prior to construction. The EA concluded that resurveying the proposed powerhouse site prior to construction will help verify the presence and location of Virginia mallow and other potential rare plant species in the area.³⁷ Since Hamilton has already conducted surveys in the area of the proposed powerhouse, I am not requiring any additional surveys of that area.

53. The EA concluded that surveying the transmission line corridor prior to construction will help identify any federally listed plant species that may occur along the transmission line route.³⁸ The results of this survey will help inform the implementation

³⁴ EA at 37.

³⁵ EA at 35.

³⁶ *Id.*

³⁷ EA at 37.

³⁸ *Id.*

of any avoidance, protection, or mitigation measures. Since the proposed transmission line route has not been surveyed for federally listed plant species, I am requiring, in Article 408, that Hamilton develop and implement a final pre-construction plant survey, as well as identify and implement any protection measures if necessary, for the transmission line corridor.

I. Raptor Protection

54. The EA concluded that following the industry standard for raptor-friendly transmission lines as outlined in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC *et al.*, 2006) will minimize the potential for avian mortality and injury due to collision or electrocution.³⁹ Accordingly, Article 410 requires the design and construction of the proposed transmission line in accordance with the guidelines set forth in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC *et al.*, 2006).

J. Recreational Resources

55. Recreational access to the Ohio River shoreline in the immediate project area is currently provided at the Meldahl lock and dam, both upstream of and downstream from, the dam, and at the Big Snag Creek sandbar. This area currently includes a short access road off of Kentucky State Route 8 located along the Kentucky shoreline a short distance downstream from the Meldahl dam, two parking areas, and foot trails to the shoreline that allow for informal recreational use such as fishing, sightseeing, picnicking, boating, swimming, sunbathing, and camping. The Big Snag Creek sandbar, located about one-half mile downstream from the dam, is a very popular informal recreation site used for fishing, camping, and picnicking.

56. To provide continued and enhanced recreational access at the project, Hamilton proposes to provide: (1) an access road, parking area, and fishing access pier at Big Snag Creek sandbar, as shown on figure E-7 of the license application filed October 6, 2006, to allow recreational access to the downstream shoreline and Big Snag Creek sandbar; (2) a fishing pier or piers along the tailrace, a picnic and open play area, permanent walkways for shoreline access, and parking areas to provide additional recreational access after construction is completed; and (3) an implementation schedule that minimizes the time for constructing recreation facilities. During pre-filing consultation, the Corps recommended that (a) no recreational facility be constructed or accessible within 150 feet

³⁹ EA at 38.

of the dam, and (b) the final recreation plan should restrict access to the Corps and Meldahl Project facilities according to Department of Homeland Security threat levels.

57. The EA recommended that prior to the commencement of project construction, Hamilton file for Commission approval, a final recreation plan, developed after consultation with Kentucky DFWR, the Kentucky Department of Parks, the Corps, and National Park Service.⁴⁰ Because the access road to Big Snag Creek sandbar will pass near the powerhouse and tailrace construction area, the EA also recommended that the plan include barriers and signage warning the public about project construction to help reduce potential safety concerns.⁴¹

58. These recreation facilities will enhance recreational opportunities in an area that currently experiences a high level of use by providing safe access to the heavily used shoreline fishing areas and Big Snag Creek sandbar downstream of the Meldahl Project during project construction, and by providing additional picnicking, fishing, and hiking facilities adjacent to the tailrace for public use upon completion of project construction. Commenting on the EA, the Kentucky DFW requested that the recreational plan include a public restroom, as well as a facility maintenance and monitoring provision. Public restroom facilities will be appropriate at or near Big Snag Creek sandbar during project construction and at the recreational facilities adjacent to the tailrace. Maintenance and monitoring of project recreation facilities are routinely required of licensees.

59. Article 411 requires that a recreation plan, including restrooms, facility maintenance, monitoring, and an implementation schedule be developed for the project.

60. To enhance fishing at the project, staff determined in the EA that the development of recreational angling enhancement measures by Hamilton, in consultation with Kentucky DFWR, Ohio Department of Natural Resources, FWS, and the Corps, would improve potentially affected recreational angling opportunities downstream from the dam.⁴² Constructing various types of fish structures in the vicinity of the Big Snag Creek sandbar and near the proposed fishing piers will benefit recreation by increasing the number of fish in the area and making them more accessible to anglers, including disabled anglers.

⁴⁰ EA at 66.

⁴¹ EA at 45.

⁴² EA at 32.

61. In commenting on the EA, Hamilton requested that staff's recommended recreational angling enhancements apply, and be limited, to the vicinity of the project boundary. The Commission's policy is to approve measures that are within the project boundary or as physically and geographically close as possible to the project.⁴³ Therefore, I would expect the recreational angling enhancements will be within the project boundary or in close proximity to the project boundary.

62. Therefore, Article 411 requires that Hamilton's recreation plan include provisions to develop and maintain fish structures that will improve the recreational fishery and angling opportunities potentially affected by the project. These measures are to be developed in conjunction with Hamilton's other recreation facilities described above and included in the recreation plan that it files for Commission approval.

K. Site Restoration and Aesthetics

63. Construction of the proposed intake channel, powerhouse, tailrace channel, entrance road, parking areas, and recreation facilities will require clearing and excavating about 62 acres of terrestrial habitat. In addition, about 30 to 40 percent of the proposed transmission line corridor is forested and will be cleared for safety reasons. Exotic invasive species, such as purple loosestrife and other species known to occur in the proposed project area could thrive in the project area after the soil disturbance associated with project construction. The construction of the proposed project structures and the linear right-of-way for the transmission line could also affect aesthetic resources.

64. The EA concluded that reseeded disturbed areas with native plant species along with subsequent monitoring will allow Hamilton to determine the effectiveness of its seeding and ensure survival of native species during the first five years following revegetation when the disturbed areas are most susceptible to invasive species infiltration.⁴⁴ The EA also concluded that Hamilton's proposal to maintain a tree buffer to screen the proposed powerhouse site as much as possible from State Route 8, enhance recreation facilities, and design the project site to integrate it with the Corps' existing facilities will minimize any long-term effects on aesthetics.⁴⁵ Article 412 requires the development and implementation of a site restoration and aesthetics plan which includes

⁴³ 116 FERC ¶61,270 (2006).

