168 FERC ¶ 61,125
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Cheryl A. LaFleur, Richard Glick,
and Bernard L. McNamee.

Kenai Hydro, LLC. Project No. 13212-005

ORDER ISSUING ORIGINAL LICENSE

(Issued August 28, 2019)

INTRODUCTION

1. On April 18, 2016, Kenai Hydro, LLC (Kenai Hydro) filed an application for an original license, pursuant to Part I of the Federal Power Act (FPA),[1] to construct and operate the proposed Grant Lake Hydroelectric Project No. 13212 (Grant Lake Project).[2] The 5-megawatt (MW) project will be located on Grant Lake and Grant Creek, near the Town of Moose Pass in Kenai Peninsula Borough, Alaska. The project will occupy 1,688.7 acres of federal land within the Chugach National Forest, administered by U.S. Department of Agriculture, Forest Service (Forest Service).[3]

2. As discussed below, this order issues an original license for the Grant Lake Project.

BACKGROUND

3. On July 19, 2016, the Commission issued a public notice, which was published in the *Federal Register*, accepting the application for filing and establishing September 19, 2016, as the deadline for filing motions to intervene and protests.[4] The Forest Service

[1] 16 U.S.C. §§ 791(a) – 825(r) (2012).

[2] Kenai Hydro amended its application on January 16, May 23, and August 6, 2018.

[3] The project is required to be licensed under section 23(b)(1) of the FPA because it will occupy federal land. 16 U.S.C. § 817 (2012)

[4] 81 Fed. Reg. 48,781 (July 26, 2016).

and the U.S. Bureau of Land Management (BLM) filed timely notices of intervention on September 15, 2016, and September 16, 2016, respectively.[5] Mr. Mark Luttrell, the Kenai River Watershed Foundation, Friends of Copper Landing, Mr. Bruce Jaffa, the Iditarod Historic Trail Alliance, and the Seward Iditarod Trail Blazers filed timely motions to intervene on September 12, 2016, September 16, 2016, September 16, 2016, September 19, 2016, September 19, 2016, and September 19, 2016, respectively.[6] Ms. Irene Lindquist, Mr. Herrick Sullivan, the U.S. Department of the Interior (Interior), and the National Marine Fisheries Service (NMFS) filed late motions to intervene, which were granted.[7] The Kenai River Watershed Foundation, Friends of Copper Landing, the Iditarod Historic Trail Alliance, and Mr. Sullivan oppose the project.[8]

4. On February 8, 2018, the Commission issued a public notice, which was published in the *Federal Register*, indicating that the application was ready for environmental analysis and establishing April 9, 2018, as the deadline for filing comments, recommendations, terms and conditions, and prescriptions.[9] The Alaska Department of Fish and Game (Alaska DFG), the Cook Inletkeeper, the Homer Electric Association, the Iditarod Historic Trail Alliance, Interior, NMFS, and Mr. Sullivan filed comments and recommendations.

5. A draft environmental impact statement (EIS) was issued on October 19, 2018, analyzing the effects of the proposed project and alternatives to it. Alaska DFG, Alaska State Historic Preservation Officer, the U.S. Environmental Protection Agency (EPA), Forest Service, Iditarod Historic Trail Alliance, Interior, Kenai Hydro, Kenai River Special Management Area Advisory Board, Kenai River Watershed Foundation Inc., Mr. Jan Konigsberg, and NMFS filed comments and recommendations on the draft EIS.

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[5] Under Rule 214(a) of the Commission's Rules of Practice and Procedure, the two agencies became parties to the proceeding upon the timely filing of their notices of intervention. 18 C.F.R. § 385.214(a) (2019).

[6] Timely, unopposed motions to intervene are granted by operation of Rule 214(c) of the Commission's Rules of Practice and Procedure. 18 C.F.R. § 385.214(c) (2019).

[7] Secretary's April 27, 2018 Notice Granting Late Intervention.

[8] The issues raised by those opposed to the project are addressed in the Commission's environmental document. *See* Final EIS at section 3.3.2 (discussing aquatic resources, including impacts on the Kenai River Watershed); section 3.3.4 (discussing recreation resources, including impacts on the Iditarod National Historic Trail); section 3.3.6 (discussing cultural resources); and section 3.3.7 (discussing socioeconomic resources).

[9] 83 Fed. Reg. 6544 (February 14, 2018).

A final EIS was issued on May 1, 2019. The final EIS addresses all substantive environmental comments received on the draft EIS. EPA, Forest Service, Kenai Hydro, and U.S. Senator Lisa Murkowski filed comments and recommendations on the final EIS.

6. The interventions, comments, and recommendations have been fully considered in determining whether, and under what conditions, to issue the license.

PROJECT DESCRIPTION AND OPERATION

A. Project Area

7. The Grant Lake and Grant Creek watershed has a total drainage area of about 44 square miles. The Kenai Mountain Range surrounds Grant Lake to the east, north, and south. Grant Lake has a surface area of 2.6 square miles, a maximum depth of 300 feet, and an average depth of 91 feet.

8. Inlet Creek, the predominant stream in the upper portion of the watershed, drains melting alpine glaciers and snow from the nearby mountains into Grant Lake on its eastern banks. In addition, several intermittent, snowmelt-fed streams drain the steep terrain adjacent to Grant Lake. Grant Creek runs west approximately one mile from the south end of Grant Lake draining into Trail Lake Narrows between Upper and Lower Trail Lakes. Trail River drains Lower Trail Lake, and then flows into Kenai Lake, which drains into the Kenai River at its west end near Cooper Landing.

B. Project Description and Proposed Facilities

9. The Grant Lake Project will consist of the existing Grant Lake and the following new facilities: an intake, diversion weir, bypass flow pipe, power tunnel, surge chamber, penstock, powerhouse, tailrace, detention pond, transmission line and switchyard, and access roads.

10. The 38-foot-long by 20-foot-wide reinforced concrete intake will include intake trashracks, selective withdrawal intake gates, a roller gate, and house a vertical turbine pump to provide minimum flows to the bypassed reach in Grant Creek. The 100-foot-long concrete diversion weir will be located at the natural outlet of Grant Lake into Grant Creek and have a crest elevation at 703 feet. A buried 16-inch-diameter, 400-foot-long bypass flow pipe will extend from the vertical turbine pump at the project intake to Grant Creek, just downstream of the diversion weir. The 3,300-foot-long power tunnel will include the surge chamber and extend from the project intake to the 72-inch diameter, 150-foot-long steel penstock, which will extend to the powerhouse. The powerhouse will contain two horizontal Francis type turbine/generator units with a total rated capacity of 5 MW. Flows will exit the powerhouse through the tailrace channel, which will include discharge gates to direct flow either to the detention pond and/or into Grant Creek. The 3.6-acre detention pond, with a storage capacity of 15 acre-feet, will provide a spinning

reserve and support load-following operations (peaking)[10] and prevent a sudden increase in water surface levels in Grant Creek, with flows slowly released from the detention pond back to the tailrace channel and Grant Creek. The tailrace channel, with a bottom width of 74 feet and a channel depth ranging from 13 feet at the powerhouse to 8 feet at the creek, will discharge flows into Grant Creek approximately 0.6 mile downstream of the powerhouse.

11. Kenai Hydro will construct a new 1-mile-long access road connecting the powerhouse to Seward Highway and a new 1.1-mile-long access road connecting the powerhouse to the intake structure at Grant Lake.

12. Power generated by the project will be transmitted from the powerhouse via a new 1.1-mile-long, 115-kilovolt (kV) transmission line to an existing 115-kV line located on the west side of Seward Highway.

13. A more detailed project description is contained in Ordering Paragraph (B)(2).

C. Proposed Project Operation

14. The proposed project will operate in a peaking mode, drafting up to 13 feet of storage annually within Grant Lake to generate power and meet flow requirements within Grant Creek. Grant Lake's elevation will vary from a normal maximum elevation of 703 feet, which is the elevation of the natural Grant Lake outlet, down to a minimum lake elevation of 690 feet. To provide storage for spring run-off, Kenai Hydro will draw down the lake during the winter and use these reservoir releases to generate power and meet instream flow requirements in Grant Creek. The project intake will be capable of variable depth withdrawal to control water temperatures in Grant Creek.

15. The powerhouse will operate with a minimum hydraulic capacity of 58 cubic feet per second (cfs) (one unit operating) and a maximum hydraulic capacity of 385 cfs (total for two units operating). When not provided over or through the bypass weir, flows for the bypassed reach will be provided from the intake structure and pumped through the bypass pipe to the downstream side of the bypass weir. Minimum instream flows in the bypass reach will travel approximately 0.6 mile downstream to where the powerhouse tailrace channel discharges into Grant Creek, after which the combined flows will travel downstream to Trail Lake Narrows (the narrow channel between Upper Trail Lake and Lower Trail Lake).

16. To prevent rapid flow fluctuations in Grant Creek, an off-stream detention pond will provide a temporary storage reservoir for water discharged from the project during

[10] Spinning reserve is the extra generating capacity that is available by increasing the power output of generators that are already connected to the power system.

times when the project's spinning reserve is called upon requiring the units to quickly ramp-up to meet load demand on the electric grid. The excess flows from the powerhouse will be diverted into the detention pond and after the increased power generation, the stored water will be released slowly back into Grant Creek via the tailrace channel. This will allow Kenai Hydro to maintain minimum instream flow and ramping rate requirements in Grant Creek during all operational scenarios.

D. Project Boundary

17. The proposed project boundary encloses all of the project facilities listed above. In addition to the project facilities and lands that are within the Chugach National Forest, project land between Grant Lake and the Seward Highway is mostly owned by the State of Alaska and managed by the Alaska Department of Natural Resources (Alaska DNR).

E. Proposed Environmental Measures

Construction-Related Measures

18. To oversee construction activities and ensure compliance with environmental measures, Kenai Hydro proposes to designate a third-party environmental compliance monitor.

19. To prevent sediment mobilized during construction from entering Grant Creek or Grant Lake, Kenai Hydro proposes to develop an Erosion and Sediment Control Plan that includes best management practices (BMPs).

20. To minimize long-term impacts on the environment, Kenai Hydro proposes to restore areas disturbed by construction to pre-existing conditions.

21. To prevent or mitigate the release of hazardous materials during project construction, Kenai Hydro proposes to develop a Hazardous Materials Containment and Fuel Storage Plan.

22. To protect fishery resources in Grant Creek, Kenai Hydro proposes to finalize design details for fish exclusion measures, which it proposes to install in the tailrace, in consultation with the Alaska DFG, NMFS, and U.S. Fish and Wildlife Service (FWS).

23. To protect aquatic resources, Kenai Hydro proposes to establish timing windows for instream construction and stream-crossing activities in consultation with Alaska DFG.

24. To inform the public of construction activities, Kenai Hydro proposes to install temporary signs at key locations that provide details on construction activities and a point of contact at Kenai Hydro for any questions that may arise during construction.

25. To minimize the risk of bear-human encounters, Kenai Hydro proposes to develop a Bear Safety Plan that includes: (1) a provision for keeping construction sites and refuse

areas clear of substances that potentially attract bears; (2) a provision for installation of bear-proof garbage receptacles and other measures to prevent bears from obtaining food or garbage; (3) guidelines for minimizing conflicts with bears; (4) protocols for dealing with problem bears; and (5) a provision for notifying authorities of bear-human conflicts.

Operation-Related Measures

26. To protect aquatic habitat and support benthic macroinvertebrates, Kenai Hydro proposes to provide the following seasonal minimum flows to the bypassed reach: 5 cfs from January 1 through July 31; 10 cfs from August 1 through September 31; 7 cfs from October 1 through October 31; and 6 cfs from November 1 through December 31.

27. To protect habitat for salmonids and benthic macroinvertebrates, Kenai Hydro proposes to provide the following seasonal minimum flows to Grant Creek immediately downstream of the tailrace: 60 cfs from January 1 through May 15; 80 cfs from May 16 through May 31; 150 cfs from June 1 through June 30; 195 cfs from July 1 through August 31; 150 cfs from September 1 through September 30; 125 cfs from October 1 through October 15; 72 cfs from October 16 through November 15; and 60 cfs from November 16 through December 31.

28. To mimic existing water temperature regimes in Grant Creek, Kenai Hydro proposes to use a variable depth project intake to ensure the appropriate temperature withdrawals from Grant Lake.

29. To promote sediment recruitment and transport from the bypassed reach to Grant Creek, Kenai Hydro proposes to provide channel maintenance flows of 800 cfs to the Grant Creek bypassed reach for a continuous 8-hour duration, once per year, during a minimum of two years within each 10-year period during the license term.

30. To minimize impacts on aquatic resources in Grant Creek, Kenai Hydro proposes to: (1) limit up-ramping rates to 1 inch per hour during the winter (November 16 through May 15) and 2 inches per hour during the summer (May 16 through November 15); and (2) limit down-ramping rates to 1 inch per hour during the winter (November 16 through May 15) and 2.25 inches per hour during the summer (May 16 through November 15).

