

167 FERC ¶ 62,128  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Igiugig Village Council

Project No. 13511-003

ORDER ISSUING PILOT PROJECT LICENSE  
(MINOR PROJECT)

(Issued May 23, 2019)

**INTRODUCTION**

1. On November 15, 2018, the Igiugig Village Council (Igiugig Village) filed, pursuant to Part I of the Federal Power Act (FPA),<sup>1</sup> an application for a 10-year pilot project license to construct, operate, and maintain its proposed Igiugig Hydrokinetic Project No. 13511 (Igiugig Project or project). The 70-kilowatt (kW) hydrokinetic project will be located on the Kvichak River in the Lake and Peninsula Borough, near the town of Igiugig, Alaska.<sup>2</sup> The project will not occupy federal land.
2. Commission staff developed the hydrokinetic pilot project licensing process from the Integrated Licensing Process to meet the needs of entities, such as Igiugig Village, who are interested in testing new hydropower technologies while minimizing the risk of adverse environmental impacts. The goal of the process is to allow developers to test new hydrokinetic technologies, to determine appropriate sites for these technologies, and to confirm the technology's environmental and other effects without compromising the Commission's oversight of the projects or limiting agency and stakeholder input.
3. As outlined in Commission staff's pilot project licensing process white paper,<sup>3</sup> a pilot project should be (1) small, (2) installed for a short term, (3) located in non-sensitive areas based on the Commission's review of the record, (4) removable and able to be shut down on short notice, (5) removed, with the site restored, before the end of the license term (unless a

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<sup>1</sup> 16 U.S.C. §§ 791(a) – 825(r) (2012).

<sup>2</sup> The Kvichak River, which is fed by Lake Iliamna and flows into Bristol Bay, is a navigable waterway of the United States. *See Iliamna-Newhalen-Nondalton Electric Coop., Inc.*, 58 FERC ¶ 61,065, at 61,151 n.34 (1992). Therefore, section 23(b)(1) of the Federal Power Act, 16 U.S.C. § 817(1)(2012), requires the project to be licensed.

<sup>3</sup> FERC, *Federal Energy Regulatory Commission Licensing Hydrokinetic Pilot Projects*, available at [http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/pdf/white\\_paper.pdf](http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/pdf/white_paper.pdf) (issued April 14, 2008).

new license is granted), and (6) initiated by a draft application in a form sufficient to support environmental analysis. After review of Igiugig Village's pilot project application, Commission staff concluded that Igiugig Village's proposal meets these criteria.

4. As discussed below, this order issues a pilot project license for the Igiugig Project.

## BACKGROUND

5. On November 29, 2018, the Commission issued a public notice that was published in the *Federal Register* accepting the application for filing, indicating the application was ready for environmental analysis, and setting December 31, 2018<sup>4</sup> as the deadline for filing motions to intervene, protests, comments, recommendations, terms and conditions, and prescriptions.<sup>5</sup> No protests or motions to intervene were filed. The Alaska State Historic Preservation Office (Alaska SHPO), the Alaska Department of Fish and Game (Alaska DFG), the Bristol Bay Native Corporation, the Lake and Peninsula Borough, and the Department of the Interior filed comments on the application. Alaska DFG and Interior also filed recommendations.

6. Commission staff issued an Environmental Assessment (EA) on February 21, 2019, analyzing the impacts of the proposed project and alternatives to it, and set a deadline for comments of March 25, 2019.<sup>6</sup> The Bristol Bay Native Corporation and Alaska DFG filed comments on the EA.<sup>7</sup>

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

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<sup>4</sup> The Commission's Rules of Practice and Procedure provide that if a filing deadline falls on a Saturday, Sunday, holiday, or other day when the Commission is closed for business, the filing deadline does not end until the close of business on the next business day. 18 C.F.R. § 385.2007(a)(2) (2018). Because the 30-day filing deadline fell on a Saturday (i.e., December 29, 2018), the filing deadline was extended until the close of business on Monday, December 31, 2018.

<sup>5</sup> 83 Fed. Reg. 62,858 (Dec. 6, 2018).

<sup>6</sup> *See supra* note 4. Because the 30-day filing deadline fell on a Saturday (i.e., March 23, 2019), the filing deadline was extended until the close of business on Monday, March 25, 2019.

<sup>7</sup> Bristol Bay Native Corporation commented in support of the EA, and Alaska DFG noted the importance of continued monitoring at the project site. These comments are not discussed further.

## **PROJECT DESCRIPTION AND OPERATION**

### **A. Project Area**

8. The project will be located on the Kvichak River near the outlet of Iliamna Lake and the village of Igiugig in southwest Alaska. The village of Igiugig is located along the east bank of the river at the lake outlet; the project's deployment site is about 100 feet from the west bank in a deep and high velocity area of the channel. The Kvichak River flows southwest about 60 miles from its origination at the Iliamna Lake outlet to where it empties into Bristol Bay. With the exception of developed lands at the villages throughout the basin, land cover is primarily undeveloped forest and wetland habitats. The river supports abundant populations of resident and anadromous fish, including large runs of sockeye salmon that provide regionally important recreational, commercial, and subsistence fisheries. The Kvichak River and other Bristol Bay river systems produce the greatest number of sockeye salmon in the world, with recent annual averages of about 38 million adults, 21 percent of which originated from the Kvichak River system.

### **B. Proposed Project Facilities**

9. The Igiugig Project will consist of an in-stream, 35-kW, approximately 52-foot-long, 12-foot-high, 47-foot-wide pontoon-mounted RivGen Power System Turbine Generator Unit (TGU) to be installed during Phase 1 of the project, and an additional 35-kW TGU to be installed during Phase 2 of the project. Two anchoring systems, each consisting of a 6,600-pound anchor, chain, shackles, and 200 feet of mooring, will keep the TGUs in place during project operation. A 375-foot-long, coated and weighted combined power, data, and environmental monitoring underwater cable will connect the TGU installed in Phase 1 to a junction box located on an unnamed island east of the deployment site. Another 675-foot-long underwater cable will connect the TGU installed in Phase 2 to the same junction box. The junction box will connect to a shore station located on the east bank of the river via a 710-foot-long, buried bundle of six power, data, and environmental monitoring cables. The 10-foot-long by 8-foot-wide pre-fabricated shore station will house project electronics and controls, as well as appurtenant facilities required for interconnection to the local grid.