⁴⁴ EA at 37.

⁴⁵ EA at 48.

provisions for reseeding disturbed areas with native plant species and monitoring the reseeded areas for 5 years following revegetation.

L. Administrative Conditions

1. Annual Charges

65. The Commission collects annual charges from licensees for administration of the FPA. Article 201 provides for the collection of funds for administration of the FPA and the use of a government dam. As noted, the Meldahl Project will occupy 81 acres of federal lands administered by the Corps. The Commission does not assess a land use charge for a licensee's use of federal lands adjoining or pertaining to federal dams or other structures.⁴⁶ Rather, it assesses a charge on the use of the federal facilities.⁴⁷

2. Exhibit F Drawings

66. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. Article 202 requires the filing of these drawings.

3. Exhibit G Drawings

67. The Exhibit G drawings do not meet Commission standards because they do not have three triangulation points in each separate view in the drawings. In addition, the Exhibit G filed with the application consists of color aerial photographs, which should be black and white drawings stamped by a Registered Land Surveyor. Article 203 requires the licensee to file for Commission approval revised Exhibit G drawings that comply with the Commission's regulations and enclose within the project boundary all principal project works necessary for operation and maintenance of the project, including the primary transmission line and project recreation facilities.

4. Review of Final Plans and Specifications

68. The Commission requires licensees to file construction- and operation-related plans and specifications for unconstructed projects.

69. Article 302 requires the licensee to file for Commission approval final contract drawings and specifications - together with a supporting design report consistent with the

⁴⁶ See 18 C.F.R. § 11.2(a) (2007).

⁴⁷ See 18 C.F.R. § 11.3 (2007).

Commission's engineering guidelines - a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and a Soil Erosion and Sediment Control Plan at least 60 days before the start of project construction authorized by the license.

70. Where new construction of a project is involved, the Commission requires a licensee to file revised drawings of project features as built, including any fishery enhancement measures and project recreation facilities required by this license. Article 303 requires the licensee to file revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as-built.

5. Project Financing

71. To ensure completion of project construction once begun, Article 304 requires the licensee to file for Commission approval at least 90 days before the start of construction a project financing plan that shows that the licensee has acquired the funds or commitment for funds necessary to construct the project in accordance with the license.

6. Conditions for Projects at Corps Dams

72. Pursuant to a November 2, 1981 Memorandum of Understanding between the Commission and the Department of the Army, seven special articles are included in the licenses for hydroelectric projects to be developed at Corps facilities. The articles are incorporated in this license as Articles 305 through 311.

7. Use and Occupancy of Project Lands and Waters

73. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 414 allows the licensee to grant permission, without prior Commission approval, for the use and occupancy of project lands for such minor activities as landscape planting. Such uses must be consistent with the purposes of protecting and enhancing the scenic, recreational, and environmental values of the project.

STATE AND FEDERAL COMPREHENSIVE PLANS

74. Section 10(a)(2)(A) of the FPA,⁴⁸ requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving,

⁴⁸ 16 U.S.C. § 803(a)(2)(A) (2000).

developing, or conserving a waterway or waterways affected by the project.⁴⁹ In the EA, staff identified and reviewed nine state and federal comprehensive plans that are relevant to this project.⁵⁰ No conflicts were found.

SAFE MANAGEMENT, OPERATION, AND MAINTENANCE OF THE PROJECT

75. Staff has reviewed Hamilton's preliminary plans to build the project as described in the license application. The project will be safe when constructed, operated, and maintained in accordance with the Commission's standards and the provisions of this original license.

NEED FOR POWER

76. The North American Electric Reliability Council (NERC) forecasts electrical supply and demand nationally and regionally for a 10-year period. Within the NERC organization, the Ohio River in the vicinity of the project forms part of the border between two regions: the ReliabilityFirst Corporation and Southeastern Electric Reliability Council (SERC). The City of Hamilton is located within the ReliabilityFirst Corporation. NERC's 2007 forecast includes a reserve margin goal of 15 percent for the ReliabilityFirst Corporation region. The region's projected electrical resources are forecasted to fall below this goal by the year 2012. Besides the reserve margin, NERC anticipates that electrical demand may exceed supply in a summer peak load or emergency situation, so incremental resources will need to be added to the electrical grid to meet demand. The amount of incremental resources that will be needed increases from 1,500 MW in 2013 to 11,100 MW in 2016.

77. The Meldahl Project will help meet a need for power in the ReliabilityFirst Corporation's area over the term of the license. The Meldahl Project will provide hydroelectric generation to meet Hamilton's power requirements and resource diversity. The project will have an installed capacity of 105 MW and a net generation of approximately 489,000 megawatt-hours (MWh) per year.

78. The project power will also diversify the generation mix and displace electrical production from non-renewable, fossil-fueled resources, and therefore reduce emissions and conserve fossil fuels.

⁴⁹ Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2007).

⁵⁰ EA at 69.

PROJECT ECONOMICS

79. In determining whether to issue an original license for an existing hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*,⁵¹ the Commission uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and of reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

80. In applying this analysis to the Meldahl Project, staff considered two options: Hamilton's proposal and the project as licensed herein. The two alternatives yield equal net benefits.⁵² As licensed herein with staff's recommended measures, the annualized cost of operating the Meldahl Project will be about \$29,658,804, or \$60.65/MWh. Based on an estimated average annual generation of 489,000 MWh, the project will produce power valued at \$25,917,000 when multiplied by the \$53.00/MWh value of the project's power.⁵³ Therefore, in the first year of the license, the power will cost \$3,741,804, or \$7.65/MWh, more than the likely cost of alternative power.

81. Our analysis shows that the project as licensed herein will cost more to operate than our estimated cost of alternative power. The applicant, therefore, must decide whether to accept this license and any financial risk that it entails.

82. Although staff does not explicitly account for the effects that inflation may have on the future cost of electricity, the fact that hydropower generation is relatively insensitive to inflation compared to fossil fueled generators is an important economic consideration for power producers and the consumers they serve. This is one reason project economics is only one of the many public interest factors the Commission considers in determining whether or not, and under what conditions, to issue a license.