31. To ensure compliance with the operational requirements of this license, Kenai Hydro proposes to implement an Operation Compliance Monitoring Plan that includes: (1) lake level and temperature monitoring in Grant Lake; (2) flow and temperature monitoring in the Grant Creek bypassed reach; (3) flow and temperature monitoring in the Grant Creek tailrace; (4) failsafe provisions; (5) a schedule for installing and maintaining flow and temperature instrumentation; and (6) reporting monitoring data.

32. To prevent hazardous materials from entering Grant Creek or Grant Lake during operation, Kenai Hydro proposes to develop a Spill Prevention, Control, and Containment Plan and a Hazardous Materials Containment and Fuel Storage Plan.

33. To monitor project effects on salmonid spawning habitat, Kenai Hydro proposes to implement a Biotic Monitoring Plan that includes provisions for monitoring juvenile and adult salmonid abundance and habitat use, and monitoring gravel transport in Grant Creek.

34. To determine the need for gravel augmentation, Kenai Hydro proposes to conduct biological monitoring in Grant Creek, which will also determine the effectiveness of the proposed enhancement/mitigation measures (e.g., minimum flows in the bypassed reach and minimum flows downstream of the tailrace) and evaluate the need for removal of a log jam to increase flow in a Grant Creek side channel.

35. To minimize effects of project construction, operation, and maintenance on vegetation, Kenai Hydro proposes to implement a Vegetation Management Plan that includes: (1) invasive plant management and control; (2) revegetation; (3) vegetation maintenance; (4) sensitive plant species protection and monitoring; and (5) pale poppy population management.

36. To minimize effects of construction, operation, and maintenance on avian communities, Kenai Hydro proposes to implement an Avian Protection Plan that includes provisions for: (1) avoiding disturbances during the breeding season; (2) designing the transmission line to minimize electrocutions or collisions with the project transmission line; and (3) minimizing vegetation removal and establishing vegetation removal timelines to minimize disturbances during the avian breeding season.

37. To minimize effects on the Iditarod National Historic Trail (Iditarod Trail), Kenai Hydro proposes to re-route an unconstructed stretch of the planned Iditarod Trail away from project facilities and construct an alternative route.

38. To limit access to the project, Kenai Hydro proposes to install a gate and no trespassing signs at the entrance to the access road connecting Seward Highway to the powerhouse.

39. To prevent and control wildfires, Kenai Hydro proposes to develop a Fire Prevention Plan.

40. To protect historic properties in the project area, Kenai Hydro proposes to implement a Historic Properties Management Plan (HPMP).

SUMMARY OF LICENSE REQUIREMENTS

41. This license, which authorizes the installation of 5.0 MW of new renewable energy generation capacity, requires most of the proposed measures noted above, the Forest Service's section 4(e) conditions (Appendix A), and the staff-recommended measures described below. Combined, these measures will protect water quality, fish, wildlife, and cultural resources at the project.

42. To protect water quality during project construction, the license requires Kenai Hydro to demarcate and map areas for storage or deposition of spoils and overburden and to monitor turbidity in Grant Creek upstream and downstream of construction activity.

43. To prevent the mobilization and downstream transport of lead during project construction and operation, the license requires Kenai Hydro to develop a Lead Sampling and Remediation Plan to sample Grant Lake sediments for lead prior to construction and, if present, implement measures to prevent its mobilization.

44. To minimize adverse effects of project operation on aquatic resources, the license requires Kenai Hydro to: (1) provide minimum instream flows and maintain certain ramping rates in Grant Creek; (2) through the operation of a variable depth intake, mimic the natural thermal regime of Grant Creek downstream of the project tailrace; and (3) develop a Salmonid Spawning Gravel Monitoring and Maintenance Plan for Grant Creek.

45. To monitor compliance with flow, ramping rate, and temperature requirements in Grant Creek the license requires: (1) real-time water surface elevation and temperature monitoring of Grant Lake; (2) real-time flow monitoring in the Grant Creek bypass reach; (3) real-time flow and temperature monitoring in Grant Creek downstream of the tailrace; (4) provisions to minimize effects of equipment malfunction on Grant Creek water temperature; (5) a schedule for installing, maintaining flow and temperature instrumentation; and (6) filing Grant Lake and Grant Creek water temperature, Grant Creek flow, and Grant Lake water surface elevation compliance reports with the Commission.

46. To ensure that any construction activity that has the potential to disturb nesting birds is minimized, the license requires Kenai Hydro to conduct pre-construction nest surveys, at and adjacent to, construction areas. For any active nest found during the survey, the license requires Kenai Hydro to establish a protective buffer around the nest and develop a species-specific protection plan.

47. To minimize the effects of disturbance on mountain goats caused by aircraft used for project-related activities, the license requires Kenai Hydro to maintain flights of any such aircraft at least 1,500 feet from mountain goat habitat located adjacent to Grant Lake and Grant Creek.

48. To protect cultural resources, the license requires Kenai Hydro to file, within one year of license issuance, a revised HPMP that includes protection and monitoring of historic properties located with the project's area of potential effects.

WATER QUALITY CERTIFICATION

49. Under section 401(a)(1) of the Clean Water Act (CWA), 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.[11] Section 401(d) of the CWA provides that the water quality certification shall become a condition of any federal license that authorizes construction or operation of the project.[12]

50. In a letter dated February 22, 2016, the Alaska Department of Environmental Conservation waived its right to issue a water quality certification for the Grant Lake Project.[13]

COASTAL ZONE MANAGEMENT ACT

51. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 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 6 months of its receipt of the applicant's certification.[14]

52. On June 30, 2011, by operation of a sunset provision in Alaska state law, the federally approved Alaska Coastal Management Program expired, resulting in Alaska's withdrawal from participation in the National Coastal Management Program of the CZMA. Therefore, the CZMA federal consistency provision, section 307, no longer applies in Alaska.[15]

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[11] 33 U.S.C. § 1341(a)(1) (2012).

[12] *Id.* § 1341(d).

[13] Kenai Hydro, September 5, 2017, Supplemental Information at 24 (attaching Alaska Department of Environmental Conservation's waiver letter).

[14] 16 U.S.C. § 1456(c)(3)(A) (2012).

[15] 76 Fed. Reg. 39,857 (July 7, 2011) (explaining the withdrawal of Alaska from the National Coastal Management Program).

SECTION 4(e) FINDING AND CONDITIONS

53. Section 4(e) of the FPA provides that the Commission can issue a license for a project located within a federal reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired.[16]

54. Staff has reviewed the Organic Administration Act of 1897,[17] which established the purposes for forest reservations, and the presidential proclamation that created the Chugach National Forest.[18] No evidence or allegation exists in this proceeding to indicate that licensing the Grant Lake Project would interfere with the purposes of the Chugach National Forest. Therefore, this license, as conditioned, will not interfere with or be inconsistent with the purposes for which the Chugach National Forest was created.

55. Section 4(e) of the FPA further requires that Commission licenses for projects located within federal reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. The Grant Lake Project is located in the Chugach National Forest, which is under the Forest Service's supervision.

56. On March 1, 2019, the Forest Service filed its final section 4(e) conditions. The conditions are set forth in Appendix A of this order and incorporated into the license by Ordering Paragraph (D).

57. All of the conditions, with the exception of condition 19, require administrative actions on the part of the licensee, such as holding consultation meetings, monitoring license compliance, and taking certain actions in the event of unspecified future events. Other conditions reserve the right of the Forest Service to modify the conditions, restrict certain of the licensee's actions on Forest Service lands, and direct the licensee to comply with certain federal, state, and local government regulations or law.

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[16] 16 U.S.C. § 797(e) (2012).

[17] *Id.* § 473 *et seq*. (2012).

[18] On July 23, 1907, President Theodore Roosevelt established the Chugach National Forest. Proclamation No. 60. 35 Stat 2149. At that time, the Organic Administration Act of 1897, 16 U.S.C. § 475 (2012), stipulated that all national forest lands were established and administered only for watershed protection and timber production.

58. Condition 19 requires Kenai Hydro to develop the following specific environmental resource plans: (1) Construction Plan; (2) Erosion and Sediment Control Plan; (3) Fire Prevention Plan; (4) Hazardous Materials Plan; (5) HPMP; (6) Reservoir Management and Inundation Plan; (7) Scenery Management Plan; (8) Solid Waste and Wastewater Plan; (9) Spoils Disposal Plan; (10) Aquatic Invasive Species Management Plan; and (11) Vegetation Management Plan. With the exception of the Reservoir Management and Inundation Plan, staff recommended, in the final EIS, that each of the above plans be included in the license. Except for the Scenery Management Plan and Fire Prevention Plan, staff also recommended that the plans include additional provisions not specified by the Forest Service.[19] These staff-recommended modifications and staff's reasons for not recommending the Reservoir Management and Inundation Plan are discussed below.

A. Construction Plan

59. To protect environmental resources, provide for public safety, support the Forest Service's management of public use of NFS lands, and coordinate efforts with Native organizations to identify culturally significant plants, staff recommended in the final EIS that the Construction Plan include the following provisions: (1) coordinate construction activities and schedules with associated protection measures required by the Erosion and Sediment Control Plan, Vegetation Management Plan, Avian Protection Plan, Stormwater Pollution Prevention Plan, Hazardous Materials Plan, and Spoils Disposal Plan; (2) provide a detailed construction schedule; (3) provide a description of construction methods and BMPs to be employed, including identification of measures to reduce the risk of introduction or spread of invasive plants; (4) delineate construction areas using fencing and/or flagging; (5) identify measures to avoid streams, wetlands, and pond habitats to the extent possible during construction; (6) conduct environmental training of construction staff regarding laws, regulations, and BMPs to avoid or reduce effects on native plant and wildlife species including special-status species and their habitats; and (7) install temporary signs that provide details on construction activities and a point of contact at Kenai Hydro for any questions that may arise during construction.[20] Article 401 requires that the plan include these provisions.

[19] On February 12, 2019, Interior recommended that the Scenery Management Plan include provisions related to reducing the effects of security lighting on the Iditarod Trail. Forest Service condition 21 includes similar provisions.

[20] Final EIS at 5-10 to 5-11.

B. Erosion and Sediment Control Plan

60. To prevent project-related activities from causing erosion and sedimentation, staff recommended in the final EIS, that the Erosion and Sediment Control Plan include the following: (1) a description of soil, groundwater, and vegetation conditions; (2) site-specific preventive measures; (3) identification of areas for storage or deposition of overburden and erosion control to be used in those areas; (4) a provision to revegetate disturbed areas, and (5) an implementation schedule.[21] Article 402 requires that the plan include these provisions.

C. Hazardous Materials Plan

61. To protect water quality and aquatic resources from potential contamination from petroleum products and other hazardous materials used at the project, staff recommended in the final EIS that the Hazardous Materials Plan include the following provisions: (1) identify specific areas for the maintenance and refueling of vehicles and equipment; (2) describe contingencies with appropriate measures for containment and cleanup in the event of a spill or accident; (3) remove oil and other contaminants from condensate and leakage from the turbines and other equipment in the powerhouse; and (4) reporting requirements.[22] Article 404 requires that the plan include these provisions.

D. Historic Properties Management Plan

62. As discussed below, the Commission executed a Programmatic Agreement with the Alaska State Historic Preservation Officer (Alaska SHPO) on August 16, 2019.[23] The Programmatic Agreement requires Kenai Hydro to prepare a revised HPMP for the project.[24] Article 421 requires the licensee to implement the Programmatic Agreement and file a revised HPMP.

E. Reservoir Management and Inundation Plan

63. The Reservoir Management and Inundation Plan required by condition 19 will identify: (1) seasonal reservoir fluctuations and (2) any NFS lands potentially inundated

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[21] Final EIS at 5-7 to 5-8.

[22] Final EIS at 5-9 to 5-10.

[23] *See infra* PP 75-76.

[24] Kenai Hydro filed a revised draft HPMP on January 16, 2018.

by reservoir fluctuations.[25] In the final EIS, staff found that the project would not increase the lake water surface elevation above the natural historic range and subsequently would not inundate any additional NFS lands beyond natural conditions.[26] Therefore, staff did not recommend the plan. Nonetheless, the Reservoir Management and Inundation Plan is included in Forest Service 4(e) condition 19 and incorporated into the license by Ordering Paragraph (D).

F. Spoils Disposal Plan

64. To protect environmental resources at the project, including water quality and botanical and wildlife resources, staff recommended in the final EIS that the project's Spoils Disposal Plan include the following provisions: (1) describe the means and methods used to dispose of any materials excavated during construction; (2) provide mapped locations of any proposed temporary and/or permanent spoil pile locations; (3) describe composition of any materials expected to be excavated onsite; (4) describe the proposed use of excavated materials in the construction process; (5) describe any plans to dispose of materials offsite; and (6) detail methods to be employed to prevent spoil materials from leaching from spoil piles into adjacent waterways and wetlands.[27] Article 403 requires that the plan include these provisions.