### **C. Proposed Project Installation and Operation**

10. Installation of the Igiugig Project will occur in two phases. In each phase, one TGU will be installed with accompanying anchor and cabling equipment. Anchors and moorings will be installed on the riverbed prior to deployment of the TGU device and remain in place throughout the duration of the project. The TGUs will be assembled onshore before deployment and ferried to the project site. The TGU will be pushed into place utilizing non-specialized watercraft and subsequently attached to the anchor lines. Following deployment of the TGU and attachment to the anchor lines, internal ballast tanks in the TGU pontoons will be flooded sequentially. As the tanks are filled, the TGU will settle to the river bottom where it will stay during operation. A combined power and data cable, extending from each

TGU to a junction box, will be installed by laying the cable on the surface of the river bed at approximately the same time each TGU is installed. The cable bundle extending from the junction box to the shore station will be installed and buried prior to deployment of the first TGU. The installation process for each TGU will take between two and four weeks to complete. Installation of Phase 2 will occur after one full year of operation of Phase 1 and subsequent data analysis. Phase 2 will likely be installed in 2020.

11. The project will operate year-round using the currents of the Kvichak River. The RivGen System is designed to generate electrical output over a range of river currents, operating in a stationary orientation. The turbine converts the kinetic energy of flowing into rotational motion and delivers that energy through a shaft into a generator. Each TGU device is composed of two turbines that are mounted on the same driveshaft, which turns the generator. The units are optimized to generate 35 kW at a flow velocity of 7.4 feet per second. Power will be transmitted from the TGUs to the shore station via the cables where the power will be connected to the village's distribution system. The cables will also transmit electrical control power from the shore station to the TGUs and transmit data signals in both directions.

12. For the most part, the project will operate automatically via a supervisory control and data acquisition (SCADA) system. Control of the system will be possible manually from the shore station and remotely via a private intranet connection. Remote web-based monitoring will provide control of turbine functions and environmental monitoring. The shore station will be monitored continuously by Igiugig Village personnel. Certain fault conditions will generate an alert, which will be logged and may trigger automatic shutdown of the system. Igiugig Village personnel will receive notification of these alerts and will be able to respond at the shore station or via intranet.

13. The project, as licensed herein, will generate an estimated 202 megawatt-hours (MWh) annually under Phase 1, and 404 MWh annually during Phase 2.

#### **D. Project Boundary**

14. The project boundary encloses both the TGUs, cabling, junction box, and shore station. The boundary consists of a 50-foot-wide corridor centered on the cables, extending from the shore station to the TGUs, and a 150-foot-wide by 615-foot-long area enclosing the two TGUs. The project boundary encompasses 4.55 acres.

#### **E. Proposed Project Maintenance**

15. Igiugig Village proposes to implement an Inspection and Maintenance Plan filed with the license application. The plan consists of three components: (1) system health monitoring, (2) regular maintenance, and (3) major maintenance.

16. System health monitoring will be performed remotely. System information collected

by sensors will be compiled by the SCADA system located in the shore station. Data will be stored, backed up, and automatically reviewed by the SCADA system to ensure that all operational parameters fall within acceptable limits.

17. The TGUs, pontoon support structures, mooring systems, underwater cables, and shore station will be inspected on a regular basis. The TGUs will be retrieved and inspected on an annual basis, but this interval may be extended once it is determined that all critical systems are operating appropriately. Regular maintenance on the TGUs will be performed while the devices are floated on the surface of the water.

18. Major maintenance on the project will occur at five-year intervals, or if system health monitoring or regular maintenance indicate major maintenance is necessary. For major maintenance, the TGUs will be retrieved, disconnected from the mooring system, and brought to the shore.

#### **F. Proposed Safeguard Plans**

19. To ensure safe operation of the project and protect the public and environment, Igiugig Village proposes to implement the following safeguard plans filed with the license application: (1) a Project and Public Safety Plan; (2) a Navigation Safety Plan; (3) an Emergency Shutdown Plan; (4) a Project Inspection and Maintenance Plan; and (5) a Project Removal and Site Restoration Plan.<sup>8</sup>

#### **G. Proposed Environmental Measures**

20. To reduce erosion and sedimentation during project installation, Igiugig Village proposes to develop an erosion and sediment control plan.

21. To monitor the effects of project operation on fisheries, including juvenile and adult sockeye salmon, Igiugig Village proposes to implement a Fish Monitoring Plan filed with the license application. The plan includes provisions for monitoring fish interactions with the TGU devices using underwater cameras installed during the first year of Phase 1 and Phase 2 operation, and preparing summary reports on the monitoring results.

22. To determine whether any corrective actions are needed to protect fisheries during project operation, Igiugig Village proposes to implement an Adaptive Management Plan filed with the license application. The plan includes provisions for holding annual project review

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<sup>8</sup> The Project Removal and Site Restoration Plan addresses the pilot project licensing requirement that the licensee remove the project and restore the site at the end of the license term if a new license is not obtained.

meetings with stakeholders to discuss monitoring results, and developing measures to address unforeseen project-related effects on fisheries resources.

### **SUMMARY OF LICENSE REQUIREMENTS**

23. As summarized below, this license, which authorizes the installation of 70 kW of new, renewable electric generation capacity, requires a number of measures to protect water quality, fish, and cultural resources at the project. The requirements include Igiugig Village's proposed measures noted above, with some modifications and additional staff-recommended measures described below.

24. To protect water quality during project installation, operation, and removal, the license requires Igiugig Village to develop a fuel and hazardous substances spill plan.

25. To protect fisheries resources, the license requires Igiugig Village to implement the proposed Adaptive Management Plan, with an additional provision to develop timing windows for project installation, maintenance, operation, and removal, if monitoring shows negative effects on fish in the project area.

26. To protect any cultural resources discovered during project installation, maintenance or removal, the license requires Igiugig Village to stop all work, consult with the Alaska SHPO, and prepare a historic properties management plan, if necessary.

### **WATER QUALITY CERTIFICATION**

27. Under section 401(a)(1) of the Clean Water Act (CWA),<sup>9</sup> 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 one 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.<sup>10</sup>

28. On August 10, 1999, the Alaska Department of Environmental Conservation filed a letter with the Commission, waiving all water quality certifications for FERC-jurisdictional hydroelectric projects.<sup>11</sup> Therefore, certification for the proposed Igiugig Project is considered to be waived.

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<sup>9</sup> 33 U.S.C. § 1341(a)(1) (2012).