⁵¹ 72 FERC ¶ 61,027 (1995).

⁵² Staff concluded that the fishery habitat enhancements required in this license would cost about the same as the entrainment study proposed by Hamilton.

⁵³ The alternative power cost of \$53.00/MWh is based on current market prices.

COMPREHENSIVE DEVELOPMENT

83. Sections 4(e) and 10(a)(1) of the FPA⁵⁴ require the Commission to give equal consideration to the power development purposes and to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife; recreational opportunities; and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

84. The EA for the project contains background information, analysis of impacts, support for related license articles, and the basis for a finding that issuance of the license is not a major federal action significantly affecting the quality of the human environment. I conclude based on the record of this proceeding, including the EA and the comments thereon, that licensing the Meldahl Project as described in this order would not constitute a major federal action significantly affecting the quality of the human environment. The project will be safe if constructed, operated, and maintained in accordance with the requirements of this license.

85. Based on my independent review and evaluation of the Meldahl Project, recommendations from the resource agencies and other stakeholders, and the no-action alternative, as documented in the EA, I have selected the proposed Meldahl Project, with the staff-recommended measures, and find that it is best adapted to a comprehensive plan for improving or developing the Ohio River.

86. I selected this alternative because: (1) issuance of an original license will serve to provide a beneficial and dependable source of electric energy; (2) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreational resources, and historic properties; and (3) the 105-MW of electric energy generated from renewable resource will continue to offset the use of fossil-fueled, steam-electric generating plants, thereby conserving nonrenewable resources and reducing atmospheric pollution.

⁵⁴ 16 U.S.C. §§ 797(e) and 803(a)(1) (2000).

LICENSE TERM

87. Section 6 of the FPA,⁵⁵ provides that original licenses for hydropower projects shall be issued for a term not to exceed 50 years.⁵⁶ It is the Commission's policy to issue a 50-year license for a project located at a federal dam.⁵⁷ Because the Meldahl Project will be located at a Corps dam, this license is issued for a period of 50 years.

The Director orders:

(A) This original license is issued to the City of Hamilton, Ohio (licensee), for a period of 50 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Meldahl Hydroelectric Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, described in the project description and the project boundary discussion of this order.

(2) Project works consisting of: (1) an 1,850-foot-long intake channel with trashracks with 8-inch bar spacing; (2) a submersible 248-foot-long, 210-foot-wide reinforced concrete powerhouse containing three horizontal 35-MW bulb-type Kaplan turbine generating units with a total rated capacity of 105 megawatts at gross operating head of 24.5 feet; (3) an 1,850-foot-long tailrace channel; (4) an approximately 5-mile-long, 138-kV transmission line connecting the powerhouse to a new switching station adjacent to East Kentucky Electric Cooperative, Inc.'s Boone-Spurlock transmission line; and (5) appurtenant facilities.

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

⁵⁵ 16 U.S.C. § 799 (2000).

⁵⁶ Original licenses for unconstructed projects are issued for terms of 30, 40, or 50 years.

⁵⁷ See *City of Danville, Virginia*, 58 FERC ¶ 61,318 at 62,020 (1992).

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Exhibit A: Pages A-2 to A-10, filed on October 6, 2006.

Exhibit F: The following sections of Exhibit F filed on October 6, 2006:

<u>Exhibit F Drawing</u>	<u>FERC No. 12667-</u>	<u>Description</u>
Sheet F-1	1	Project Site Plan
Sheet F-2	2	Cofferdam Layout Plan
Sheet F-3	3	Powerhouse Plan at El. 485.0 and Entrance Building
Sheet F-4	4	Powerhouse Plan at El. 462.0 and El. 444.0
Sheet F-5	5	Powerhouse Plan at El. 420.0 and El. 392.0
Sheet F-6	6	Powerhouse Section A-A
Sheet F-7	7	Powerhouse Sections B-B and C-C
Sheet F-8	8	Powerhouse Sections D-D and E-E
Sheet F-9	9	Powerhouse Sections F-F and G-G

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

(C) The Exhibits A and F described above are approved and made part of the license. The Exhibit G drawings filed as part of the application for license do not conform to Commission regulations and are not approved.

(D) This license is subject to the articles set forth in Form L-6, (October 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Navigable Waters and Lands of the United States" (*see* 54 FPC 1799 *et seq.*) except for

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Article 20 of Form L-6 concerning the reservoir area, and the following additional articles:

Article 201. Administrative Annual Charges. The licensee shall pay the United States annual charges, effective as of the date of commencement of project operation, and as determined in accordance with the provisions of the Commission's regulations in effect from time to time for the purposes of:

- (1) reimbursing the United States for the cost of administration of Part 1 of the Federal Power Act. The authorized installed capacity for that purpose is 105,000 kilowatts; and
- (2) recompensing the United States for the utilization of surplus water or water power from a government dam.

Article 202. Exhibit F Drawings. Within 45 days of the date of issuance of the license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-12667-1 through P-12667-9) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards along with form FERC-587 shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections Chicago Regional Office.

b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections Chicago Regional Office. Exhibit F drawings must be identified as (CEII) material under 18 CFR §388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension in the following format [P-12667-1, F-1, Description, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:
IMAGERY - black & white raster file

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FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
 RESOLUTION – 300 dpi desired, (200 dpi min)
 DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)
 FILE SIZE – less than 1 MB desired

Article 203. Exhibit G Drawings. Within 90 days of the issuance date of the license, the licensee shall file, for Commission approval, revised Exhibit G drawings enclosing within the project boundary all principal project works necessary for operation and maintenance of the project, including the primary transmission line. The Exhibit G drawings must comply with sections 4.39 and 4.41 of the Commission’s regulations.

Article 301. Start of Construction. The licensee shall commence construction of the project works within two years from the issuance date of the license and shall complete construction of the project within five years from the issuance date of the license.