G. Solid Waste and Wastewater Plan

65. To prevent project-related solid waste and wastewater from entering Grant Creek, staff recommended in the final EIS that the Solid Waste and Wastewater Plan include specifications for a sanitary wastewater holding tank or septic system designed for the project's site-specific conditions.[28] Article 406 requires that the plan include these provisions.

H. Vegetation Management Plan

66. To minimize potential adverse effects associated with project construction and operation on vegetation communities, staff recommended Kenai Hydro's Vegetation Management Plan, which includes the following provisions: (1) employing appropriate measures to minimize the introduction and spread of invasive plant species during construction; (2) employing invasive plant management and control during the first

[25] Final EIS Appendix A at A-4.

[26] Final EIS Appendix A at A-4 to A-5.

[27] Final EIS at 5-11 to 5-12.

[28] Final EIS at 5-2.

growing season after construction completion and year 5 post-construction; (3) revegetating the project area during the first growing season after construction is complete; (4) removing vegetation in construction areas, and maintaining non-herbaceous vegetation every 8 to 10 years during the license term for safety and reliability clearances along road and transmission line corridors; (5) employing general sensitive plant species protection and monitoring prior to ground-disturbing activities associated with project construction on NFS lands; and (6) managing the pale poppy population within the project boundary.[29]

67. To assess the success of revegetation efforts and identify and protect populations of sensitive and culturally significant plant species, including pale poppy, staff recommended that Kenai Hydro revise its January 16, 2018 Vegetation Management Plan to include the following additional provisions: (1) monitor the success of revegetation efforts monthly between April and September during construction and annually thereafter for 5 years; (2) develop restoration success criteria, based on existing vegetation conditions; (3) develop data collection and analysis methods for monitoring that correspond with success criteria; (4) monitor restoration success and supplement plantings until success criteria are met for two consecutive growing seasons; and (5) conduct pre-construction surveys for Forest Service sensitive plant species within areas of proposed disturbance and, if found, consult with the Forest Service to minimize effects on newly identified populations.[30] Staff also recommended that the plan be developed in consultation with the Forest Service and Alaska DFG. Article 418 requires that the plan include these provisions.

I. Aquatic Invasive Species Management Plan

68. To minimize the introduction and spread of aquatic invasive plant species in project waters, staff recommend, in the final EIS, that the Aquatic Invasive Species Management Plan include the following provisions: (1) conduct equipment inspections and locate wash stations outside of riparian/aquatic zones; and (2) provide for the control of aquatic invasive plant species, if any are detected in project waters. Staff also recommended that the plan be developed in consultation with the Forest Service and Alaska DFG.[31] Article 415 requires that the plan include these provisions.

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[29] Final EIS at 5-20 to 5-22. Kenai Hydro filed its Vegetation Management Plan on January 16, 2018.

[30] *Id.*

[31] Final EIS at 5-20 to 5-22.

SECTION 18 FISHWAY PRESCRIPTIONS

69. Section 18 of the FPA 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 Interior or the Secretary of Commerce, as appropriate.[32]

70. On April 9, 2018, the Secretary of the Interior and the Secretary of Commerce each requested that the Commission reserve authority to prescribe fishways. Consistent with Commission policy, Article 416 of this license reserves the Commission's authority to require fishways that may be prescribed by Interior or Commerce for the Grant Lake Hydroelectric Project.

ESSENTIAL FISH HABITAT

71. Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) 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 Magnuson-Stevens Act.[33] Under section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for actions that would adversely affect EFH.[34] Under section 305(b)(4)(B) of the Magnuson-Stevens Act, an agency must, within 30 days after receiving recommended conservation measures from NMFS or a Regional Fishery Management Council, describe the measures proposed by the agency for avoiding, mitigating, or offsetting the effects of the agency's activity on EFH.[35]

72. In the draft EIS, staff concluded that project construction and operation would have minor, adverse effects on EFH for Chinook, coho, and sockeye salmon due to temporary effects during in-water construction activities and reduced spring and summer

[32] 16 U.S.C. § 811 (2012).

[33] *Id.* § 1855(b)(2).

[34] *Id.* § 1855(b)(4)(A).

[35] *Id.* § 1855(b)(4)(B). 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.

flows.[36] However, staff found that during operation of the project, its recommended mitigation measures would provide an overall benefit to EFH in project waters.[37] On October 19, 2018, Commission staff informed NMFS of its conclusion.

73. On March 1, 2019, NMFS filed 14 EFH conservation recommendations. The recommendations provide for: (1) minimum instream flows in the bypassed reach; (2) minimum instream flow releases downstream of the project tailrace; (3) certain ramping rates to be implemented during project operation; (4) channel maintenance flows in the bypass reach; (5) stream flow compliance monitoring; (6) bypassed reach and tailrace minimum flow fail-safe provisions; (7) measures for excluding fish from project facilities; (8) water temperature monitoring; (9) timing of project-related instream activities; (10) turbidity monitoring during construction; (11) development of a fuel and hazardous substance spill plan; (12) notification procedures for deviations from the license conditions; (13) access to the site by NMFS employees; and (14) annual project review meetings. Because NMFS also filed these recommendations pursuant to section 10(j)(1) of the FPA, we address them below in the section titled Recommendations of Federal and State Fish and Wildlife Agencies Pursuant to Section 10(j) of the FPA. Therefore, no further action under the Magnuson-Stevens Act is required.

THREATENED AND ENDANGERED SPECIES

74. Section 7(a)(2) of the Endangered Species Act of 1973 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.[38]

75. No federally listed species or critical habitat are found in the project area.[39] Therefore, issuing a license for the project will have no effect on federally listed species and, no further action under the Endangered Species Act is required.

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[36] Draft EIS at 1-6; 3-103.

[37] *Id.*

[38] 16 U.S.C. § 1536(a) (2012).

[39] Final EIS at 1-5.

NATIONAL HISTORIC PRESERVATION ACT

76. Under section 106 of the National Historic Preservation Act (NHPA)[40] and its implementing regulations,[41] federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing on the National Register of Historic Places (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Office to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

77. To satisfy these responsibilities, the Commission executed a Programmatic Agreement with the Alaska SHPO on August 16, 2019, and invited Kenai Hydro, Forest Service, Alaska DNR, Chugach Alaska Organization, Qunteckak Native Tribe, Chenega Corporation, Cook Inlet Region, Inc., Kenaitze Indian Tribe, Salamatof Native Association, Ninilchik Traditional Council, Kenai Natives Association, Native Village of Eklutna, and Mark Lutrell to concur with the stipulations of the Programmatic Agreement. The Programmatic Agreement requires the licensee to prepare and implement a revised HPMP for the term of any license issued for this project. Execution of the Programmatic Agreement demonstrates the Commission's compliance with section 106 of the NHPA. Article 421 requires the licensee to implement the Programmatic Agreement and to file the HPMP with the Commission within one year of license issuance.

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

78. Section 10(j)(1) of the FPA[42] 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,[43] to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

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[40] Section 106 of the National Historic Preservation Act of 1966, as amended, 54 U.S.C. § 306108, Pub. L. No. 113-287, 128 Stat. 3188 (2014).

[41] 36 C.F.R. pt. 800 (2019).

[42] 16 U.S.C. § 803(j)(1) (2012).

[43] *Id.* § 661 *et seq.*

79. In response to the February 8, 2018 public notice that the project was ready for environmental analysis, Alaska DFG, NMFS, and Interior filed a combined total of 33 recommendations under section 10(j).[44] In the draft EIS, staff made the preliminary determination that 23 of the 33 recommendations were within the scope of section 10(j). Of those recommendations determined to be within the scope of section 10(j), staff found three of the recommendations from NMFS and Interior were partially inconsistent with the purpose and requirements of the FPA or other applicable law. On October 19, 2018, staff issued letters to NMFS and Interior informing them of its preliminary determination and attempting to resolve the inconsistencies. The agencies did not request a meeting pursuant to section 10(j).

80. On January 9, 2019, Alaska DFG filed new section 10(j) recommendations that are materially the same as those filed prior to the issuance of the draft EIS. On March 1, 2019, NMFS withdrew its original recommendation to maintain pre-project water temperature conditions in Grant Creek and modified its remaining section 10(j) recommendations to address each of the inconsistencies identified in staff's October 19, 2018 letter.

81. Collectively, as modified, Alaska DFG, NMFS, and Interior filed a combined total of 28 different recommendations under section 10(j) of the FPA.[45] In the final EIS, staff determined that seven of the recommendations are outside the scope of 10(j), one of which is required by a mandatory condition, as noted above,[46] and the remaining six are discussed below.[47]

82. Of the remaining 21 recommendations that are within the scope of section 10(j), this license includes conditions consistent with 20 recommendations, as follows: (1) develop an Erosion and Sediment Control Plan (Forest Service condition 19 and

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[44] Alaska DFG filed 18 section 10(j) recommendations on April 6, 2018; NMFS filed 11 section 10(j) recommendations on April 9, 2018; and Interior filed 21 recommendations on April 9, 2018, and amended with an errata filed on May 2, 2018.

[45] The following agencies filed final recommendations: (1) Alaska DFG filed 18 recommendations on January 9, 2019; (2) NMFS filed 14 recommendations on March 1, 2019; and (3) Interior filed 21 recommendations on April 9, 2018, which it amended with an errata filed on May 2, 2018. The final total number of recommendations filed equals 53 recommendations, of which 28 of are unique.

[46] This recommendation is for Kenai Hydro to conduct annual project review meetings with the agencies (Forest Service condition 4).

[47] Final EIS at 5-34.

Article 402); (2) provide channel maintenance flows (Article 412); (3) install stream gages and monitor flow (Article 408); (4) develop a Hazardous Materials Containment and Fuel Storage Plan (Forest Service condition 19 and Article 404); (5) monitor turbidity upstream and 100 feet downstream of construction activity (Article 402); (6) install a fish tailrace barrier (Article 407); (7) monitor water temperature in Grant Creek (Article 408); (8) monitor water temperature in Grant Lake (Article 408); (9) operate the project to maintain certain target water temperatures in Grant Creek (Article 409);[48] (10) consult on timing windows for instream construction activities (Forest Service condition 19 and Article 401); (11) maintain a minimum 100-foot buffer along Grant Creek (Article 401);[49] (12) maintain certain seasonal minimum instream flows within the bypassed reach (Article 410); (13) maintain certain seasonal minimum instream flows downstream of the project tailrace (Article 411); (14) maintain the aforementioned minimum instream flows during maintenance and emergency project shutdowns (Article 408); (15) limit down-ramping rates to 1 or 2 inches-per-hour, depending on the season, downstream of the tailrace (Article 413); (16) implement the Avian Protection Plan, filed on January 16, 2018 (Article 419); (17) develop a Bear Safety Plan (Article 417); and (18) while using aircraft for project-related activities, maintain a 1,500-foot clearance from suitable mountain goat habitat on the mountain sides adjacent to Grant Lake and Grant Creek (Article 420).

83. If the Commission believes that any such recommendation may be inconsistent with the purposes and requirements of Part I of the FPA or other applicable law, section 10(j)(2) requires the Commission and the agencies to attempt to resolve any such

[48] NMFS and Alaska DFG recommend monitoring water temperature in Grant Creek for 5 years and then consult with the agencies to determine the need for additional monitoring. Article 408 requires real-time water temperature monitoring in Grant Lake, at a depth of 0.5 meters. Article 409 uses water temperature monitoring results in Grant Lake to establish water temperature targets for Grant Creek. Article 408 requires real-time water temperature monitoring in Grant Lake and in Grant Creek downstream of the project's tailrace to monitor compliance with the Grant Creek water temperature requirements set-forth in Article 409. Because the water temperature monitoring is integral to the projects operation and the maintenance and compliance of water temperature in Grant Creek, this license requires water temperature monitoring in Grant Lake and Grant Creek for the duration of the license.

[49] Consistent with the 10(j) recommendations, Article 401 specifically excludes the powerhouse, tailrace, approximately 100-feet of access road and transmission line, and appurtenant facilities such as the powerhouse road bridge across Trail Lake Narrows, the intake at Grant Lake, and monitoring equipment in both Grant Lake and Grant Creek from the 100-foot buffer requirement.

inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agencies.[50] If the Commission still does not adopt a recommendation, it must explain how the recommendation is inconsistent with Part I of the FPA or other applicable law and how the conditions imposed by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources.