<sup>10</sup> 33 U.S.C. § 1341(d) (2012).

<sup>11</sup> Commission staff placed this letter in the record of this proceeding on

## COASTAL ZONE MANAGEMENT ACT

29. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),<sup>12</sup> 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 six months of its receipt of the applicant's certification.

30. On July 7, 2011, by operation of Alaska State law, the federally-approved Alaska Coastal Zone Management Program expired, resulting in a withdrawal from participation in the CZMA's National Coastal Management Program. Therefore, the CZMA federal consistency provision no longer applies in Alaska.

## SECTION 18 FISHWAY PRESCRIPTION

31. Section 18 of the FPA<sup>13</sup> 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.

32. No fishway prescription or reservation of authority to prescribe fishways were filed under section 18.

## ESSENTIAL FISH HABITAT

33. Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act<sup>14</sup> requires federal agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH) identified under the Act. Under section 305(b)(4)(A) of the Magnuson-Stevens Act, National Marine Fisheries Service (NMFS) is required to provide EFH Conservation Recommendations for actions that would adversely affect EFH.<sup>15</sup> Under section 305(b)(4)(B) of the Act, an agency must, within 30 days after receiving recommended conservation measures from NMFS or a Regional Fishery

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March 22, 2019.

<sup>12</sup> 16 U.S.C. § 1456(c)(3)(A) (2012).

<sup>13</sup> 16 U.S.C. § 811 (2012).

<sup>14</sup> 16 U.S.C. § 1855(b)(2) (2012).

<sup>15</sup> 16 U.S.C. § 1855(b)(4)(A) (2012).

Management Council, describe the measures proposed by the agency for avoiding, mitigating, or offsetting the effects of the agency's activity on EFH.<sup>16</sup>

34. The Kvichak River in the project area includes habitat that have been designated as EFH for various life-history stages of Pacific salmon. By letter dated April 1, 2019, Commission staff informed NMFS that licensing the project, with staff's recommended measures, may adversely affect EFH and initiated EFH consultation with NMFS. By letter filed on May 10, 2019, NMFS recommended the following EFH conservation measures:<sup>17</sup>

(1) During the first year of project operations, the licensee should shut down the turbines during the two-week peak of sockeye smolt outmigration, and continue video and on-site fish biologist monitoring of project operations without the turbines being operated but with the turbines remaining in place. Until this recommended real-time monitoring and shutdown capability is developed and implemented, NMFS recommends real-time video monitoring of outmigration using video cameras to detect the peak of sockeye smolt outmigration at the project site;

(2) Modify the Adaptive Management Plan to allow for the real-time detection of any adverse effects on outmigrating sockeye smolts, and allow for the rapid shutdown (within one hour of adverse effects or sooner) of the turbines should adverse effects be observed;

(3) During the first season of turbine operations during the smolt outmigration, video monitoring should be continuous and review of the video imaging should be of sufficient frequency to allow detection of smolt/turbine interactions and stoppage of turbines within one hour of any such occurrences; and

(4) After review of the data collected on fish/turbine interactions during smolt outmigration, the Adaptive Management Team, including a NMFS fish biologist, should

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<sup>16</sup> 16 U.S.C. § 1855(b)(4)(B) (2012). The measures recommended by the Secretary of Commerce are advisory, not prescriptive. However, if the federal agency does not agree with the recommendations of the Secretary of Commerce, the agency must explain its reasons for not following the recommendations.

<sup>17</sup> In its May 10, 2019 letter, NMFS requests that its four EFH conservation recommendations also be considered as measures meant to protect fisheries resources under section 10(j) of the FPA. The deadline for filing 10(j) recommendations was December 31, 2018. NMFS contends that the partial government shutdown, from December 22, 2018 through January 25, 2019, precluded its timely review of Igiugig Village's application. However, NMFS did not request additional time for its review and filed its 10(j) recommendations more than 4 months after the deadline. Therefore, we do not consider NMFS's filing timely for the purposes of 10(j), and the recommendations are considered under the broad public interest standard of section 10(a)(1).

review the preliminary results and recommend whether the turbines can operate without impacts to sockeye smolt during outmigration. The Adaptive Management Team should determine whether to operate during the entire smolt outmigration period in the second year prior to commencement of such operations.

35. NMFS contends that Igiugig Village's proposed Adaptive Management Plan does not allow for the timely detection of adverse effects on outmigrating sockeye salmon or include provisions to quickly stop project operations should adverse effects be detected. On May 14, 2019, Igiugig Village filed a letter clarifying that under its proposed Fish Monitoring Plan, a fish biologist would be on-site during the peak migration period for sockeye salmon (May 21 to June 10, 2020) and would have real-time video monitoring capability. In addition, the biologist would be capable of observing the TGU, adjusting camera settings and operational modes, and reviewing the data acquired through different settings to optimize data acquisition during these sensitive periods.

36. Article 309 modifies Igiugig Village's Emergency Shutdown Plan to require that the licensee shut down the project within one hour of observing injury or mortality to outmigrating sockeye smolts. Further, Article 402 modifies Igiugig Village's Fish Monitoring Plan to clarify and require that: (1) project personnel be on-site at all times while the turbine is deployed during the peak sockeye smolt outmigration from May 21 through June 10 and have the capability to review video in real time, and (2) project personnel must review the video with sufficient frequency to detect adverse interactions with the turbine and shut down the project within an hour of observing injury or mortality to outmigrating sockeye smolts. If the monitoring results show a negative interaction with the turbine, Article 403 requires Igiugig Village to develop corrective actions, such as operational timing windows, in consultation with the team. If monitoring results show no adverse effects, Article 403 permits modifying the monitoring protocols upon Commission approval for subsequent years of operation.

37. Thus, NMFS's conservation recommendations (2), (3), and (4) are accommodated by the various safeguard plans and included in this license as part of the Emergency Shutdown Plan (Article 309), the Fish Monitoring Plan (Article 402), and the Adaptive Management Plan (Article 403).

38. As to NMFS's conservation recommendation (1), Commission staff finds that it is premature to require that the project not operate during the first season of salmon outmigration. In the EA,<sup>18</sup> staff found that negative interactions between outmigrating smolts and the TGUs are unlikely because: (1) previous video monitoring of project operation showed no negative interactions with fish; (2) most smolts would be able to effectively avoid the TGUs by swimming over or around them; and (3) if smolts were to swim through the devices, the likelihood of injury or mortality due to blade strike is low.