Article 302. Contract Plans and Specifications. At least 60 days prior to the start of any construction, the licensee shall submit one copy of its plans and specifications, as well as a supporting design document, to the Commission’s Division of Dam Safety and Inspections (D2SI) – Chicago Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal to the D2SI – Chicago Regional Engineer must also include as part of preconstruction requirements: a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan.

The Soil Erosion and Sediment Control Plan relating to construction activities shall be consistent with Kentucky’s Best Management Practices for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites and shall be based on actual-site geological, soil, and groundwater conditions and on project design, and shall include, at a minimum, the following:

- (1) a detailed description of actual site conditions;
- (2) methods to be employed in testing for the presence of heavy metals and other toxic substances in any materials to be dredged or excavated in the Ohio River bed and other project construction areas, including settling ponds associated with cofferdam dewatering;
- (3) measures proposed to control erosion, to prevent slope instability, and to minimize the quantity of sediment resulting from project construction;
- (4) measures to minimize inputs of sediment and other potentially toxic

- substances to surface waters;
- (5) measures to avoid disturbing or to safely handle and dispose of disturbed toxic substances and spoils;
 - (6) measures for stabilization of disturbed areas immediately after construction with native grasses;
 - (7) detailed descriptions, functional design drawings, and specific topographic locations of control measures; and
 - (8) a specific implementation schedule and details for monitoring and maintenance of proposed control measures.

The licensee shall prepare the plan after consultation with the Kentucky Division of Water, Kentucky Department of Fish and Wildlife Resources, U.S. Fish and Wildlife Service, and Huntington District, U.S. Army Corps of Engineers. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on geological, soil, and groundwater conditions at the site.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the D2SI – Chicago Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

Article 303. *As-built Drawings.* Within 90 days of completion of construction of the facilities authorized by this license, the licensee shall file for Commission approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as built. A courtesy copy shall be filed with the Commission's Director Division of Dam Safety and Inspections (D2SI) – Chicago Regional Engineer, the Director, D2SI, and the Director, Division of Hydropower Administration and Compliance.

Article 304. *Project Financing Plan.* At least 90 days before starting construction, the licensee shall file with the Commission, for approval, a project financing plan. The plan must show that the licensee has acquired the funds, or commitment for funds, necessary to construct the project in accordance with this license.

The licensee shall not start any project construction or ground-disturbing activities that are inseparably associated with the project, before the project financing plan is approved.

Article 305. Facility Design and Construction. The design and construction of those permanent and temporary facilities, including reservoir impounding cofferdams and deep excavations, that will be an integral part of, or that could affect the structural integrity or operation of the Government project shall be done in consultation with and subject to the review and approval of the Corps' District Engineer. The Corps' review of the cofferdams will be in addition to the licensee's review and approval of the final plans, and shall in no way relieve the licensee of responsibility and liability regarding satisfactory performance of the cofferdams. Within 90 days from the issuance date of the license, the licensee shall furnish the Corps and the Commission's Division of Dam Safety and Inspections – Chicago Regional Engineer, a schedule for submission of a site investigation plan, design documents, and the plans and specifications for the project. If the schedule does not afford sufficient review and approval time, the licensee, upon request of the Corps, shall meet with the Corps and Commission staffs to revise the schedule accordingly.

Article 306. Review of Contractor Designs. The licensee shall review and approve the design of contractor-designed cofferdams and deep excavations, other than those approved according to Article 305, prior to the start of construction and shall ensure that construction of cofferdams and deep excavations are consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the licensee shall file with the Director, Division of Dam Safety and Inspections (D2SI), with a copy to the Commission's D2SI – Chicago Regional Engineer and the Corps, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Article 307. Agreement with Corps. The licensee shall, within 90 days from the issuance date of the license and before commencing project construction, enter into an agreement with the Corps to coordinate its plans for access to and site activities on lands and property administered by the Corps so that the authorized purposes, including operation of the Federal facilities, are protected. In general, the agreement shall not be redundant with the Commission's requirements contained in this license, shall identify the facility, and the study and construction activities, as applicable, and terms and conditions under which studies and construction will be conducted. The agreement shall be mainly composed of reasonable arrangements for access to the Corps site to conduct studies and construction activities, such access rights to be conditioned by the Corps as may be necessary to protect the federally authorized project purposes and operations. Should the licensee and the Corps fail to reach an access agreement, the licensee shall refer the matter to the Commission for resolution.

Article 308. Periodic and Continuous Inspections by the Corps. The construction, operation, and maintenance of the project works that, in the judgment of the Corps may affect the structural integrity or operation of the Corps project shall be subject to periodic or continuous inspections by the Corps. Any construction, operation and maintenance deficiencies or difficulties detected by the Corps inspection shall be immediately reported to the Commission's Division of Dam Safety and Inspections (D2SI) – Chicago Regional Engineer. Upon review, the D2SI – Chicago Regional Engineer shall refer the matter to the licensee for appropriate action. In cases when construction, operation or maintenance practices or deficiencies may create a situation posing imminent danger to the structural integrity and safety of the Corps project, the Corps inspector has the authority to stop construction or maintenance activities while awaiting the resolution of the problem.

Article 309. Regulating (or Operating) Plan. The licensee shall at least 60 days prior to start of construction, submit for approval a regulating plan to the Corps, describing (a) the designed mode of hydropower operation, (b) reservoir flow diversion and regulation requirements for operation of the Corps project during construction as established by the Corps, and (c) integration of the operation of the hydroelectric facility into the Corps' emergency action plan. In addition, the licensee, prior to start of power plant operation, shall enter into an operating Memorandum of Agreement (MOA) with the Corps describing the detailed operation of the powerhouse acceptable to the Corps. The MOA shall specify any restrictions needed to protect the primary purposes of the Corps project for navigation, recreation, water quality, and flood control. The Commission's Division of Dam Safety and Inspections (D2SI) – Chicago Regional Engineer shall be invited to attend meetings regarding the agreement. The MOA shall be subject to revision by mutual consent of the Corps and licensee as experience is gained by actual project operation. Should the licensee and the Corps fail to reach an agreement, the matter will be referred to the Director, Office of Energy Projects for resolution. Copies of the regulating plan and signed MOA between the Corps and the licensee and any revision thereof shall be furnished to the Director, Office of Energy Projects and the D2SI – Chicago Regional Engineer.