84. To protect water quality in Grant Creek during project construction, Interior recommends, under section 10(j), that Kenai Hydro monitor turbidity: (1) at a location downstream of the tailrace and (2) upstream of construction activities and 100 feet downstream of construction activity and/or discharge points for overland flows that cross construction areas. In the final EIS, staff found that localized monitoring upstream and downstream of construction activity and/or discharge points would adequately identify and address erosion containment issues and that additional monitoring downstream of the tailrace would not provide additional benefits to water quality.[51] For this reason, Interior's recommended turbidity monitoring downstream of the tailrace would not justify its estimated $9,100 levelized annual cost. As discussed above, Article 402 of this license requires turbidity monitoring upstream of construction activity and 100 feet downstream of construction activities on Grant Creek. This measure will adequately protect water quality in Grant Creek during project construction.

85. To protect aquatic resources in Grant Creek by ensuring that temperature differences between Grant Lake and Grant Creek are minimized during project operation, Interior recommends monitoring water temperature in Grant Lake and Grant Creek as well as within the project's intake. In the final EIS, staff found that water temperatures measured about 1,000 feet downstream of the proposed project tailrace, closely match water temperatures in Grant Lake at 0.5 meters below the surface.[52] Therefore, staff concluded that monitoring real-time water temperature in Grant Lake at a depth of 0.5 meters and in Grant Creek downstream of the project's tailrace, comparing the differences in temperature between the two locations, and adjusting the project intake level accordingly to minimize the temperature differences would adequately maintain

[50] 16 U.S.C. § 803(j)(2) (2012).

[51] Final EIS at 5-13.

[52] The location 1,000 feet downstream of the proposed tailrace is the former site of the U.S. Geological Survey (USGS) gage 15246000 (Grant Creek near Moose Pass, Alaska), which was operational from 1947 through 1958. During the ice break up period in the spring, the temperatures 1,000 feet downstream of the proposed tailrace are within 1ºC of water temperatures in Grant Lake at 0.5 meters below the surface. Final EIS at 5-15 to 5-17.

suitable water temperatures for the aquatic resources in Grant Creek.[53] Staff further concluded that the additional water temperature monitoring within the project intake, as recommended by Interior, would be redundant and unnecessary to minimize water temperature differences between Grant Lake and Grant Creek. As discussed above, Article 408 of this license requires real-time water temperature monitoring in Grant Lake at 0.5 meter below the surface and Article 408 requires real-time water temperature monitoring downstream of the project's tailrace. Article 409 specifies that real-time water temperature monitoring results in Grant Lake will establish real-time water temperature targets for Grant Creek. These measures will adequately protect aquatic resources in Grant Creek during project operation.

86. For the above reasons, in accordance with section 10(j)(2)(A) of the FPA, we find that Interior's recommendations to monitor turbidity downstream of the project's tailrace and monitor water temperature within the project's intake are inconsistent with the comprehensive planning standard of sections 4(e) and 10(a) of the FPA. In accordance with section 10(j)(2)(B) of the FPA, the measures required by this license, including the aforementioned monitoring requirements specified in Article 408, will adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources affected by this project.

SECTION 10(a)(1) OF THE FPA

87. Section 10(a)(1) of the FPA 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.[54]

88. The remaining 10(j) recommendations filed by Alaska DFG, NMFS, and Interior that are not specific measures to protect, mitigate damages to, or enhance fish and wildlife, are considered under the broad public interest standard of section 10(a)(1) of the FPA. National Park Service's 10(a) recommendations are also discussed below, as well as certain measures proposed by Kenai Hydro.

[53] Final EIS at 5-6; 5-15 to 5-18.

[54] 16 U.S.C. § 803(a)(1) (2012).

A. Administrative Recommendations

89. Two agency recommendations, which are considered administrative-related measures, were also recommended by staff in the final EIS and are included in the license.[55] These measures require Kenai Hydro to: (1) notify Alaska DFG, NMFS, and FWS of non-compliance events (Articles 409, 410, 411, and 413); and (2) provide agency access to project lands (Standard Article 18, Form L-2).

90. Interior recommends that the license include process-related provisions for determining whether to approve any operational changes. This license includes a standard fish and wildlife license reopener (Standard Article 15, Form L-2) that Interior can use to request changes in operations that benefit of fish and wildlife resources.

B. Biotic Monitoring

91. Kenai Hydro proposed a Biotic Monitoring Plan, filed on January 1, 2018, which includes monitoring juvenile and adult salmonid abundance and habitat use, and monitoring gravel transport in Grant Creek to assess project effects on salmonid spawning habitat.

92. Interior recommends that the Biotic Monitoring Plan include winter minnow trapping and DNA sampling of adult salmon and "specific, measurable, achievable, realistic, and time-bound (SMART) objectives."

93. The final EIS found that, while monitoring juvenile and adult salmon would provide information on aquatic habitat use and the abundance and distribution of salmonids in the project area as a general matter, the information would not specifically distinguish project-related effects on salmonid populations from other potential non-project-related factors such as commercial and recreational harvest, ocean survival, predation, or degraded habitat located outside of the project vicinity.[56] Further, the final EIS noted that the recommended mitigation measures that are specifically designed to protect fishery resources, including ramping rates and minimum instream flows, can be reasonably predicted to adequately protect aquatic resources from substantial, long-term project-related fish population changes, such that there is no project-related need for monitoring juvenile and adult salmonid abundance and habitat use.[57] Therefore, this license does not require biotic monitoring.

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[55] Final EIS at 5-41

[56] Final EIS at 3-107.

[57] Final EIS at 3-106.

94. Regarding gravel transport monitoring, the final EIS found that reduced flows through the bypass reach would likely limit gravel recruitment in Grant Creek and thereby affect available spawning habitat.[58] To mitigate this effect, Kenai Hydro proposes to monitor gravel recruitment in years 1, 5, and 10. NMFS recommends that Kenai Hydro monitor gravel every 5 years for the life of the license, stating that any depletion of spawning gravels would not likely be detected in the first 5 years of project operation and that it may take 20 to 30 years or more before any depletion is substantial enough to be detected. Alaska DFG recommends that Kenai Hydro monitor gravel conditions during years 5, 10, and 20 of project operation and prepare a report of its findings that identifies measures to mitigate any adverse effects.

95. The final EIS found that monitoring gravel abundance in year 1, as Kenai Hydro proposes, would provide a baseline inventory of available gravel for comparison with future data collection efforts; however, project effects on gravel abundance may not be discernable during the first 10 years of operation.[59] Consequently, the final EIS concluded that Kenai Hydro's proposed gravel monitoring schedule (during year 1 of construction and years 5 and 10 of operation) would not be sufficient to quantify long-term project-related changes in gravel transport to the reach. The final EIS also concluded that NMFS's recommendation to monitor gravels for the life of the license may be excessive because a sufficient amount of time, by year 20 will have passed to determine whether or not the project's release of channel maintenance flows, as required by Article 412, will be sufficient to maintain sediment recruitment to the reach.[60] Instead, the final EIS recommended that Kenai Hydro monitor gravel abundance in Grant Creek during year 1 of the license to provide a baseline inventory, and then again in years 10, 15, 20 and 30 of the license, and that Kenai Hydro provide a report on gravel monitoring results and a trend analysis of available gravel following years 20 and 30. Consistent with staff's recommendation in the final EIS, this license requires that the licensee develop a Salmonid Spawning Gravel Monitoring and Maintenance Plan that includes the provisions specified above (Article 414).

C. Lead Sampling

96. Kenai Hydro's 2009 water quality sampling for lead, in Grant Lake near the proposed intake site, resulted in a sample with a concentration of 1.1 micrograms per liter

[58] Final EIS at 3-16.

[59] Final EIS at 3-109.

[60] Final EIS at 5-18 to 5-20.

(µg/L), which exceeded the calculated chronic freshwater standard of 0.84 µg/L.[61] The exact sources of lead in Grant Lake are unknown, but the lead is presumed to be from anthropogenic emissions from various sources including mining.[62] The presence of lead at this concentration suggests that disturbing Grant Lake sediments during construction could mobilize lead, and result in its downstream transport in Grant Creek.[63] The final EIS found that if the lead concentration of lake bed sediment near the intake exceeds established screening level thresholds, capping the sediments during construction would minimize the potential for lead mobilization and protect water quality in Grant Lake and Grant Creek.[64] Therefore, the final EIS recommended that Kenai Hydro develop a Lead Sampling and Remediation Plan that includes measures to sample for lead in Grant Lake sediments that could be disturbed by project construction and operation, and, if lead is present in concentrations above established thresholds, measures to prevent mobilization. Article 405 requires Kenai Hydro to develop the recommended plan.

D. Project Construction Status Website

97. Park Service recommends (10(a) recommendation 3) that Kenai Hydro establish a project status website to provide real-time information to the public about the status of access to the area, install signage at key locations, and provide a public point of contact, as the project will be located in an area frequented by trail users and anglers.

98. Kenai Hydro's recreation observation study, conducted in 2014, shows that few visitors use the project area, and when they do, they mainly use it for dispersed uses such as hiking, fishing, and snowmobiling. Most of this use is associated with Vagt Lake, which is located about 0.5 mile south of the proposed construction area.[65] Consequently, the final EIS found that area closures for the 18-month construction period would affect very few visitors, with anglers still being able to access Grant Creek along the streambank trails, and hikers still being able to access Grant Lake along the Saddle Trail and Case Mine Trail. The final EIS did not identify any effects of construction on aerial sightseeing operations. Finally, Article 401 requires Kenai Hydro to install temporary signage that provides information on construction activities and a point of contact at Kenai Hydro for questions that may arise during construction. For these reasons, the final EIS concluded that there would be minimal benefit to the public of an outreach

[61] Final EIS at 3-48.

[62] Final EIS at 3-54.

[63] Final EIS at 3-49.

[64] Final EIS at 3-49 to 3-50; 5-8 to 5-9.

[65] Final EIS at 3-161.

website, and recommended that it not be included as a license requirement. Consistent with staff's recommendation, the license does not require Kenai Hydro to establish the public outreach website.

E. Iditarod Trail Re-route Plan

99. The Iditarod Trail, classified as a National Historic Trail as part of the National Trail System, traverses about 2,000 miles of western Alaska and extends from Seward to Nome. Sections of the trail are currently developed and in use, while other sections remain planned, but unconstructed. The section of the Iditarod Trail near the project, has been planned, laid out, flagged, and brushed, but not constructed. This section generally travels in a south to north direction, and crosses Grant Creek just north of the proposed project. Alaska DNR currently reserves a 1,000-foot wide corridor for managing land adjacent to the trail consistent with the Iditarod Trail Plan. The Forest Service has obtained a 100-foot-wide easement from the State of Alaska within the 1,000-foot-wide corridor for constructing and maintaining the Iditarod Trail.

100. The proposed project powerhouse, penstock, detention pond, transmission line, and access road would be located within or cross a portion of Alaska DNR's 1,000-foot Iditarod Trail management corridor. The intake access road would cross perpendicular to the planned Iditarod Trail.[66] Kenai Hydro proposes to re-route the trail to provide separation between project infrastructure and the Iditarod Trail. Kenai Hydro's proposed re-route would divert from the existing Iditarod Trail route near Vagt Lake, travel in a northwestern direction, cross the powerhouse access road, and then turning in a northeastern direction cross Grant Creek and rejoin the existing Iditarod Trail north of the project facilities. Kenai Hydro proposes to construct the segment of the Iditarod Trail re-route extending from Vagt Lake to Grant Creek, which is approximately half of its proposed re-route. Under Kenai Hydro's proposal, the Forest Service would be responsible for constructing the bridge across Grant Creek, and the remainder of the re-routed Iditarod trail—the portion extending from Grant Creek in a northeastern direction to the existing Iditarod trail.

101. Kenai Hydro's proposed re-route would have sharp turns and steep changes in grade, be about two times longer than the equivalent segment of the already planned route, and would not follow the more desirable north to south general direction. These attributes of Kenai Hydro's proposed trail route would not meet visitor expectations of having an expeditious route of travel, and the proposed route would not be consistent with the Iditarod Trail Plan objectives of providing a trail suitable for winter and summer access. Further, constructing the project would minimally affect the recreational

[66] Final EIS at 3-187 (including a visual simulation for the Iditarod Trail crossing the access road).

experience on the trail because there is existing development and motorized vehicle use in the surrounding area and the project facilities could be located or screened to minimize their appearance. For these reasons, the final EIS concluded that constructing the trail in the planned location would better align with the intent of the Iditarod Trail than the Kenai's proposed alternative route.[67] Kenai Hydro would also incur additional costs for construction, maintenance, and acquiring new easements to re-route segments of the trail. Therefore, the final EIS did not recommend Kenai Hydro's proposal to develop an Iditarod Trail re-route plan and this license does not adopt the proposed measure.[68]

102. National Park Service recommends (10(a) recommendation 1) that Kenai Hydro convene a work group to evaluate other Iditarod Trail re-route alternatives. Kenai Hydro engaged in consultation efforts to identify an alternative route for this portion of the Iditarod Trail, with outreach and consultations beginning in 2010. National Park Service does not provide a basis for how its recommended consultation process differs from Kenai Hydro's past attempts to identify an alternative route for the trail. Furthermore, as noted above, the final EIS did not recommend additional consultation to identify a new re-route alternative because it found that the proposed project will not conflict with the character of the Iditarod Trail and a re-routing alternative is not necessary.[69] Therefore, this license does not require the proposed trail re-route measure.