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<sup>18</sup> EA at 61-62.

Further, as explained above, Igiugig Village will be capable of monitoring interactions between sockeye salmon smolts and the TGUs in real-time, shutting down the project in case of observed harm to the smolts within an hour of observing adverse effects, and developing corrective actions in consultation with the resource agencies if monitoring shows adverse effects on fish resources. Such corrective actions could include implementing timing restrictions on project operation to protect outmigrating smolts. Therefore, there are sufficient safeguards in place to ensure that the project will not adversely affect sockeye salmon smolts, and there is no need at this time for a requirement to shut down the project during the first season of smolt outmigration.

### **THREATENED AND ENDANGERED SPECIES**

39. Section 7(a)(2) of the Endangered Species Act of 1973<sup>19</sup> 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.

40. According to the U.S. Fish and Wildlife Service's Information, Planning, and Conservation System, there are no threatened or endangered species, candidate species, or critical habitats in the project area. Therefore, licensing the project will have no effect on federally listed species or critical habitats.

### **NATIONAL HISTORIC PRESERVATION ACT**

41. Under section 106 of the National Historic Preservation Act (NHPA),<sup>20</sup> as implemented in regulations,<sup>21</sup> federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties) and must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the SHPO to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

42. The project will be located within the Igiugig Archaeological District, which is eligible for listing on the National Register of Historic Places. In a letter filed on February 15, 2019, the Alaska SHPO concluded that the project would have no adverse

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<sup>19</sup> 16 U.S.C. § 1536(a) (2012).

<sup>20</sup> 54 U.S.C. § 306108 (Pub. L. No. 113-287, 128 Stat. 3227, Dec. 19, 2014).

<sup>21</sup> 36 C.F.R. Part 800 (2018).

effect on cultural resources in the project area. In the EA,<sup>22</sup> Commission staff concluded that the project would not modify any components of, or interfere with the visual integrity of, the Igiugig Archaeological District and, therefore, concurred with the Alaska SHPO's determination. However, to ensure the proper treatment of any cultural resources that may be discovered during the course of constructing or developing project works or other facilities at the project, Article 405 requires Igiugig Village to stop all land-clearing and land-disturbing activities in the vicinity of any discovered cultural resources, consult with the Alaska SHPO, and prepare a historic properties management plan for Commission approval, if needed. Article 406 requires Igiugig Village to consult with the Alaska SHPO prior to conducting any maintenance, land-clearing, or land-disturbing activities, or changes to project operation or facilities not specifically authorized by the license that may affect cultural resources.

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

43. Section 10(j)(1) of the FPA<sup>23</sup> requires the Commission, when issuing a license, to include conditions based on recommendations submitted by federal and state fish and wildlife agencies pursuant to the Fish and Wildlife Coordination Act,<sup>24</sup> to “adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)” affected by the project.

44. In response to the November 29, 2018, public notice that the project was ready for environmental analysis, Alaska DFG filed six recommendations under section 10(j).<sup>25</sup> Three of the recommendations are outside the scope of section 10(j) and are discussed in the next section. This license includes conditions consistent with the three recommendations that are within the scope of section 10(j), specifically: (1) develop a fuel and hazardous substances plan (Article 401); (2) implement Igiugig Village's proposed Fish Monitoring Plan (Article 402); and (3) develop timing windows for project installation, operation, and removal activities in cooperation with an Alaska DFG habitat biologist if monitoring identifies adverse effects on salmon (Article 403).<sup>26</sup>

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<sup>22</sup> EA at 48.

<sup>23</sup> 16 U.S.C. § 803(j)(1) (2012).

<sup>24</sup> 16 U.S.C. §§ 661 *et seq.* (2012).

<sup>25</sup> Alaska DFG's recommendations were filed on December 28, 2018.

<sup>26</sup> *See* Commission staff's February 14, 2019 Telephone Memo to the record

**SECTION 10(a)(1) OF THE FPA**

45. Section 10(a)(1) of the FPA<sup>27</sup> requires that any project for which the Commission issues a license be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

**A. Alaska DFG Recommendations**

46. Alaska DFG filed three recommendations under section 10(j) that are not specific measures to protect, mitigate damages to, or enhance fish and wildlife. Consequently, these recommendations are considered under the broad public interest standard of section 10(a)(1).

47. Two of Alaska DFG's recommendations that are considered outside the scope of section 10(j) were recommended by staff in the EA<sup>28</sup> and are included in the license. First, Alaska DFG recommends that Igiugig Village hold annual project meetings to review monitoring reports and compliance with license articles. Igiugig Village proposes to implement a Fish Monitoring Plan and an Adaptive Management Plan to document, evaluate, and mitigate the possible effects of the RivGen system on aquatic animals. As part of its Adaptive Management Plan, Igiugig Village will hold annual project review meetings to discuss the prior year's fish monitoring results with project stakeholders. In the EA,<sup>29</sup> staff recommended implementation of Igiugig Village's Fish Monitoring and Adaptive Management Plans concluding that the plans will protect aquatic resources by directing Igiugig Village to take corrective action if monitoring shows unanticipated adverse interactions (e.g., strikes, avoidance, increased predation) associated with the relatively new generation technology. In the EA<sup>30</sup> staff also noted that the monitoring information will provide for the adjustment of operations through the mechanisms established in the adaptive management plan, or, if necessary, shutdown and removal of the device. Further staff noted that holding annual project review meetings to discuss the monitoring results will allow Igiugig Village to quickly and efficiently receive feedback from the agencies on whether

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(clarifying recommended measures).

<sup>27</sup> 16 U.S.C. § 803(a)(1) (2012).

<sup>28</sup> EA at 63-64.

<sup>29</sup> EA at 35, 37, and 59-60.

<sup>30</sup> EA at 35.

modifications to operations are necessary to respond to unforeseen adverse effects on aquatic resources caused by the new technology.<sup>31</sup> As noted above, Articles 402 and 403 require that Igiugig Village implement its Fish Monitoring and Adaptive Management Plans, including the Adaptive Management Plan provision to hold annual project review meetings.

48. Second, Alaska DFG recommends that Igiugig Village provide Alaska DFG employees free and unrestricted access to the project site in performance of their official duties and upon appropriate advance notification. Standard L-Form license Article 4 requires Igiugig Village to allow 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. Article 404 extends these same privileges to Alaska DFG employees.