Article 310. No Claim. The licensee shall have no claim under this license against the United States arising from the effect of any changes made in the operation or reservoir levels of the Corps project.

Article 311. Corps' Written Approval. The licensee shall provide the Commission's Division of Dam Safety and Inspections (D2SI) – Chicago Regional Engineer two copies of all correspondence between the licensee and the Corps. The D2SI – Chicago Regional Engineer shall not authorize construction of any project work until the Corps' written approval of construction plans and specifications has been

received by the D2SI – Chicago Regional Engineer.

Article 401. Physical Hydraulic Modeling Study. Within 180 days from the date of license issuance, the licensee shall file with the Commission, for approval, a plan for conducting a physical hydraulic modeling study to ensure that the project design will not adversely affect navigation, mussels and their habitat, Big Snag Creek sandbar, and downstream fishing areas.

The plan shall include, as a minimum:

- (1) descriptions of how the physical hydraulic modeling study will address:
 - (a) the approach and tailrace channels;
 - (b) the powerhouse;
 - (c) structures that may be required for improved approach and tailrace flow conditions;
 - (d) structures to minimize the impact on Ohio River navigation (such as a navigation groin);
 - (e) shoreline and riverbed erosion protection requirements;
 - (f) recreational use (see Article 411) and mussel habitat protection requirements at Big Snag Creek sandbar; and
 - (g) optimal locations for a fishing pier or piers that will be installed under the recreation plan required by Article 411;
- (2) descriptions of how items (1)(a) through (g) will be accommodated in the project design;
- (3) a description of how project operation will be coordinated with the Huntington District, U.S. Army Corps of Engineers (Corps) to minimize or avoid adverse effects on navigation, recreation, and aquatic resources;
- (4) a numerical evaluation of upstream water surface elevations resulting from cofferdam construction during high flow events; and
- (4) an implementation schedule.

The licensee shall prepare the plan after consultation with the Corps, U.S. Fish and Wildlife Service, National Park Service, Kentucky Department of Parks, and Kentucky Department of Fish and Wildlife Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies and Corps, and specific descriptions of how the agencies' and Corps comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies and Corps to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Project construction shall not begin until the plan has been implemented, the hydraulic modeling study completed, and the study results and any recommendations for changes to the project facilities or operations have been reviewed and approved by Commission. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 402. Dissolved Oxygen Standards. The licensee shall operate the project such that water discharged from the Meldahl Project into the Ohio River maintains a minimum daily average dissolved oxygen (DO) concentration of 5.0 milligrams per liter (mg/l), and an instantaneous minimum DO concentration of no less than 4.0 mg/l.

These DO requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods of time upon mutual agreement among the licensee, the Kentucky Division of Water, the Kentucky Department of Fish and Wildlife Resources, and the Ohio River Valley Sanitation Commission. If project operations are so modified, the licensee shall notify the Commission as soon as possible, but not later than 10 days after each such incident, and shall provide the reason for the DO deviation and actions taken to correct the deviation, if applicable.

Article 403. Dissolved Oxygen Monitoring Plan. Within 180 days from the date of license issuance, the licensee shall file with the Commission, for approval, a plan to monitor dissolved oxygen (DO) and temperature in the Meldahl pool and in the Ohio River downstream from the Meldahl dam for the first 10 years of project operation. The plan shall require monitoring during critical, warm weather periods (i.e., from about May 1 to September 30, with actual dates determined during consultation on this monitoring plan).

The plan shall include, as a minimum:

- (1) a provision to continuously measure DO concentrations and temperature at the project during critical times, [which are to be developed after consultation with the Kentucky Division of Water (Kentucky DOW), the U.S. Fish and Wildlife Service (FWS), the Ohio River Valley Sanitation Commission (Sanitation Commission), Kentucky Department of Fish and Wildlife Resources (Kentucky DFWR), Kentucky Department of Natural Resources (Kentucky DNR), Kentucky Environmental and Public Protection Cabinet (Kentucky Cabinet), and the Huntington District, U.S. Army Corps of Engineers (Corps)] to ensure that the DO standards required in Article 402 are being maintained in the Ohio River downstream from the Meldahl dam;
- (2) identification of DO and temperature sampling locations in the tailwaters below Meldahl dam and in the Meldahl pool after consultation with the Kentucky DOW;
- (3) identification of all gages and equipment that will be used to conduct the DO and temperature monitoring; the periodic maintenance and calibration techniques and schedules used to keep the equipment operational, and identification of the data collection intervals;
- (4) a provision to continually transmit DO and temperature data collected from the monitoring efforts to the Sanitation Commission;
- (5) identification of the DO concentrations in the Meldahl pool and downstream from the Meldahl dam that will trigger actions by the licensee to activate various alternative operational measures to ensure the project complies with Article 402 standards for DO below the project during project operation;
- (6) identification of various alternative operational measures that will be implemented by the licensee if the monitoring efforts identify the project discharges are not meeting Article 402 requirements for DO or if DO levels in the Meldahl pool upstream from the dam are lower than the Article 402 requirements for DO, and outline a process to notify the Kentucky DOW, FWS, Sanitation Commission, Kentucky DFWR, Kentucky DNR, Kentucky Cabinet, Kentucky DOW's Water Quality Branch and the Florence Regional Office, and Corps;

- (7) identification of procedures to ensure the monitoring plan and any related project operational changes resulting from the results of the monitoring data are provided to the Kentucky DOW, FWS, Sanitation Commission, Kentucky DFWR, Kentucky DNR, Kentucky Cabinet, Corps, and the Commission;
- (8) identification of ways to implement consultation with the parties identified in item (6) concerning the results of the plan;
- (9) identification of the procedure and schedule for filing the results, agency and Corps comments, and the licensee's response to agency and Corps comments with the Commission; and
- (10) an implementation schedule.

The licensee shall prepare the plan after consultation with the Kentucky DOW, FWS, Sanitation Commission, and the Corps. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies and Corps, and specific descriptions of how the agencies' and Corps comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies and Corps to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Project operation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 404. Run-of-River Operation. The licensee shall operate the project in a run-of-river mode within the constraints established by the Huntington District, U.S. Army Corps of Engineers (Corps) at the Meldahl locks and dam to protect water quality, fish and aquatic resources in the Ohio River and to meet the Corps operational requirements at the dam of providing navigation on the Ohio River.