F. Public Use of Project Access Roads

103. The project's access roads could provide a new route of access to Grant Lake. Kenai Hydro proposes to restrict public access to Grant Lake via the project access roads by installing a gate and no trespassing signs. The final EIS analyzed an alternative that would allow the public to access Grant Lake via the project access roads, which included a parking lot and vault toilet to be constructed to accommodate public use.[70] However, we note that under Kenai Hydro's proposal, which restricts public access to the project access roads, recreation users will continue to be able to access Grant Lake via the existing Case Mine Trail and Saddle Trail. Therefore, this license does not require Kenai

[67] Final EIS at 3-167 to 3-170.

[68] Final EIS at ES-xxiii; draft EIS at 5-21.

[69] We note, as the final EIS describes, that the Iditarod Trail currently passes in the vicinity of existing points of development, including the Seward Highway and the community of Moose Pass, and other areas where motorized vehicle use occurs and any additional facilities or use of motorized vehicles as a result of the project would not be inconsistent with the existing conditions. Final EIS at 3-167.

[70] Final EIS at 3-161 to 3-164.

Hydro to provide public access to the project access roads, or construct the associated parking lot and vault toilet.

ADMINISTRATIVE PROVISIONS

A. Annual Charges

104. The Commission collects annual charges from licensees for administration of the FPA and to compensate for the use and occupancy of federal lands.[71] Article 201 provides for the collection of funds for administration of the FPA and use of occupancy of federal lands.

B. Exhibit F and G Drawings

105. The Commission requires licensees to file sets of approved project drawings in electronic file format. Article 202 requires the filing of the approved Exhibit F drawings.

106. Because the Exhibit G drawings, filed on January 16, 2018, are draft preliminary maps, do not include the stamp of a licensed engineer, and do not include georeferenced electronic format files, the Exhibit G drawings cannot be approved.[72] Therefore, Article 203 requires Kenai Hydro to file revised Exhibit G drawings.

C. Amortization Reserve

107. The Commission requires that for original licenses for major projects, non-municipal licensees must set up and maintain an amortization reserve account after the first 20 years of operation of the project under license. Article 204 requires the establishment of the account.

D. Headwater Benefits

108. Some projects directly benefit from headwater improvements that were constructed by other licensees, the United States, or permittees. Article 205 requires the licensee to reimburse such entities for these benefits if they were not previously assessed and reimbursed.

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[71] 18 C.F.R. §§ 11.1(c)(5), 11.2 (2019).

[72] *Id.* § 4.39(a) (requiring the stamp of a registered land surveyor); § 4.41(h) (requiring the filing of a georeferenced electronic format).

E. Project Financing

109. To ensure that there are sufficient funds available for project construction, operation, and maintenance, Article 207 requires Kenai Hydro to file for Commission approval documentation of project financing for the construction, operation, and maintenance of the project at least 90 days before starting any construction associated with the project.

F. As-Built Exhibits

110. Where new construction or modifications to the project are involved, the Commission requires licensees to file revised exhibits of project features as-built. Article 208 provides for the filing of these exhibits.

G. Project Land Rights Progress Report

111. The project will occupy 1,798.7 acres of land, of which 57.4 acres are non-federal lands. Standard Article 5 set forth in Form L-2 requires Kenai Hydro 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 5 years. To monitor compliance with Article 5, Article 206 requires Kenai Hydro to file no later than 4 years after license issuance, a report detailing its progress in 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 rights prior to the 5-year deadline.

H. Use and Occupancy of Project Lands and Waters

112. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 422 allows Kenai Hydro 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.

I. Start of Construction

113. Article 301 requires Kenai Hydro to commence construction of the project works within two years from the issuance date of the license and complete construction of the project within five years from the issuance date of the license.

J. Review of Final Plans and Specifications

114. Article 302 requires Kenai Hydro to provide the Commission's Division of Dam Safety and Inspections (D2SI)-Portland Regional Office with final contract drawings and specifications, together with a supporting design report consistent with the Commission's engineering guidelines, and the following plans: a Quality Control and Inspection Program; a Temporary Construction Emergency Action Plan; and an Erosion and Sediment Control Plan.

115. Article 303 requires Kenai Hydro to provide the Commission's D2SI-Portland Regional Engineer with cofferdam construction drawings approved by a Professional Engineer.

116. A Board of Consultants will be necessary to review the final design and construction of the project, including the required tunneling. Article 304 requires Kenai Hydro to retain a Board of Consultants, comprising qualified independent engineering consultants with extensive experience in tunnel design and construction, to review and oversee the complex design and construction of a project of this scale in challenging terrain.

117. To ensure the safety of the public at or near the project site, Article 305 requires the licensee to provide a Public Safety Plan to the Commission's D2SI-Portland Regional Engineer.

118. Article 306 requires Kenai Hydro to consult with the Commission's D2SI-Portland Regional Engineer at the beginning of the planning and design phase for any permanent or temporary modification resulting from license environmental requirements that may affect the project works or operations.

STATE AND FEDERAL COMPREHENSIVE PLANS

119. Section 10(a)(2)(A) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.[73] Under section 10(a)(2)(A), federal and state agencies filed 99 comprehensive plans that address

[73] 16 U.S.C. § 803(a)(2)(A) (2012). Comprehensive plans for this purpose are defined in section 2.19 of the Commission's Rules and Regulations. 18 C.F.R. § 2.19 (2019).

various resources in Alaska. Of these, the staff identified and reviewed 14 comprehensive plans that are relevant to this project.[74] No inconsistencies were found.

CONSERVATION EFFORTS

120. Sections 10(a)(2)(C) of the FPA requires the Commission to consider the electricity consumption improvement programs of the applicant, 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.[75] Kenai Hydro is a subsidiary of the Homer Electric Association and power from the project could be used locally by Homer Electric Association's customers on the western side of the Kenai Peninsula. However, the project's power will be connected and sold to service customers throughout the Alaska Railbelt (Railbelt) region; which is served by six regulated public utilities, extending from Fairbanks to Anchorage and the Kenai Peninsula.

121. Given the limits of its ability to influence users of the electricity generated by the project, we find that Kenai Hydro will comply with section 10(a)(2)(C) of the FPA.

SAFE MANAGEMENT, OPERATION, AND MAINTENANCE OF THE PROJECT

122. Staff reviewed Kenai Hydro'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

123. To assess the need for power, staff looked at the needs in the operating region in which the project is located. The Grant Lake Project will provide hydroelectric generation to meet regional electrical demand.

124. Kenai Hydro is a subsidiary of the Homer Electric Association, which currently provides power to the Alaska Railbelt (Railbelt) region from other generating facilities.[76] The Railbelt electrical grid is defined as the service areas of six regulated public utilities,

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[74] The list of applicable plans can be found in section 5.4 of the final EIS for the project.

[75] 16 U.S.C. § 803(a)(2)(C) (2012).

[76] The Railbelt region includes developments along the Alaska Railroad between the Kenai Peninsula and Fairbanks. The region includes the Mat-Su Valley, Anchorage, the Kenai Peninsula, Talkeetna, and Fairbanks.

extending from Fairbanks to Anchorage and the Kenai Peninsula—Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association, Homer Electric Association; Anchorage Municipal Light and Power; and the City of Seward Electric System. Power also comes from Aurora Energy, LLC, an independent power-producing utility. Sixty-five percent of the Alaskan population lives within the Railbelt region.

125. The southern portion of the Railbelt region—Mat-Su Valley, Anchorage, and the Kenai Peninsula—is highly dependent on natural gas as a source for electricity generation and for heating. The northern portion of the Railbelt region—Fairbanks and other communities in the interior—relies on petroleum fuels in addition to natural gas, coal, and hydroelectric power imported from the south.

126. Nearly all the existing, thermal generating capacity in the Railbelt region is almost 25 years old, and much of it is more than 35 years old. The majority of the generation is combustion turbine generation.

127. According to Alaska Energy Authority's Alaska Railbelt Regional Integrated Resource Plan Study, between 2020 and 2040 annual energy consumption for Homer Electric Association region could increase from 591.2 to 690.7 gigawatt-hours, and peak demand could increase from 92.0 to 108.1 MW.

128. The power from the Grant Lake Project will help meet a need for power in the Railbelt region.

PROJECT ECONOMICS

129. In determining whether to issue a license for a hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*, 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.[77] 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.

[77] 72 FERC ¶ 61,027 (1995).

130. In applying this analysis to the Grant Lake Project, staff considered two options: Kenai Hydro's proposal and the project as licensed herein.[78] As proposed by Kenai Hydro, the levelized annual cost of operating the project is $3,981,320, or $214.05/MWh. The proposed project will generate an estimated average of 18,600 MWh of electricity annually. When the estimated average annual generation is multiplied by the alternative power cost of $127.12/MWh, the total estimated value of the project's power is $2,364,430 in 2018 dollars.[79] To determine whether the proposed project is currently economically beneficial, the project's cost is subtracted from the value of the project's power. Therefore, in the first year of operation, the project costs $1,616,890, or $86.93/MWh, more than the likely alternative cost of power.

131. As licensed herein with mandatory conditions and staff recommended measures, the levelized annual cost of operating the project will be about $3,964,480, or $213.14/MWh. Based on the same estimated average generation of 18,600 MWh, the project will produce power valued at $2,364,430 when multiplied by the alternative power cost of $127.12/MWh. Therefore, in the first year of operation, project power will cost $1,600,050, or $86.02/MWh, more than the likely cost of alternative power.

132. In considering public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary service benefits). These benefits include the ability to help maintain the stability of a power system, such as by quickly adjusting power output to respond to rapid changes in system load; and to respond rapidly to a major utility system or regional blackout by providing a source of power to help restart fossil-fuel based generating stations and put them back online.

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[78] Staff recalculated the economic analysis in this order, using the same methodology as in in the final EIS, to accommodate for changes to the conditions required in this order. Final EIS at 4-1.

[79] The alternative power cost of $127.12/MWh is a modification of the $124.43/MWh value provided by Kenai Hydro in its final license application amendment. The modification includes the additional cost for the contingency spinning reserve capacity of the project, which Kenai Hydro did not include in its $124.43/MWh estimate. Kenai Hydro provided a range of $40,159 to $70,257 per year for the estimated value of contingency spinning reserve capacity. Kenai Hydro License Application at D-6. Staff assumed a conservative value of $50,000 per year within the range provided by Kenai Hydro, converted it to a $/MWh value of $2.69/MWh, and then added it to the cost of energy ($124.43/MWh) to get a composite power rate of $127.12/MWh.

133. Although staff's analysis shows that the project as licensed herein would cost more to operate than the estimated cost of alternative power, it is the applicant who must decide whether to accept this license and any financial risk that entails.

134. 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 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

135. Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to 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.[80] Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

136. The final EIS for the project contains background information, analysis of effects, and support for related license articles. The project will be safe if operated and maintained in accordance with the requirements of this license.

137. Based on staff's independent review and evaluation of the project, recommendations from the resource agencies and other stakeholders, and the no action alternative, as documented in the final EIS, the Grant Lake Project, as licensed herein, and is best adapted to a comprehensive plan for improving or developing Grant Creek.

138. This alternative was selected because: (1) issuance of an original hydropower license by the Commission would allow Kenai Hydro to provide a beneficial and dependable source of electrical energy; (2) the 5 MW of electric capacity comes from a renewable resource that does not contribute to atmospheric pollution; (3) the public benefits of this alternative would exceed those of the no-action alternative; and (4) the recommended measures would protect and enhance fish and wildlife resources.

[80] 16 U.S.C. §§ 797(e), 803(a)(1) (2012).

LICENSE TERM

139. Section 6 of the FPA provides that original licenses for hydropower projects shall be issued for a period not to exceed 50 years.[81] On October 19, 2017, the Commission established a 40-year default license term policy for original and new licenses, effective as of October 26, 2017.[82] The License Term Policy Statement provides for exceptions to the 40-year default license term under certain circumstances: (1) establishing a shorter or longer license term if necessary to coordinate license terms for projects located on the same river basin; (2) deferring to a shorter or longer license term explicitly agreed to in a generally-supported comprehensive settlement agreement; and (3) establishing a longer license term upon a showing by the license applicant that substantial voluntary measures were either previously implemented during the prior license term, or substantial new measures are expected to be implemented under the new license.[83]

140. Because none of the above exceptions apply in this case, a 40-year license for the Kenai Hydro Project is appropriate.