49. Finally, Alaska DFG recommends that Igiugig Village notify Alaska DFG, the Commission, and other agencies within 7 days of the detection of an event not in compliance with the requirements of this license, and to file a description of the event with the Commission within 30 days. Alaska DFG states that notification of non-compliance events that affect fish and wildlife resources is necessary to assess potential project effects. In the EA,<sup>32</sup> staff concluded that such notification would alert Alaska DFG and the Commission to potential problems with the project and how Igiugig Village is dealing with those problems, but that the public safety and environmental protection plans proposed by Igiugig Village, and recommended by staff in the EA, already include reporting requirements for these situations, including taking immediate action to shut down and remove the project, if needed. Therefore, a separate reporting requirement would be duplicative and unnecessary, and the license does not adopt this recommendation.

## **B. Project Shutdown to Protect Sockeye Salmon Smolts**

50. In comments filed on February 4, 2019, Interior recommends that Igiugig Village shut down the project between May 21 and June 10, annually, to avoid negative effects on sockeye salmon outmigration. On February 15, 2019 and May 14, 2019, Igiugig Village filed reply comments, arguing that sufficient mechanisms would be in place, through the Fish Monitoring Plan and Adaptive Management Plan, to quickly respond to any adverse effects on fish. As discussed in the *Essential Fish Habitat* section above, there are sufficient safeguards in place to ensure that the project will not adversely affect sockeye salmon smolts, and there is no need at this time for a requirement to annually shut down the project during the smolt migration period.

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<sup>31</sup> EA at 37 and 59-60.

<sup>32</sup> EA at 62.

## **ADMINISTRATIVE PROVISIONS**

### **A. Annual Charges**

51. 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. Under the regulations currently in effect, projects with an authorized installed capacity of less than or equal to 1,500 kW, like this project, are not assessed an annual charge.<sup>33</sup>

### **B. Exhibit F and G Drawings**

52. The Commission requires licensees to file sets of approved project drawings in electronic file format. The Exhibit F drawings filed on November 15, 2018 are approved and made a part of this license (Ordering Paragraph (C)). Article 202 requires that the drawings be filed in electronic file format.

53. The Exhibit G drawing filed on November 15, 2018 does not conform to the Commission's regulations and is not approved. Exhibit G-1 was not stamped by a certified land surveyor. Article 203 requires the licensee to file a revised Exhibit G drawing that is stamped by a certified land surveyor and meets the requirements of sections 4.39 and 4.41(h) of the Commission's regulations.

### **C. Project Financing**

54. Commission licenses for original projects typically require the licensee to file, for Commission approval, documentation of project financing for the construction, operation, and maintenance of the project to ensure that there are sufficient funds available for those purposes. Igiugig Village filed documentation of project financing on March 15, 2019, showing that it has the funds necessary to satisfactorily construct, operate, and maintain the project. Further, as part of the Site Restoration and Removal Plan, which is approved and made part of this license, Igiugig Village must maintain a surety bond, or equivalent financial assurance for the removal of installed project facilities and restoration of the site, and file by January 1 of each license year proof of the maintenance of the bond or equivalent financial assurance. Therefore, the license does not require further proof of financing.

### **D. As-Built Drawings**

55. Where new construction or modifications to the project are involved, the Commission requires licensees to file revised drawings of project features as-built. Article 204 provides for the filing of these drawings.

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<sup>33</sup> 18 C.F.R. § 11.1(b)(1) (2018).

### **E. Project Land Rights Progress Report**

56. The project will occupy 4.55 acres. Standard Article 5 set forth in L-Form 14 requires the licensee to 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, within five years. In order to monitor compliance with Standard Article 5, Article 205 requires the licensee to file no later than four years after license issuance, a report detailing its progress on acquiring title in fee or the necessary rights to all lands within the project boundary. The report must include specific documentation on the status of the rights that have been acquired as of the filing date of the progress report, and a plan and schedule to acquire all remaining land prior to the five-year deadline.

### **F. Use and Occupancy of Project Lands and Waters**

57. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 407 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.

### **G. Start of Construction**

58. Article 301 requires the licensee to commence construction of Phase 1 within two years from the issuance date of the license and complete construction of Phase 2 within five years from the issuance date of the license.

### **H. Review of Final Plans and Specifications**

59. Article 302 requires the licensee to provide the Commission's Division of Dam Safety and Inspections (D2SI)-Portland Regional Engineer with final contract drawings and specifications and a supporting design document, a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan.

60. Article 303 requires the licensee to provide the Commission's D2SI-Portland Regional Engineer with cofferdam and deep excavation construction drawings.

### **I. Safeguard Plans**

61. The safeguard plans in this license include a Navigation Safety Plan, Project Inspection and Maintenance Plan, Operations and Maintenance Plan, Project and Public Safety Plan, Project Removal and Site Restoration Plan, and an Emergency Shutdown Plan. The Navigation Safety Plan provides strategies for alerting local residents and marine traffic to the presence of the project to avoid collisions, and provides for ongoing consultation with

the U.S. Coast Guard (Article 304). The Project Inspection and Maintenance Plan details the inspection and maintenance activities Igiugig Village will conduct over the term of this license (Article 305). The Operations and Maintenance Plan details the supervisory functions and safety features in place for each major system component of the TGU (Article 306). The Project and Public Safety Plan includes measures for ensuring the public is aware of the potential hazards of the project (Article 307). The Project Removal and Site Restoration Plan includes a schedule for project removal, methods for the removal of the project, and a plan for restoring the project site following removal of the project components (Article 308). The Emergency Shutdown Plan includes procedures for the immediate shutdown of the project turbines in response to emergencies at the project (Article 309).

62. In the EA,<sup>34</sup> staff recommended adopting the Lake and Peninsula Borough's request to be one of the notified entities in the event of a project-related incident affecting navigation or public safety or causing an emergency shutdown. Accordingly, Articles 304, 307, and 309 require the Borough be notified of such events.

63. These plans will work interdependently to ensure that the project is operated and maintained in a safe manner such that the potential for harm to the public and environmental and developmental resources in the project area is minimal. Revisions to these plans may be necessary as experience is gathered with project operations through the term of the license. Therefore, the licensee should file any revised plans with the Commission for review and comment prior to implementation.

#### **J. Annual Performance Report and Certification**

64. Article 310 requires Igiugig Village to submit a report to the Commission's Division of Dam Safety and Inspections describing the project's performance, including the adequacy of project monitoring and operations, the findings of inspections, and a summary of the major maintenance and repairs performed during the previous year.