The licensee shall at all times act to minimize fluctuation of the reservoir (Meldahl pool) elevation by maintaining a discharge from the project such that, at any point in time, flows, as measured immediately downstream from the project tailrace approximate the sum of inflows to the reservoir. The project shall also operate according to the Corps-mandated operating criteria established for the Meldahl locks and dam. This includes the

Corps' requirement to operate the dam to maintain a relatively constant water surface elevation of 485 feet mean sea level in the Meldahl pool.

Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon agreement among the licensee and the Kentucky Department of Environmental Protection and the U.S. Fish and Wildlife Service, or as directed by the Corps to accommodate the authorized purpose for the Corps facilities. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 405. Run-of-River Monitoring Plan. Within 180 days from the date of license issuance, the licensee shall file with the Commission, for approval, a plan to monitor headwater and tailwater discharge levels, to include turbine operation logs, lockages, and other data sufficient to document project compliance with run-of-river (ROR) operations as required in Article 404 and to ensure the ROR operations are within the Huntington District, U.S. Army Corps of Engineers' (Corps') requirement to operate the dam to maintain a relatively constant water surface elevation of 485 feet mean sea level in the Meldahl pool.

The plan shall include, but not be limited to the following:

- (1) the criteria by which compliance with ROR operation will be measured;
- (2) specifications of the type and location of instrumentation to monitor ROR operation;
- (3) identifying periodic maintenance and calibration necessary for any installed devices or gages, and identification of the data collection intervals and reporting procedures and time frames for fully calibrating any equipment installed to monitor ROR operations;
- (4) procedures to notify agencies and the Corps within 24 hours of any deviations from the ROR resulting from events beyond the licensee's control; measures used to restore ROR as soon as possible following any deviations in flows; and measures proposed to notify agencies and the Corps within 30 days prior to any scheduled operation or maintenance activity that may require deviation from ROR operation;
- (5) procedures to ensure the plan identifies ways of keeping accurate and sufficient records to show that ROR operation does not interfere with Corp

reservoir operating levels and for making operating records readily available for agencies and the Corps; and

- (6) an implementation schedule.

The licensee shall prepare the plan after consultation with the Kentucky Department of Environmental Protection, the U.S. Fish and Wildlife Service, and the Corps. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies and Corps, and specific descriptions of how the agencies' and Corps comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies and Corps to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Project operation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 406. Freshwater Mussel Survey and Protection. At least 90 days before any land-disturbing or land-clearing activities associated with project construction, the licensee shall file for Commission approval a freshwater mussel protection plan. The purpose of the protection plan is to ensure protection of the federally and state-listed fanshell mussel and the federally listed pink mucket, ring pink, orangefoot, pimpleback, and clubshell mussel, and the sheepsnose mussel, a federal candidate species, that occur in habitat that could be affected by construction and operation of the project.

The plan shall include, but not be limited to, the following:

- (1) a report describing the results of a final pre-construction mussel survey of the streambed that will be disturbed during construction and areas where sediment deposition and scour from project construction or operation may occur. This report must be marked "Confidential, Contains Privileged Information, Do Not Release" and filed with a request that the Secretary file it in the Commission's non-public file. The report shall:
 - (a) identify the entity that conducted the mussel survey;
 - (b) describe the methodologies used in the survey;

- (c) include a map showing the locations of the beds of any federally and state-listed mussels found during the survey; and
 - (d) data on abundance and colony size for any federally and state-listed mussel species found during the survey.
- (2) a biological assessment with an analysis of how project construction, operation, and maintenance may affect any identified federally and state-listed mussels or their habitat;
 - (3) a description of any recommended protection measures for any federally and state-listed mussel species that may be identified during the surveys, including but not limited to a translocation program, if necessary, in the event that adverse effects on an area inhabited by listed mussel species cannot be avoided; and
 - (4) a description of any surveys that may be conducted to monitor and determine the success of any protection measures required by the Commission;
 - (5) a schedule for implementing any measures required by the Commission.

The survey and protection plan shall be developed after consultation with the Kentucky DEP and the FWS. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons for not doing so, based on site-specific information.

The Commission reserves the right to require changes to the plan. No ground-disturbing or land-clearing activities associated with project construction shall commence until the plan has been approved by the Commission. Upon Commission approval, the licensee shall implement the plan including any changes required by the Commission.

Article 407. Wetland Survey and Protection. At least 90 days before any land-disturbing or land-clearing activities associated with project construction, the licensee shall file for Commission approval a wetland protection plan. The purpose of the plan is

to protect wetlands that could be affected by project construction, operation, and maintenance.

The wetland protection plan shall include, but not be limited to, the following:

- (1) a report describing the results of a final pre-construction wetland survey along the transmission line corridor; this survey report shall at minimum include:
 - (a) list of all wetland types identified along the transmission corridor; and
 - (b) maps showing the locations and type of any wetlands located along the transmission line route compared to the wetlands indicated on the U.S. Fish and Wildlife Service (FWS) National Wetland Inventory maps.
- (2) for each wetland identified in the survey, a description of measures and methodologies that will be used to avoid, protect, or minimize effects on the wetland, including at minimum: (a) placement of transmission line poles outside of any wetlands found, if possible; and (b) a construction and maintenance vehicle protocol to avoid all known wetlands along the transmission corridor;
- (3) a description of any follow-up surveys that may be conducted, if necessary, to monitor and determine the success of any protection measures required by the Commission;
- (4) a schedule for implementing the any protection measures required by the Commission;

The survey and and wetland protection plan shall be developed after consultation with the Kentucky Department for Environmental Protection, FWS, and Huntington District, U.S. Army Corps of Engineers. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the report and plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons for not doing so, based on site-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. Project construction shall not commence until the results of the plan has been reviewed and approved by the Commission, and until the Commission notifies the licensee that the plan is approved.