The Commission orders:

(A) This license is issued to Kenai Hydro, LLC (licensee), for a period of 40 years, effective the first day of the month in which this order is issued, to construct, operate and maintain the Grant Lake Hydroelectric 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: (a) the existing Grant Lake, with a surface area of 2.6 square miles; (b) a reinforced concrete intake with an outside dimension of 38 feet by 20 feet, intake trash racks, and a vertical turbine pump to provide base flows; (c) a 100-foot-long concrete bypass weir at the natural Grant Lake outlet with a crest elevation at 703 feet; (d) a buried, 400-foot-long, 16-inch-diameter bypass flow pipe to carry pumped

[81] 16 U.S.C. § 799 (2012).

[82] *Policy Statement on Establishing License Terms for Hydroelectric Projects*, 161 FERC ¶ 61,078 (2017) (License Term Policy Statement).

[83] *Id.* PP 15-16.

flows from the intake to just below the bypass weir; (e) a 3,300-foot-long tunnel from the project intake to the powerhouse that transitions to a 6-foot-diameter, steel penstock about 150 feet from the powerhouse; (f) a 100-foot-long by 50-foot-wide powerhouse with two horizontal Francis type turbine/generator units with a total rated capacity of 5 megawatts (MW); (g) a trapezoidal tailrace channel with a bottom width of 74 feet and a channel depth ranging from 13 feet at the powerhouse to 8 feet at the creek; (h) a 3.6-acre tailrace detention pond with 15 acre-feet of storage capacity; and (i) a 5,567-foot-long, 115-kilovolt transmission line; (j) a 1-mile-long access road connecting the powerhouse to Seward Highway and a 1.1-mile-long road connecting the powerhouse to the intake structure at Grant Lake; and (k) appurtenant facilities.

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

Exhibit A: The following sections of Exhibit A filed on January 16, 2018:

Exhibit A, pages A-1 through A-17, entitled "Exhibit A – Project Description," describing the mechanical, electrical, and transmission equipment within the application for license.

Exhibit F: The following Exhibit F drawings filed on January 16, 2018:

Exhibit F Drawing	FERC No. 13212-	Description
F-1	1	Overall Site Plan and Drawing List
F-2	2	Hydraulic Profile and Design Criteria
F-3	3	Generation Facilities – Area Plan
F-4	4	Intake – Plan and Profile
F-5	5	Intake Cofferdam – Plan and Profile
F-6	6	Intake Structure – Plan
F-7	7	Intake Structure –Sections
F-8	8	Tunnel – Plan and Profile
F-9	9	Tunnel – Section and Details

F-10	10	Tunnel Portal –Plan, Profile, and Section
F-11	11	Penstock – Plan and Profile
F-12	12	Penstock – Sections and Details
F-13	13	Powerhouse – Area Plan
F-14	14	Powerhouse – Plan
F-15	15	Powerhouse – Elevations
F-16	16	Powerhouse – Sections
F-17	17	Tailrace Channel – Plan and Profile
F-18	18	Tailrace Channel – Sections
F-19	19	Detention Pond – Plan and Section
F-20	20	Bypass Pipe and Weir
F-21	21	Intake Access Road – Plan and Profile
F-22	22	Powerhouse Access Road – Plan and Profile
F-23	23	Bridge – Plan, Elevation, and Section
F-24	24	Access Road – Typical Details
F-25	25	Interconnection One-line Diagram
F-26	26	Powerhouse One-line Diagram
F-27	27	Transmission Line Route
F-28	28	Transmission Line Details

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

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

(D) This license is subject to the conditions submitted by the U.S. Forest Service under section 4(e) of the FPA, as those conditions are set forth in Appendix A to this order.

(E) This license is also subject to the articles set forth in Form L-2 (October, 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States," (*see* 54 F.P.C. 1799 et seq.), 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 the following annual charges, as determined in accordance with the provisions of the Commission's regulations in effect from time to time:

(a) effective as of the date by which the licensee is required to commence project construction, or as that date may be extended to reimburse the United States for the cost of administration of Part I of the FPA. The authorized installed capacity for that purpose is 5.0 megawatts; and

(b) to recompense the United States for the use, occupancy and enjoyment of 1,688.7 acres of its lands.

Article 202. *Exhibit F Drawings*. Within 45 days of the date of issuance of the license, as directed below, the licensee must file two sets of the approved exhibit drawings, 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-13212-1 through P-13212-28) 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, Drawing Title, date of this license, and file extension in the following format [P-13212-005, F-1, Description, 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)
DRAWING SIZE FORMAT – 22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE – less than 1 megabyte desired

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

Article 204. *Amortization Reserve*. Pursuant to section 10(d) of the FPA, after the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project must be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operations under the license, in excess of the specified rate of return per annum on the net investment, must be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency must be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, must be set aside in the project amortization reserve account. The amounts established in the project amortization reserved account must be maintained until further order of the Commission.

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

Article 205. *Headwater Benefits*. If the licensee's project is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the licensee must reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed. The benefits will be assessed in accordance with Subpart B of the Commission's regulations.

Article 206. *Project Land Rights Progress Report*. No later than 4 years after license issuance, the licensee must 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 must 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 207. *Documentation of Project Financing*. At least 90 days before starting construction, the licensee must file with the Commission for approval, the licensee's documentation for the project financing. The documentation must show that the licensee has acquired the funds, or commitment for funds, necessary to construct the project in accordance with this license. The documentation must include, at a minimum, financial statements, including a balance sheet, income statement, and a statement of actual or estimated cash flows over the license term which provide evidence that the licensee has sufficient assets, credit, and projected revenues to cover project construction, operation, and maintenance expenses, and any other estimated project liabilities and expenses. The financial statements must be prepared in accordance with generally accepted accounting principles and signed by an independent certified public accountant. The licensee must not commence project construction associated with the project before the filing is approved.

Article 208. *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 301. *Start of Construction*. The licensee must commence construction of the project works within two years from the issuance date of the license and must complete construction of the project within five years from the issuance date of the license.

Article 302. *Contract Plans and Specifications*. At least 60 days prior to the start of any construction, the licensee must submit one copy of its plans and specifications and supporting design document to the Division of Dam Safety and Inspections (D2SI)-Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal to the D2SI-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-Portland Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval.

Article 304. *Board of Independent Engineering Consultants.* Before starting the construction, the licensee must retain a Board of Consultants (BOC) of three or more qualified independent engineering consultants with tunneling experience in the critical disciplines of engineering geology (rock mechanics), geotechnical engineering, and civil engineering to review the design, specifications, and construction of the project for safety and adequacy.

The licensee must submit one copy of a letter with the names and qualifications of the BOC members to the Commission's Director, Dam Safety Division of Dam Safety and Inspections (D2SI), for approval, and one copy must be sent to the D2SI–Portland Regional Engineer.

Among other things, the BOC must assess the following: (1) the geology and seismicity of the project site and surroundings; (2) the design, specifications, and construction of the project; (3) instrumentation; (4) watering-up procedures; and (5) construction procedures and progress.

Before each meeting, the licensee must furnish members of the BOC the following: (1) a statement of the specific level of review the BOC is expected to provide; (2) an agenda for the meeting; (3) a list of the items to be discussed; (4) a discussion of

significant events in the design and construction that have occurred since the last BOC meeting; (5) drawings of the design and construction features; and (6) documentation for the details and analyses of the design and construction features to be discussed.

The licensee must ensure that the BOC has sufficient time to review these items before each meeting.

At the same time as a copy of these items is provided to the BOC, the licensee must also send two copies to the Commission (one of these shall be a courtesy copy sent to the Director, D2SI) and one copy to the D2SI–Portland Regional Engineer.

Within 30 days after each BOC meeting, the license must submit to the Commission copies of the BOC's report, and a statement of intent to comply with the BOC's recommendations or a statement of a plan to resolve the issue(s). The licensee must provide detailed reasons for any recommendation of the BOC not implemented. The licensee must send two copies of this submission to the Commission (one of these shall be a courtesy copy sent to Director, D2SI) and one copy to the D2SI–Portland Regional Engineer.

The BOC's review comments must be submitted prior to or simultaneously with the submission of the final contract drawings and specifications accompanied by a supporting design report required to be filed with the Commission.

Within one year after completion of construction, the licensee must file two copies with the Commission (one of these shall be a courtesy copy to the Director, D2SI) and one copy to the D2SI–Portland Regional Engineer of the BOC's final report, which must contain a statement indicating the BOC's opinion with respect to the construction, safety, and adequacy of the project structures.

Article 305. *Public Safety Plan*. At least 60 days before the start of construction, the licensee must submit one copy to the Commission's Division of Dam Safety and Inspections-Portland Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Director, Division of Dam Safety and Inspections) of a Public Safety Plan. The plan must include a description of all safety devices and signage needed to warn the public of fluctuations in flow from the project or otherwise protect the public in the use of project lands and waters. The plan must also include a map showing the location of all public safety measures. For guidance on preparing public safety plans the licensee can review the *Guidelines for Public Safety at Hydropower Projects* on the FERC website.

Article 306. *Project Modification Resulting from Environmental Requirements*. If environmental requirements under this license require modifications that may affect the project works or operations, the licensee must consult with the Commission's Division of Dam Safety and Inspections–Portland Regional Engineer. Consultation must allow

sufficient review time for the Commission to ensure that the proposed work does not adversely affect the project works, dam safety, or project operation.

Article 401. *Construction Plan.* Within one year of license issuance, the licensee must file a Construction Plan as required by U.S. Forest Service condition 19 in Appendix A. The plan must include, at a minimum, the following:

(1) a provision to coordinate activities with activities related to the Erosion and Soil Conservation Plan (required by Article 402), Vegetation Management Plan (required by Article 418), Avian Protection Plan (required by Article 419), Hazardous Materials Plan (required by Article 404), Spoils Disposal Plan (required by Article 403); and the Stormwater Pollution Prevention Plan (required below);

(2) a detailed construction schedule, including timing windows for instream construction and stream-crossing activities;

(3) a detailed description of construction methods and best management practices to be employed during project construction, including identification of measures to reduce the risk of introduction or spread of invasive plants and a construction Stormwater Pollution Prevention Plan to prevent storm water runoff in construction areas from entering Grant Creek and Grant Lake;

(4) provisions to delineate construction areas using fencing and/or flagging and maintain a minimum 100-foot buffer along Grant Creek (with the exception of constructing the following: powerhouse; tailrace; an approximately 100-foot segment of the powerhouse access road and transmission line; and appurtenant facilities, such as the powerhouse road bridge across Trail Lake Narrows, the intake at Grant Lake, and monitoring equipment in both Grant Lake and Grant Creek);

(5) site-specific measures to avoid streams, wetlands, and pond habitats to the extent possible during construction activities;

(6) provisions for environmental training of construction staff regarding laws, regulations, and BMPs to avoid or reduce effects on native plant and wildlife species, including special-status species and their habitats; and

(7) provisions for the installation of temporary signage at key locations that provides information on construction activities and a point of contact at Kenai Hydro for any questions that may arise during construction.

In addition to the U. S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game, Alaska Department of Natural Resources, National Marine Fisheries Service, and U.S. Fish and Wildlife Service. The licensee must include with the plan copies of comments and recommendations made on the

completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the plan with the Commission.

The Commission reserves the right to require changes to the plan. The revised plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 402. *Erosion and Sediment Control Plan*. Within one year of license issuance, the licensee must file an Erosion and Sediment Control Plan as required by U.S. Forest Service condition 19 in Appendix A. The plan must include, at a minimum, the following additional provisions:

(1) a detailed description of the actual site conditions (i.e., soil, groundwater, and vegetation conditions, etc.);

(2) site-specific measures to control erosion, to prevent slope instability, and to minimize the quantity of sediment resulting from project construction and operation including turbidity monitoring upstream of construction activity and 100 feet downstream of construction activity and/or discharge points for overland flows that cross construction areas;

(3) a detailed description of the location for storage or deposition of removed overburden and spoil;

(4) protocols for revegetating areas disturbed by project construction; and

(5) an implementation schedule.

In addition to the U. S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game, National Marine Fisheries Service, Alaska Department of Natural Resources; and U.S. Fish and Wildlife Service. The licensee must include with the plan copies of comments and recommendations made on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a 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. The plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 403. *Spoils Disposal Plan*. Within one year of license issuance, the licensee must file a Spoils Disposal Plan as required by U.S. Forest Service condition 19 in Appendix A. The plan must include, at a minimum, the following additional provisions:

(1) means and methods to dispose of any materials excavated during construction;

(2) mapped locations of any proposed temporary and/or permanent spoil pile locations;

(3) descriptions of the composition of any materials expected to be excavated on the site;

(4) proposed use of excavated materials in the construction process;

(5) any plans to dispose of materials offsite; and

(6) methods to prevent spoil materials from leaching from spoil piles into adjacent waterways and wetlands.

In addition to the U.S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game, Alaska Department of Natural Resources, National Marine Fisheries Service, and U.S. Fish and Wildlife Service. The licensee must include with the plan copies of comments and recommendations made on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the plan with the Commission.