#### **STATE AND FEDERAL COMPREHENSIVE PLANS**

65. Section 10(a)(2)(A) of the FPA<sup>35</sup> requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.<sup>36</sup> Under section

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<sup>34</sup> EA at 61.

<sup>35</sup> 16 U.S.C. § 803(a)(2)(A) (2012).

<sup>36</sup> Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2018).

10(a)(2)(A), federal and state agencies filed 99 comprehensive plans that address various resources in Alaska. Of these, staff identified and reviewed fifteen comprehensive plans that are relevant to the Igiugig Project.<sup>37</sup> No conflicts were found.

### **CONSERVATION EFFORTS**

66. Section 10(a)(2)(C) of the FPA<sup>38</sup> requires the Commission to consider the applicant's electricity consumption improvement program, including its plans, performance, and capabilities for encouraging or assisting its customers to conserve electricity cost-effectively, taking into account the published policies, restrictions, and requirements of state regulatory authorities. Igiugig Village plans to use the project's power to offset diesel generation in the village of Igiugig. Given the limits of Igiugig Village's ability to influence users of the electricity generated by the project, Igiugig Village complies with section 10(a)(2)(C) of the FPA.

### **SAFE MANAGEMENT, OPERATION, AND MAINTENANCE OF THE PROJECT**

67. Staff reviewed Igiugig Village'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 provisions of this license.

### **NEED FOR POWER**

68. To assess the need for power, staff looked at the needs in the operating region in which the project will be located. The village of Igiugig has an isolated electric system, and the only power supply in the area is from a 40-kW diesel-fueled power plant. Diesel fuel is delivered to the community via plane or barge. Energy needs in Igiugig have grown due to construction of various municipal service facilities and are anticipated to increase with a growth in tourism.

69. The Igiugig Project will demonstrate the potential of an emergent renewable energy industry segment with the goal of bringing clean, competitively-priced electricity to commercial and residential consumers in Igiugig. The future use of the project's power, its displacement of non-renewable fossil-fueled generation and subsequent avoidance of power plant emissions, and its contribution to a diversified generation mix demonstrate that the project would help meet a need for power in the region.

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<sup>37</sup> The list of applicable comprehensive plans can be found in section 5.5 of the EA.

<sup>38</sup> 16 U.S.C. § 803(a)(2)(C) (2012).

## PROJECT ECONOMICS

70. In determining whether to issue a license for an original hydrokinetic pilot 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.*,<sup>39</sup> 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.

71. In applying this analysis to the Igiugig Project, staff considered three options: the no-action alternative, Igiugig Village's proposal, and the project as licensed herein. Under the no-action alternative, the project would not be built. As proposed by Igiugig Village, the levelized annual cost of operating the Igiugig Project is \$318,120, or \$787.42/MWh. The proposed project would generate an estimated average of 404 MWh of energy annually. When the estimate of average generation is multiplied by the alternative power cost of \$465.40/MWh,<sup>40</sup> the total estimated value of the project's power is \$188,022. Therefore, the project would produce power at a cost that is \$130,098, or \$322.02/MWh, more than the cost of alternative power.

72. As licensed herein with the staff-recommended measures, the levelized annual cost of operating the project is \$318,570, or \$788.54/MWh. Based on the same average annual generation of 404 MWh and alternate power cost of \$465.40/MWh, the total estimated value of the project's power is \$188,022. Therefore, the project would produce power at a cost that is \$130,548, or \$323.14/MWh, more than the cost of alternative power.

73. The project has relatively high capital and operation and maintenance costs with respect to the amount of power produced. Although our analysis shows that the project as licensed herein would cost more to operate than our estimated cost of alternative power, it is the applicant who must decide whether to accept this license and any financial risk that entails.

74. Although staff does not explicitly account for the effects 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

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<sup>39</sup> 72 FERC ¶ 61,027 (1995).

<sup>40</sup> The alternative power cost is calculated based on the cost per gallon and kWh per gallon generation efficiencies of diesel provided by the applicant in the license application.

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.

## **COMPREHENSIVE DEVELOPMENT**

75. Sections 4(e) and 10(a)(1) of the FPA<sup>41</sup> 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; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. Any license issued must 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.

76. The EA for the project contains background information, analysis of effects, and support for related license articles. Based on the record of this proceeding, including the EA and the comments thereon, licensing the Igiugig 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 operated and maintained in accordance with the requirements of the license.

77. Based on staff's independent review and evaluation of the Igiugig Project, recommendations from the resource agencies and other stakeholders, and the no-action alternative, as documented in the EA, the Igiugig Project as licensed herein is selected and found to be best adapted to a comprehensive plan for improving or developing the Kvichak River.

78. This alternative was selected because: (1) issuance of a pilot project will allow Igiugig Village to test the generating equipment's dependability as a source of electrical energy for the region; (2) the 70 kW of electric capacity will come from a renewable resource that does not contribute to atmospheric pollution; (3) the required environmental measures will protect and enhance fish and wildlife resources, water quality, recreation resources, navigation, and historic properties; and (4) the monitoring required for the project will provide an improved understanding of the environmental effects of hydrokinetic energy projects that will be instrumental in assessing the potential effects of future projects of this type and identifying measures to minimize adverse environmental effects.

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<sup>41</sup> 16 U.S.C. §§ 797(e) and 803(a)(1) (2012).

**LICENSE TERM**

79. Although the FPA establishes that the maximum license term length the Commission can set is 50 years, the FPA does not establish a minimum license term for original projects. Igiugig Village requested a 10-year license to allow it sufficient time to obtain operational data to develop a subsequent license application before license expiration. Accordingly, a 10-year license term for the Igiugig Hydrokinetic Project is appropriate.

The Director orders:

(A) This license is issued to the Igiugig Village Council (licensee), for a period of 10 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Igiugig Hydrokinetic Project. This license is subject to the terms and conditions of the Federal Power Act (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 these lands, described in the project description and the project boundary discussion of this order.

(2) Project works consisting of: (1) an in-stream, 35-kW, approximately 52-foot-long, 12-foot-high, 47-foot-wide pontoon-mounted RivGen Power System Turbine Generator Unit (TGU) to be installed during Phase 1 of the project; (2) an additional in-stream 35-kW pontoon-mounted TGU to be installed during Phase 2 of the project; (3) two anchoring systems (one installed during Phase 1 and the other installed during Phase 2), each consisting of a 6,600-pound anchor, chain, shackles, and 200 feet of mooring; (4) a 375-foot-long, coated and weighted combined power, data, and environmental monitoring underwater cable, connecting the TGU installed in Phase 1 to a junction box; (5) a 675-foot-long underwater cable, connecting the TGU installed in Phase 2 to the junction box; (6) a 710-foot-long, buried bundle of six cables connecting the junction box to the shore station; (7) and a 10-foot-long by 8-foot-wide pre-fabricated shore station for housing project electronics and controls.