Article 408. Terrestrial Survey and Protection. At least 90 days before any land-disturbing or land-clearing activities associated with project construction, the licensee shall file for Commission approval terrestrial plant protection plan. The purpose of the protection plan is to ensure protection of Virginia mallow and any federally listed plants that could be affected by project construction, operation, and maintenance.

The terrestrial protection plan shall include, but not be limited to, the following:

- (1) a report describing the results of a final pre-construction terrestrial survey of the powerhouse site and transmission corridor. This survey report must be marked "Confidential, Contains Privileged Information, Do Not Release" and filed with a request that the Secretary file it in the Commission's non-public file. The report shall include maps showing the locations of any Virginia mallow or federally listed plant species found at the powerhouse site and along the transmission line corridor;
- (2) a biological assessment of any federally listed plant species found at the powerhouse site and along the transmission line corridor with an analysis of how project construction, operation, and maintenance may affect federally listed plants identified in the survey;
- (3) a description of recommended protection measures for any identified Virginia mallow or federally listed plants, as well as the methodologies to be used to implement each measure;
- (4) a description of any follow-up surveys that may be conducted to monitor and determine the success of any protection measures required by the Commission; and
- (6) a schedule for implementing the any protection measures required by the Commission.

The plant survey and any protection measures for Virginia mallow and any federally list species shall be developed after consultation with the Kentucky Department

for Environmental Protection and the U.S. Fish and Wildlife Service. The licensee shall submit with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated in the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons for not doing so, based on site-specific information.

The Commission reserves the right to require changes to the plan. No ground-disturbing or land-clearing activities associated with project construction shall commence until the plan has been completed and the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 409. Indiana Bat Protection Measures. At least 90 days before any land-disturbing or land-clearing activities associated with project construction, the licensee shall file for Commission approval an Indiana bat survey and protection plan. The purpose of the protection plan is to ensure protection of the Indiana Bat that occur in habitat that could be affected by construction and operation of the project.

Before conducting the survey, the licensee shall obtain a copy of the Indiana bat survey guidance from the U.S. Fish and Wildlife Service's (FWS) Kentucky Field Office and use it to implement an Indiana bat survey along the transmission line corridor and powerhouse site, including identifying any potential summer roosting trees or winter hibernacula.

The Indiana bat protection plan shall include, but not be limited to, the following:

- (1) a report describing the results of a final pre-construction Indiana bat survey of the powerhouse site and transmission corridor. This survey report must be marked "Confidential, Contains Privileged Information, Do Not Release" and filed with a request that the Secretary file it in the Commission's non-public file. The report shall:
 - (a) include a description of how the methodology used in the survey comports with the U.S. Fish and Wildlife Service's Indiana bat survey guidance;
 - (b) identify any potential summer roosting trees or winter hibernacula located along the transmission line corridor and powerhouse site;

- (c) maps showing the locations of any Indiana bats sightings, as well as potential summer roosting trees and winter hibernacula;
- (2) a biological assessment with an analysis of how project construction, operation, and maintenance may affect any Indiana bats or potential Indiana bat habitat identified in the surveys;
- (3) a description of any recommended protection measures for Indiana bats including but not limited to:
 - (a) a description of the methodology for selecting any trees that will be topped, but not removed from the proposed transmission line corridor to maintain potential Indiana bat summer roosting habitat as well as a description of the methodology for avoiding disturbance to any winter Indiana bat hibernacula that may be identified during the surveys;
 - (b) a provision to restrict tree clearing to between October 15 and March 31 and to top, but not remove, some potential Indiana bat summer roosting trees within the transmission line corridor;
 - (c) a provision that, in the event the transmission corridor tree clearing can't be finished between October 15 and March 31, the licensee shall obtain written approval by the FWS of any modification to that time frame, and shall submit such modification along with the written FWS approval for Commission review and approval.
- (4) a description of any follow-up surveys that may be conducted to monitor and determine the success of any Indiana bat protection measures required by the Commission; and
- (5) a schedule for implementing any Indiana bat protection measures required by the Commission;

The Indiana bat surveys and protection plan shall be developed after consultation with the Kentucky Department for Environmental Protection and the FWS. The licensee shall submit with the Indiana bat survey report and protection plan documentation of consultation, copies of comments and recommendations on the completed survey and protection plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated in the report. The

licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the surveys and protection plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons for not doing so, based on site-specific information.

The Commission reserves the right to require changes to the Indiana bat protection plan. No ground-disturbing or land-clearing activities associated with project construction shall commence until the surveys have been completed and the Commission notifies the licensee that the protection plan is approved. Upon Commission approval, the licensee shall implement the protection plan, including any changes required by the Commission.

Article 410. Raptor-Friendly Transmission Lines. The licensee shall design and construct raptor-friendly transmission lines in strict accordance with the industry standard guidelines set forth in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006*, by Avian Power Line Interaction Committee (APLIC), Edison Electric Institute, and Raptor Research Foundation. Further, the licensee, after consulting with the U.S. Fish and Wildlife Service and the Kentucky Department of Fish and Wildlife Resources, and at least 90 days before the start of any land-disturbing or land-clearing activities associated with project construction, shall file for Commission approval a transmission line design plan that considers adequate separation of energized conductors, groundwires, and other metal hardware, adequate insulation, and any other measures necessary to protect raptors from electrocution hazards. Agency comments on the transmission line design plan shall be included in the filing. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons for not doing so, based on site-specific information.

The Commission reserves the right to require changes to the transmission line design. Project construction shall not commence until the transmission line design plan has been reviewed and approved by the Commission, and the Commission notifies the licensee that the plan is approved.

Article 411. Recreation Plan. At least 90 days before any land-disturbing or land-clearing activities associated with project construction, the licensee shall file, for Commission approval, a Recreation Plan to construct, operate, and maintain recreational facilities at the Meldahl Project, including fish structures designed to benefit the recreational fishery downstream from Meldahl dam.

The plan shall include, at a minimum, the provisions outlined below.