The Commission reserves the right to require changes to the plan. The plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 404. *Hazardous Materials Plan*. Within one year of license issuance, the licensee must file a Hazardous Materials Plan as required by U.S. Forest Service condition 19 in Appendix A. The plan must include, at a minimum, the following:

(1) a detailed description of the location of areas to be used for maintaining and refueling vehicles and equipment;

(2) site-specific measures for containment and cleanup in the event of a spill or accident;

(3) provisions to remove oil and other contaminants from condensate and leakage from the turbines and other equipment in the powerhouse; and

(4) a reporting schedule.

In addition to the U. S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game, Alaska Department of Natural Resources; National Marine Fisheries Service, and the U.S. Fish and Wildlife Service. The licensee must include with the plan copies of comments and recommendations made on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a 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. The plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 405. *Lead Sampling and Remediation Plan*. Within one year of license issuance, the licensee must file for Commission approval, a Lead Sampling and Remediation Plan to test for the presence of lead in Grant Lake sediments.

The lead sampling plan must include, at a minimum:

(1) a schedule for implementation and reporting;

(2) a detailed description of the project's zone of influence (the area of the lake bed where construction or operational activities would disturb sediments);

(3) a detailed description of field equipment and methods for sampling particle size and lead concentration in Grant Lake sediments consistent with the U.S. Army Corps of Engineers' Northwest Regional Sediment Evaluation Team Framework for the Pacific Northwest, Sediment Evaluation Framework for the Pacific Northwest (May 2018), (filed August 16, 2019, Accession No. 20190816-5042);

(4) a report detailing the sampling methods and sampling results; and

(5) a provision for the filing of a lead remediation plan, if observed lead concentrations are greater than 1300 milligrams per kilogram, that specifies measures to prevent the resuspension and transport of lead from sediments to the water column that may result from project construction and/or operation. Methods to consider are described in the U.S. Environmental Protection Agency's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (December 2005), (filed August 16, 2019, Accession No. 20190816-5056).

The plan must be developed after consultation with Alaska Department of Fish and Game, National Marine Fisheries Service, U.S. Fish and Wildlife Service; and the U.S. Forest Service, U.S. Army Corps of Engineer, and the U.S. Environmental Protection Agency. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of a 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 406. *Solid Waste and Wastewater Plan*. Within one year of license issuance, the licensee must file a Solid Waste and Wastewater Plan as required by U.S. Forest Service condition 19 in Appendix A. The plan must include the location and design specifications for the construction of a sanitary waste holding tank or septic system in the vicinity of the project powerhouse.

In addition to the U. S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game. The licensee must include with the plan copies of comments and recommendations made on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the plan with the Commission.

The Commission reserves the right to require changes to the plan. The plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 407. *Fish Exclusion and Tailrace Design Plan.* Within one year of license issuance, the licensee must file for Commission approval, a Fish Exclusion and Tailrace Design Plan detailing the design of the fish exclusion structure and project tailrace such that fish are excluded from entering the project tailrace and turbine draft tubes.

The plan must also include testing, operation, and maintenance procedures, and an implementation schedule.

The plan must be developed after consultation with Alaska Department of Fish and Game, National Marine Fisheries Service, and U.S. Forest Service. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing 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 408. *Operation Compliance Monitoring and Reporting Plan*. Within one year of license issuance, the licensee must file for Commission approval, an Operation Compliance Monitoring and Reporting Plan. The plan must include, at a minimum:

(1) a monitoring program and methods for determining the onset of and duration of spring turnover (ice-break up) in Grant Lake;

(2) a monitoring program for the real-time monitoring of water temperature in Grant Lake at a 0.5 meter depth and in proximity to the project intake;

(3) methods and provisions for monitoring lake elevations;

(4) a provision for real-time flow monitoring in Grant Creek bypassed reach;

(5) a provision for real-time flow and temperature monitoring in Grant Creek downstream of the tailrace discharge at the location used for the former U.S Geological Survey stream gage no. 15246000;

(6) provisions for minimizing effects of equipment malfunction on Grant Creek flow (in the bypass reach and downstream of the tailrace) and water temperature;

(7) a schedule for installing and maintaining, flow and temperature instrumentation; and

(8) provisions and schedule for annual reporting of the following data:

- Grant Creek bypass reach flow
- Grant Creek stream flow
- Grant Creek channel maintenance flow
- Ramping rate events
- Grant Creek water temperature compliance data
- Grant Lake water temperature
- Grant Lake water surface elevation
- Grant Lake spring turnover period

The plan must be developed after consultation with Alaska Department of Fish and Game, Alaska Department of Natural Resources, National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Forest Service, and the U.S. Geological Survey. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing 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 409. *Grant Creek Water Temperature Management*. Except during the spring turnover of Grant Lake when the lake transitions from ice-covered to an open water (ice break-up) condition, the licensee must, in real-time and through the operation of the variable depth intake, maintain Grant Creek water temperature (measured pursuant to Article 408) within +/- 0.5°C of Grant Lake temperature (measured pursuant to Article 408).

During the spring turnover (ice-break up) period, as determined by the monitoring program required by Article 408 of this license, the licensee must, in real-time and through the operation of the variable depth intake, maintain the water temperature of Grant Creek, as measured per Article 408 of this license, within 1.0°C (+/- 0.5°C) of Grant Lake's water temperature recorded pursuant to Article 408.

Planned Deviations

The Grant Creek water temperature requirements may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the Alaska Department of Fish and Game, U.S. Forest Service, U.S. Fish and Wildlife Service, and National Marine Fisheries Service (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 calendar days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified; (2) the duration and magnitude of the deviation; (3) any observed or reported environmental effects; and (4) documentation of consultation with the resource agencies.

For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary amendment of the operational requirements of this license, and receive Commission approval prior to implementation.

Unplanned Deviations

The Grant Creek water temperature requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee (i.e., unplanned deviations). The resource agencies must be notified within 7 days of ***all*** unplanned deviations. For any unplanned deviation that lasts longer than 3 hours ***or*** results in visible environmental effects such as a fish kill, the licensee must file a report with the Commission as soon as possible, but no later than 14 days after each such incident. The report must include: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; (6) documentation of any observed or reported environmental effects; and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response to each

deviation; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; and (6) a description of measures implemented to prevent similar deviations in the future.

Article 410. *Bypassed Reach Minimum Instream Flow Release*. The licensee must provide the following seasonal minimum flows listed below, in cubic feet per second (cfs), downstream of the project weir at the outlet of Grant Lake into the Grant Creek bypassed reach and monitored pursuant to the Operation Compliance Monitoring and Reporting Plan required by Article 408 of this license.

Period	**Minimum Flow (cfs)**
January 1–July 31	5
August 1–September 31	10
October 1-October 31	7
November 1–December 31	5

Planned Deviations

The bypassed reach minimum instream flow release may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the Alaska Department of Fish and Game, U.S. Forest Service, U.S. Fish and Wildlife Service, and National Marine Fisheries Service (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 calendar days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified; (2) the duration and magnitude of the deviation; (3) any observed or reported environmental effects; and (4) documentation of consultation with the resource agencies.

For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary amendment of the operational requirements of this license, and receive Commission approval prior to implementation.

Unplanned Deviations

The bypassed reach minimum instream flow release may be temporarily modified if required by operating emergencies beyond the control of the licensee (i.e., unplanned deviations). The resource agencies must be notified within 7 days of ***all*** unplanned deviations. For any unplanned deviation that lasts longer than 3 hours ***or*** results in visible environmental effects such as a fish kill, turbidity plume, bank erosion, or downstream flooding, the licensee must file a report as soon as possible, but no later than 14 days after each such incident. The report must include: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response; (5) any

comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; (6) documentation of any observed or reported environmental effects; and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response to each deviation; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; and (6) a description of measures implemented to prevent similar deviations in the future.

Article 411. *Grant Creek Minimum Instream Flow*. The licensee must provide the following seasonal minimum flows listed below, in cubic feet per second (cfs), on Grant Creek downstream of the project tailrace and monitored pursuant to the Operation Compliance Monitoring and Reporting Plan required by Article 408 of this license:

Period	**Minimum Flow (cfs)**
January – May 15	60
May 16 – May 31	80
June 1 – June 30	150
July 1 – August 31	195
September 1 – September 30	150
October 1– October 15	125
October 16–November 15	72
November 16 – December 31	60

Planned Deviations

The Grant Creek minimum instream flow release may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the Alaska Department of Fish and Game, U.S. Forest Service, U.S. Fish and Wildlife Service, and National Marine Fisheries Service (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 calendar days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified; (2) the duration and magnitude of the deviation; (3) any observed or reported environmental effects; and (4) documentation of consultation with the resource agencies.

For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary amendment of the operational requirements of this license, and receive Commission approval prior to implementation.

Unplanned Deviations

The Grant Creek minimum instream flow release may be temporarily modified if required by operating emergencies beyond the control of the licensee (i.e., unplanned deviations). The resource agencies must be notified within 7 days of ***all*** unplanned deviations. For any unplanned deviation that lasts longer than 3 hours ***or*** results in visible environmental effects such as a fish kill, turbidity plume, bank erosion, or downstream flooding, the licensee must file a report as soon as possible, but no later than 14 days after each such incident. The report must include: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; (6) documentation of any observed or reported environmental effects; and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response to each deviation; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; and (6) a description of measures implemented to prevent similar deviations in the future.

Article 412. *Grant Creek Channel Maintenance Flows.* The licensee must provide channel maintenance flows of 800 cfs to the Grant Creek bypassed reach for a continuous 8-hour duration, once per year, for a minimum of 2 years in each moving 10-year period. Channel maintenance flows must be monitored and reported pursuant to the requirements of the Operation Compliance Monitoring and Reporting Prequired by Article 408 of this license.

Article 413. *Grant Creek Flow Ramping Rates.* The licensee must limit down-ramping rates to a maximum of 1 inch per hour and limit up-ramping rate downstream of the project tailrace pursuant to the following schedule:

Season	**Inches per hour**
Winter (November 16 – May 15)	1
Summer (May 16 – November 15)	2

Planned Deviations

The Grant Creek flow ramping rates may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the Alaska Department of Fish and Game, U.S. Forest Service, U.S. Fish and Wildlife Service, and National Marine Fisheries Service (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 calendar days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified; (2) the duration and magnitude of the deviation; (3) any observed or reported environmental effects; and (4) documentation of consultation with the resource agencies.

For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary amendment of the operational requirements of this license, and receive Commission approval prior to implementation.

Unplanned Deviations

The Grant Creek flow ramping rates may be temporarily modified if required by operating emergencies beyond the control of the licensee (i.e., unplanned deviations). The resource agencies must be notified within 7 days of ***all*** unplanned deviations. For any unplanned deviation that lasts longer than 3 hours ***or*** results in visible environmental effects such as a fish kill, turbidity plume, bank erosion, or downstream flooding, the licensee must file a report as soon as possible, but no later than 14 days after each such incident. The report must include: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; (6) documentation of any observed or reported environmental effects; and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response to each deviation; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; and (6) a description of measures implemented to prevent similar deviations in the future.

Article 414. *Salmonid Spawning Gravel Monitoring and Maintenance Plan.* Within 6 months of license issuance, the licensee must file for Commission approval, a Salmonid Spawning Gravel Monitoring and Maintenance Plan. The plan must include:

(1) methods for inventorying salmonid spawning gravel in Grant Creek;

(2) gravel abundance inventories in years 1, 10, 15, 20, and 30 of the license;

(3) a provision to report, no later than December 31 of each year in which monitoring occurs, the results of the spawning gravel abundance inventory. The report must include the results of all previous and current inventories;

(4) a provision to include a trend analysis, following the gravel inventory in year 20, to determine any change in spawning gravel recruitment (reduction or accrual), and if appropriate, measures to address any reduction in the rate of spawning gravel recruitment;

(5) a provision for a final report, following the year 30 gravel inventory, which includes a continuing trend analysis, an effectiveness evaluation of any mitigation measures that may have been applied after year 20, and any recommendations for additional mitigation measures, if appropriate; and

(6) an implementation schedule.

The plan must be developed after consultation with Alaska Department of Fish and Game, National Marine Fisheries Service, U.S. Fish and Wildlife Service; and the U.S. Forest Service. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing 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 415. *Aquatic Invasive Species Management Plan*. Within one year of license issuance, the licensee must file an Aquatic Invasive Species Management Plan as required by U.S. Forest Service condition 19 in Appendix A. The plan must include, at a minimum, the following provisions:

(1) a description of where equipment inspections will be conducted and where wash stations will be located, ensuring they are outside of riparian/aquatic zones; and

(2) protocols for aquatic invasive plant control, if any aquatic invasive plants are detected in project waters.