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

Exhibit A: The following section of Exhibit A filed on November 15, 2018:

A.1.2 Project Description.

Exhibit F: The following Exhibit F drawings filed on November 15, 2018:

<u>Exhibit F Drawing</u>	<u>FERC No.</u> <u>13511-</u>	<u>Description</u>
F-1	1001	Site overview
F-2	1002	Site install detail
F-3	1003	Representative profiles
F-4	1004	Cable install detail
F-5	1005	RivGen environmental monitoring
F-6	1006	RivGen device
F-7	1007	Mooring system- overview
F-8	1008	RivGen shore station

(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 for the operation or maintenance of the project.

(C) The Exhibits A and F described above are approved and made part of the license. Because the Exhibit G drawing filed November 15, 2018 is not stamped by a certified land surveyor, it is not approved.

(D) The following sections of the FPA are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the FPA that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in Form L-14 (October 1975), entitled "Terms and Conditions of License for Unconstructed Minor Project Affecting Navigable Waters of the United States" (see 54 F.P.C. 1876), as reproduced at the end of this order, and the following additional articles:

Article 201. Administrative Annual Charges. The licensee must pay the United States annual charges as determined in accordance with the provisions of the Commission's regulations in effect from time to time, effective as of the date of the licensee is required to commence project construction, or as that date may be extended, but in no case longer than four years after license issuance, to reimburse the United States for the cost of administration of Part 1 of the Federal Power Act. The authorized installed capacity for that purpose is 70 kilowatts (kW). Under the regulations currently in effect, projects with an authorized installed capacity of less than or equal to 1,500 kW will not be assessed an annual charge.

Article 202. Exhibit F Drawings. Within 45 days of the date of issuance of this license, as directed below, the licensee must file two sets of the approved exhibit drawings and geographic information system (GIS) data in electronic file format on compact disks with the Secretary of the Commission, ATTN: OEP/DHAC.

Digital images of the approved exhibit drawings must be prepared in electronic format. Prior to preparing each digital image, the FERC Project-Drawing Number (i.e., P-13511-1001 through P-13511-1008) must be shown in the margin below the title block of the approved drawing. Exhibit F drawings must be segregated from other project exhibits, and identified as **Critical Energy Infrastructure Information (CEII) material under 18 C.F.R. § 388.113(c)**. Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit Number, Drawing Title, date of this license, and file extension in the following format [P-13511-1001, F-1, Site overview, MM-DD-YYYY.TIF]. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY:	black & white raster file
FILE TYPE:	Tagged Image File Format, (TIFF) CCITT Group 4 (also known as T.6 coding scheme)
RESOLUTION:	300 dots per inch (dpi) desired, (200 dpi minimum)
SIZE FORMAT:	22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE:	less than 1 megabyte desired

Article 203. Exhibit G Drawing. Within 30 days of the issuance of this license, the licensee must file, for Commission approval, a revised Exhibit G drawing. The revised Exhibit G must be stamped by a certified land surveyor and comply with sections 4.39 and 4.41(h) of the Commission's regulations.

Article 204. As-built Exhibits. Within 90 days of completion of construction of the facilities authorized by this license, the licensee must file for Commission approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as built.

Article 205. Project Land Rights Progress Report. No later than four years after license issuance, the licensee shall file a report with the Commission describing the status of

acquiring title in fee or the rights for all the lands within the project boundary. The report must provide an overview map of each parcel and summary table identifying the licensee's rights over each parcel within the project boundary. The report shall also include specific supporting documentation showing the status of the land rights on all parcels of land within the project boundary that: (1) have been acquired up to the date of filing of the report, including pertinent deeds, lease agreements, and/or bill of sale information that specifically verify the licensee's rights; and (2) the licensee's plan and schedule for acquiring all remaining project lands prior to the five-year deadline, including a history of actions taken, current owner information, the type of ownership to be acquired whether in fee or by easement, and the timeline for completing property acquisition.

Article 301. *Start of Construction.* The licensee must commence construction of Phase 1 within two years from the issuance date of the license and must complete construction of Phase 2 within five years from the issuance date of the license.

Article 302. *Contract Plans and Specifications.* At least 30 days prior to the start of any construction, the licensee must submit one copy of its plans and specifications and supporting design document to the Commission's Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer, and two copies to the Commission (one of these must be a courtesy copy to the Director, D2SI). The submittal to the D2SI - Portland 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 licensee may not begin construction until the D2SI - Portland 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. *Cofferdam and Deep Excavation Construction Drawings.* Should construction require cofferdams or deep excavations, the licensee must: (1) have a Professional Engineer who is independent from the construction contractor, review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction; and (2) ensure that construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of any cofferdams or deep excavations, the licensee must submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI), of the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval.

Article 304. *Navigation Safety Plan.* Upon license issuance, the licensee must implement the Navigation Safety Plan, filed November 15, 2018, with the following modification: the licensee must include the Lake and Peninsula Borough and the Commission in the list of entities to be contacted in the event of a project-related incident that affects navigation. This plan may not be amended without prior Commission approval.

Article 305. Project Inspection and Maintenance Plan. Upon license issuance, the licensee must implement the Project Inspection and Maintenance Plan filed November 15, 2018. This plan may not be amended without prior Commission approval.

Article 306. Operations and Monitoring Plan. Upon license issuance, the licensee must implement the Operations and Monitoring Plan, filed November 15, 2018. This plan may not be amended without prior Commission approval.

Article 307. Project and Public Safety Plan. Upon license issuance, the licensee must implement the Project and Public Safety Plan, filed November 15, 2018, with the following modifications: (1) the licensee must include the Lake and Peninsula Borough in the list of entities to be contacted in the event of a project-related incident that affects project or public safety; and (2) the reporting of safety-related incidents should be in accordance with 18 C.F.R. § 12.10. This plan may not be amended without prior Commission approval.