- (1) Recreation access and monitoring measures that consist of:
 - (a) an access road, parking area, restroom, and fishing access pier at Big Snag Creek sandbar;
 - (b) a tailrace fishing pier or piers, a picnic and open play area and permanent walkways for shoreline access along the tailrace, and restroom facilities and parking areas for the fishing pier(s) and picnic-play area;
 - (c) an implementation schedule that (a) provides for construction and use of the Big Snag Creek sandbar facilities shortly after the start of project construction, (b) minimizes the time for constructing recreation facilities, and (c) minimizes the length of time that public access to recreation sites will be restricted by project construction;
 - (d) barriers and signage during the project construction period warning the public about project construction to help reduce potential safety concerns;
 - (e) design drawings of each recreational facility;
 - (f) provisions for monitoring and maintenance of the recreational facilities; and
 - (g) a provision for restricting public access to the Corps and Meldahl Project facilities, in accordance with Department of Homeland Security threat levels, including no recreational facilities or public access within 150 feet of the dam.
- (2) structures to enhance the recreational fishery and recreational angling opportunities in the project area by locating structural enhancement measures in areas that will be accessible to anglers using the licensee's installed fishing piers (see Item 1 of this article) and to anglers fishing from shore and from boats;

The plan shall include:

- (a) a map showing the location of the sites selected for installation of fish structures or other measures designed to enhance recreational angling downstream from the Meldahl dam;
- (b) the types of enhancement structures to be used (e.g., rock reefs, etc.);
- (c) the appropriate size and types of materials to be used in the enhancement structures, taking into account the physical hydraulic modeling study required by Article 401;
- (d) post-construction monitoring to (i) determine the effectiveness of the enhancement measures that are installed, and (ii) identify whether any changes in the measures are warranted based on the monitoring results;
- (e) identifying the need and frequency, if appropriate, for long-term follow-up evaluations and for refurbishment or replacement of structures over the term of the license; and
- (f) a schedule for implementing the provisions of the recreation plan.

The licensee shall prepare the plan and implementation schedule after consultation with the Kentucky Department of Fish and Wildlife Resources, the Kentucky Department of Parks, the Ohio Department of Natural Resources, the U.S. Fish and Wildlife Service, the Huntington District, U.S. Army Corps of Engineers, and the National Park Service. The licensee shall include with the plan and schedule documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the above entities, and specific descriptions of how the entities' comments are accommodated by the plan and schedule. The licensee shall allow a minimum of 30 days for the entities to comment and make recommendations before filing the plan and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan and schedule. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. Project construction shall not commence until the plan has been reviewed and approved by the Commission, and the Commission notifies the licensee that the plan is approved. Any

structure or facility constructed in accordance with this article shall be shown on the as-built drawings filed pursuant to Article 303 of this license.

Article 412. *Site Restoration and Aesthetics Plan.* The licensee shall at least 90 days prior to start of construction, file, for Commission approval, a site restoration and aesthetics plan for the project. The purposes of the plan are to minimize long-term project effects on aesthetics and to protect aesthetic values.

The plan shall include, at a minimum, provisions for:

- (1) landscaping the project grounds following project construction;
- (2) screening the powerhouse site as much as possible from State Route 8 by maintaining an existing tree buffer;
- (3) ensuring that project roads, final topography, and structures blend in with the visual environment to the extent possible;
- (4) revegetating disturbed areas at the project construction site and within the proposed transmission line corridor with native plants, consistent with the University of Kentucky, College of Agriculture, Publication AGR-52;
- (5) monitoring reseeded areas for 5 years following revegetation and including a description of procedures to be followed if monitoring reveals that the revegetation is not successful or if the reseeded areas are being colonized by exotic invasive plant species; and
- (6) an implementation schedule.

The licensee shall prepare the plan and implementation schedule after consultation with the Kentucky Department of Fish and Wildlife Resources, and the Huntington District, U.S. Army Corps of Engineers. The licensee shall include with the plan and schedule documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the above entities, and specific descriptions of how the entities' comments are accommodated by the plan and schedule. The licensee shall allow a minimum of 30 days for the entities to comment and make recommendations before filing the plan and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan and schedule. No land-clearing or land disturbing activities associated with project construction shall commence until the plan has been reviewed and approved by the Commission, and the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 413. *Historic Properties.* The licensee, before starting any land-clearing or land-disturbing activities associated with project construction, other than those specifically authorized in this license, shall consult with the Kentucky State Historic Preservation Officer (SHPO); the Huntington District, U.S. Army Corps of Engineers (Corps); the United Keetoowah Band of Cherokee, the Miami Tribe of Oklahoma, the Peoria Tribe of Indians of Oklahoma, and the Eastern Band of Cherokee Indians (Tribes).

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

After consultation with the SHPO, the Corps, and the Tribes, if previously unidentified archeological or historic properties are determined to be included in or eligible for inclusion in the National Register of Historic Places (i.e., whether it is an "Historic Property"), the licensee shall file, for Commission approval, a Historic Properties Management Plan (HPMP) prepared by a qualified cultural resource specialist. The HPMP shall include the following items: (1) a description of each discovered property indicating that it is included in or eligible for inclusion in the National Register of Historic Places; (2) a description of the effect potential at each Historic Property; (3) proposed measures for avoiding, lessening, or mitigating effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for avoiding, lessening, and mitigating effects, and conducting additional studies. The Commission may require changes to the plan.

The licensee shall not resume land-clearing or land-disturbing activities until informed by the Commission that the requirements of this article have been fulfilled.

Article 414. *Use and Occupancy.* (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 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 use 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, canceling 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 and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. 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 use 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 or roads where 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. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission and the Regional Director in writing no later than January 31 of each year.

(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 certification 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 (measured over project waters) 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 project waters at normal 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 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, 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 paragraph (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 the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (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; and (iii) the grantee shall not unduly restrict public access to project waters.

(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.

(g) The authority granted to the license under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

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

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(F) This order is final unless a request for rehearing is filed within 30 days from the date of its issuance, as provided in section 313(a) of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

J. Mark Robinson
Director
Office of Energy Projects

Project No. 12667-003

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Form L-6
(October, 1975)**FEDERAL ENERGY REGULATORY 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 Energy Regulatory 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 features 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 nonpower 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 state 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 locations 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 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

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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 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 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. 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 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.

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