Article 308. Project Removal and Site Restoration Plan. The Project Removal and Site Restoration Plan, filed November 15, 2018, is approved. This plan may not be amended without prior Commission approval. Within 30 days of completing site restoration, the licensee must file documentation of completion of project removal and site restoration activities. The licensee must implement the plan if a new license is not being sought for the project at the end of the license term.

Article 309. Emergency Shutdown Plan. Upon commencement of project operation, the licensee must implement the Emergency Shutdown Plan, filed November 15, 2018, with the following modification: the licensee must include the Lake and Peninsula Borough in the list of entities to be contacted in the event of an emergency shutdown. Further, the licensee must shut down the project within one hour of observing any injury or mortality to outmigrating sockeye smolts. Within 5 days of the commencement of project operations, the licensee must file written notification of the commencement date of project operations with the Commission. This plan may not be amended without prior Commission approval.

Article 310. Annual Performance Report and Certification. Following commencement of project operation and by December 31 of each year, the licensee must submit one copy of a report describing the project's performance to the Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer, and two copies to the Commission (one of these must be a courtesy copy to the Director, D2SI). The performance report should include: the dates the hydrokinetic units were installed and removed; the adequacy of project monitoring and operations; the findings of inspections; and a summary of the major maintenance and repairs performed during the previous year. The report should certify that the project features are being operated, monitored, inspected, and maintained in accordance with the license and approved plans.

Article 401. Fuel and Hazardous Substances Spill Plan. Within 45 days of the date of issuance of this license, the licensee must file, for Commission approval, a fuel and hazardous substances spill plan. The plan must include, at a minimum: (1) protocols that will allow project personnel to respond to spills of fuel or hazardous substances in a quick and efficient manner, in order to minimize effects on water quality; and (2) a reporting requirement to notify the National Marine Fisheries Service (NMFS), the Alaska Department of Fish and Game (Alaska DFG), and the Commission of any project-related spills of hazardous substances.

The licensee must develop the plan in consultation with NMFS and the Alaska DFG. The licensee must include with the filed plan documentation of consultation, copies of comments and recommendations, and specific descriptions of how the agencies' comments are accommodated. If the licensee does not adopt an agency's recommendation, the filing must include the licensee's reasons based on project-specific information.

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

Article 402. Fish Monitoring Plan. The Fish Monitoring Plan, filed November 15, 2018, is approved with the following modification to section 6.3, Data Analysis:

Project personnel must be on-site at all times while the turbine is deployed during the sockeye smolt peak outmigration from May 21 through June 10, have the capability to review video in real time, and review the video with sufficient frequency to detect adverse interactions with the turbines within one hour of their occurrence. Project personnel must shut down the project within an hour of observing any injury or mortality to outmigrating sockeye smolts as required by Article 309.

This plan may not be amended without prior Commission approval.

Article 403. Adaptive Management Plan. The Adaptive Management Plan, filed November 15, 2018, is approved and must be implemented with the following addition to section F, Major Modification Allowance:

If the results of the Fish Monitoring Plan required by Article 402 show negative effects on sockeye salmon in the project area, the licensee must consult with the Adaptive Management Team (Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Alaska Department of Natural Resources, Alaska Department of Environmental Conservation, U.S. Army Corps of Engineers, and the U.S. Coast Guard) to determine if the project should be shut down or timing windows for project installation, maintenance, operation, and removal should be established. Any proposed timing windows must be submitted to the Commission for approval. Upon approval, the

licensee must abide by the timing windows, including any changes required by the Commission. Project activities may be conducted outside of the approved timing windows if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement among the licensee and the Adaptive Management Team. If the approved windows are so modified, the licensee must notify the Commission as soon as possible, but no later than 10 days, after each such incident.

If monitoring results show no adverse effects on salmon, the annual reports should include any recommendations for modifying the Fish Monitoring Plan required by Article 402.

The Adaptive Management Plan may not be amended without prior Commission approval.

Article 404. Agency Access. The licensee must allow representatives of the Alaska Department of Fish and Game, in the performance of their official duties and upon appropriate advance notification and the showing of proper credentials, free and unrestricted access to, through, and across project lands and waters and project works.

Article 405. Protection of Previously Undiscovered Cultural Resources. If the licensee discovers any previously unidentified cultural resources during project installation, maintenance, or removal, the licensee must stop all land-clearing and land-disturbing activities in the vicinity of the resource and consult with the Alaska State Historic Preservation Officer (Alaska SHPO) to determine the need for any cultural resource studies or measures. If no studies or measures are needed, the licensee must file with the Commission documentation of its consultation with the Alaska SHPO immediately.

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

The licensee must not resume land-clearing or land-disturbing activities in the vicinity of a cultural resource discovered during installation, maintenance, or removal of project

facilities, until informed by the Commission that the requirements of this article have been fulfilled.

Article 406. Protection of Cultural Resources. Prior to implementing any project modifications not specifically authorized by this license, including but not limited to, land-clearing or land-disturbing activities, or changes to project operation or facilities, the licensee must consult with the Alaska State Historic Preservation Officer (Alaska SHPO) to determine the effects of the activities and the need for any cultural resource studies or measures. If no studies or measures are needed, the licensee must file with the Commission documentation of its consultation with the Alaska SHPO.

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

The Commission reserves the right to require changes to the HPMP. The licensee must not implement any project modifications, other than those specifically authorized in this license, until informed by the Commission that the requirements of this article have been fulfilled.

Article 407. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee must 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 must 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 must 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 type 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 water craft 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 must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must 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 must: (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 impoundment 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 impoundment. No later than January 31 of each year, the licensee must file with the Commission 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. No report filing is required if no conveyances were made under paragraph (c) during the previous calendar 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 water craft 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 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 file a letter with the Commission, 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 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 Commission's authorized representative, 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 must 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 must determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an 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 must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must 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 must not unduly restrict public access to project lands or 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 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 must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

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

(F) The licensee must 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.

(G) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the FPA, 16 U.S.C. § 8251 (2012), and section 385.713 of the Commission's regulations, 18 C.F.R. § 385.713 (2018). 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. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

for  
Terry L. Turpin  
Director  
Office of Energy Projects

**Form L-14**  
(October, 1975)

**FEDERAL ENERGY REGULATORY COMMISSION**

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

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

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

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

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

**Article 7.** 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 8.** 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 9.** 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 10.** 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 11.** The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

**Article 12.** 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 13.** 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 14.** 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 the 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 15.** 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 16.** 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 17.** 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 18.** 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 19.** The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

Document Content(s)

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