In addition to the U.S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game. The licensee must include with the plan copies of comments and recommendations made on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a 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. The plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 416. *Reservation of Authority to Prescribe Fishways*. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways as may be prescribed by either the Secretary of the Interior or the Secretary of Commerce pursuant to section 18 of the FPA.

Article 417. *Bear Safety Plan*. To minimize the risk of bear-human conflicts during construction and operation of the project, 90 days prior to the start of project construction, the licensee must file for Commission approval, a Bear Safety Plan. At a minimum, the plan must include the following provisions:

(1) measures for keeping construction sites and refuse areas clear of substances that potentially attract bears;

(2) installation of bear-proof garbage receptacles and other measures during construction and operation to prevent bears from obtaining food or garbage;

(3) guidelines for minimizing possible conflicts with bears during construction and operation;

(4) protocols for dealing with problem bears; and

(5) protocols for notifying authorities of any bear-human conflict.

The plan must be developed after consultation with the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing 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 418. *Vegetation Management Plan*. Within one year of license issuance, the licensee must file a Vegetation Management Plan as required by U.S. Forest Service condition 19 in Appendix A. The Vegetation Management Plan must include, at a minimum, the provisions specified in Kenai Hydro's Vegetation Management Plan filed with the Commission on January 16, 2018, as well as the following additional provisions:

(1) methods developed to monitor the success of revegetation efforts monthly between April and September during construction and annually thereafter for 5 years;

(2) restoration success criteria, based on existing, pre-construction conditions, to determine whether revegetation efforts are successful;

(3) data collection and analysis methods for monitoring that correspond with success criteria;

(4) protocols for monitoring restoration success and supplemental plantings, as needed, until success criteria are met for two consecutive growing seasons; and

(5) protocols for conducting pre-construction surveys for Forest Service sensitive plant species within areas of proposed ground and vegetation disturbance and for consulting with the Forest Service if needed to minimize effects on newly identified populations.

In addition to the U. S. Forest Service, the plan must be developed in consultation with the Alaska Department of Fish and Game. The licensee must include with the plan copies of comments and recommendations made on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the consulted agencies to comment and make recommendations before filing the

plan with the Commission. If the licensee does not adopt a 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. The plan must not be implemented until the licensee is notified that it has been approved by the Commission. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

Article 419. *Avian Protection Plan*. The Avian Protection Plan filed on January 16, 2018 (attachment E-8 of the amended license application), is approved and made part of this license, with a modification to conduct nest surveys prior to any construction activities that have the potential to disturb nesting birds, not just before vegetation clearing activities.

Article 420. *Aircraft Avoidance of Mountain Goat Habitat.* To protect mountain goats from disturbance caused by any aircraft that may be used for project construction or maintenance activities, the licensee must maintain project-related flights of any aircraft a minimum of 1,500 feet from potential mountain goat habitat located adjacent to Grant Lake and Grant Creek.

Article 421. *Programmatic Agreement and Historic Properties Management Plan*. The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the Alaska Historic Preservation Officer for Managing Historic Properties that May be Affected by Issuing an Original License to Kenai Hydro LLC for the Construction and Operation of the Grant Lake Hydroelectric Project in Kenai Peninsula Borough, Alaska (FERC No. 13212-005)," executed on August 16, 2019, and including, but not limited to, the Historic Properties Management Plan (HPMP) for the project. Pursuant to the requirement of this Programmatic Agreement, the licensee must file, for Commission approval, a HPMP within one year of issuance of this order. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the Programmatic Agreement is terminated prior to Commission approval of the HPMP, the licensee must obtain approval from the Commission and the Alaska State Historic Preservation Officer, before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Article 422. *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 kilovolt 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.

(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 shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project 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 shall 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. § 825*l* (2012), and section 385.713 of the Commission's regulations, 18 C.F.R. § 385.713 (2019). 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.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

FORM L-2
(October 1975)

FEDERAL ENERGY REGULATORY COMMISSION

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

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

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

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

Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project

boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

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

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission.

The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

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

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

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

may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

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

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

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

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

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The

Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

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

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

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

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

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

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

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

Article 21. Timber on lands of the United States cut, used, or destroyed in the construction and maintenance of the project works, or in the clearing of said lands, shall be paid for, and the resulting slash and debris disposed of, in accordance with the requirements of the agency of the United States having jurisdiction over said lands. Payment for merchantable timber shall be at current stumpage rates, and payment for

young growth timber below merchantable size shall be at current damage appraisal values. However, the agency of the United States having jurisdiction may sell or dispose of the merchantable timber to others than the Licensee: Provided, That timber so sold or disposed of shall be cut and removed from the area prior to, or without undue interference with, clearing operations of the Licensee and in coordination with the Licensee's project construction schedules. Such sale or disposal to others shall not relieve the Licensee of responsibility for the clearing and disposal of all slash and debris from project lands.

Article 22. The Licensee shall do everything reasonably within its power, and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon the request of officers of the agency concerned, to prevent, to make advance preparations for suppression of, and to suppress fires on the lands to be occupied or used under the license. The Licensee shall be liable for and shall pay the costs incurred by the United States in suppressing fires caused from the construction, operation, or maintenance of the project works or of the works appurtenant or accessory thereto under the license.

Article 23. The Licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having jurisdiction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license, or the use by said parties of water for sanitary and domestic purposes from any stream, conduit, or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license.

Article 24. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 25. The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across those project lands which are lands of the United States such conduits, chutes, ditches, railroads, roads, trails, telephone and power lines, and other routes or means of transportation and communication as are not inconsistent with the enjoyment of said lands by the Licensee for the purposes of the license. This license shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

Article 26. In the construction and maintenance of the project, the location and standards of roads and trails on lands of the United States and other uses of lands of the United States, including the location and condition of quarries, borrow pits, and spoil disposal areas, shall be subject to the approval of the department or agency of the United States having supervision over the lands involved.

Article 27. The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its jurisdiction.

Article 28. The Licensee shall make use of the Commission's guidelines and other recognized guidelines for treatment of transmission line rights-of-way, and shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officer; shall trim all branches of trees in contact with or liable to contact the transmission lines; shall cut and remove all dead or leaning trees which might fall in contact with the transmission lines; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place.

Article 29. The Licensee shall cooperate with the United States in the disposal by the United States, under the Act of July 31, 1947, 61 Stat. 681, as amended (30 U.S.C. sec. 601, *et seq.*), of mineral and vegetative materials from lands of the United States occupied by the project or any part thereof: Provided, That such disposal has been authorized by the Commission and that it does not unreasonably interfere with the occupancy of such lands by the Licensee for the purposes of the license: Provided, further, That in the event of disagreement, any question of unreasonable interference shall be determined by the Commission after notice and opportunity for hearing.

Article 30. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and

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

Article 31. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 32. 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.

Appendix A
Filed March 1, 2019

Final 4(e) Terms and Conditions filed by the U.S. Department of Agriculture, Forest Service (Forest Service) Pursuant to Section 4(e) of the Federal Power Act, for the Grant Lake Hydroelectric Project No. 13212

General

License articles contained in the Federal Energy Regulatory Commission's (Commission) Standard Form L-2 issued by Order No. 540, dated October 31, 1975, cover those general requirements that the Secretary of Agriculture, acting by and through the USDA Forest Service, considers necessary for adequate protection and use of the land and related resources of the Chugach National Forest. Under authority of section 4(e) of the Federal Power Act (16 U.S.C. 797(e)), the following terms and conditions are deemed necessary for adequate protection and use of Chugach National Forest lands and resources. These terms and conditions are based on those resources enumerated in the Organic Administration Act of 1897 (30 Stat. 11), the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215), the National Forest Management Act of 1976 (90 Stat. 2949), and any other law specifically establishing a unit of the National Forest System or prescribing the management thereof (such as the Wilderness Act or Wild and Scenic Rivers Act), as such laws may be amended from time to time, and as implemented by regulations and approved Land and Resource Management Plans prepared in accordance with the National Forest Management Act. Therefore, under section 4(e) of the Federal Power Act, the following conditions covering specific requirements for protection and use of the National Forest System lands shall also be included in any license or license amendment issued for the Grant Lake Hydroelectric Project.

Condition No. 1 – Requirement to Obtain a Forest Service Special-Use Authorization

The Licensee shall obtain a special use authorization from the Forest Service for the occupancy and use of National Forest System lands. The Licensee shall obtain the executed authorization before beginning ground-disturbing activities on National Forest System lands or within one year of license issuance if no construction or reconstruction was proposed in the application for license.

The Licensee may commence ground-disturbing activities authorized by the License and special use authorization no sooner than 60 days following the date the Licensee files the Forest Service special use authorization with the Commission, unless the Commission prescribes a different commencement schedule.

In the event there is a conflict between any provisions of the License and Forest Service special use authorization, the special use authorization shall prevail to the extent that the Forest Service, in consultation with the Commission, deems necessary to protect and use National Forest System lands and resources.

Condition No. 2 – Forest Service Approval of Final Design

Prior to undertaking activities on National Forest System lands and easements, the Licensee shall obtain written approval from the Forest Service for all final design plans for project components that the Forest Service deems as affecting or potentially affecting National Forest System lands and resources. As part of such prior written approval, the Forest Service may require adjustments in final design plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the ground conditions. Should the Forest Service, the Commission, or the Licensee determine that necessary changes are a substantial change; the Licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions the Secretary of Agriculture may make pursuant to section 4(e) of the Federal Power Act.

Condition No. 3 – Approval of Changes

Notwithstanding any license authorization to make changes to the Project, when such changes affect National Forest System lands and easements the Licensee shall obtain written approval from the Forest Service prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and a minimum of 60-days prior to initiating any such changes, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the Forest Service for such changes.

The Licensee shall file a copy of this report with the Forest Service at the same time it is filed with the Commission. This condition does not relieve the Licensee from other requirements of this license.

Condition No. 4 – Consultation

Each year during the 60-days preceding the anniversary of this license, or as arranged with the Forest Service, the Licensee shall consult with the Forest Service regarding measures needed to ensure protection and use of the National Forest System lands and resources affected by the Project. At least 30 days in advance of the meeting the Licensee shall provide notice of the upcoming meeting to the Forest Service.

Representatives from the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, interested tribes, other agency representatives, and other interested parties concerned with operation of the Project may attend the meeting.

The goal of the meeting is to share information. Consultation will include, but not be limited to

- A status report regarding implementation of license conditions
- Results of any monitoring studies performed over the previous year in formats agreed to by the Forest Service and the Licensee during development of the resource management plans
- Review of any non-routine maintenance
- Discussion of any foreseeable changes to Project facilities or features
- Discussion of any revisions or modifications to resource management plans approved as part of the license
- Discussion of needed measures for species newly listed as threatened, endangered, or sensitive, changes to existing management plans that may no longer be warranted due to delisting of species, or to incorporate new information about a species requiring protection
- Discussion of current year maintenance plans and operation and maintenance activities planned for the next calendar year
- Review and discussion of reservoir management, inundation and instream flow schedules from the previous year and for the next calendar year
- Discussion of any planned pesticide use.

Within 60-days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service. During the first several years of license implementation, it is likely that more consultation than just one Annual Meeting will be required, given that this is a new project that will be undergoing construction.

The Forest Service reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through modification of the Section 4(e) conditions to accomplish protection and use of National Forest System lands and resources.

Condition No. 5 – Compliance with USDA Regulations and Other Laws

The Licensee shall comply with the regulations of the Department of Agriculture for activities on National Forest System (NFS) lands, and all applicable Federal, State, county, and municipal laws, ordinances, or regulations regarding the area or operations on or directly affecting NFS lands, to the extent those laws, ordinances or regulations are not preempted by federal law.

Condition No. 6 – Surrender of License or Transfer of Ownership

Prior to any surrender of this license, Licensee shall provide assurance acceptable to the Forest Service that Licensee will restore any project area directly affecting National Forest System lands to a condition satisfactory to Forest Service upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee must prepare a restoration plan identifying the measures to be taken to restore National Forest System lands including financial mechanisms to ensure performance of the restoration measures.

In the event of a transfer of the license or sale of the project, the Licensee shall assure, in a manner acceptable to the Forest Service, that the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by the Forest Service to evaluate Licensee's proposal, Licensee must conduct an analysis to Forest Service specifications, using experts approved by the Forest Service, to estimate the costs associated with surrender and restoration of any project area affecting National Forest System lands. In addition, the Forest Service may require Licensee to pay for an independent audit of the transferee to help the Forest Service determine whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 7 – Protection of United States Property

The Licensee, including any agents or employees of the Licensee acting within the scope of their employment, shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license.

Condition No. 8 – Self Insurance

The Licensee shall indemnify, defend, and hold the United States harmless for any violations incurred under any laws and regulations applicable to, or judgments, claims, penalties, fees, or demands assessed against the United States caused by, or costs, damages, and expenses incurred by the United States caused by, or the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license.

The Licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property caused by the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license.

Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, the Licensee's obligation to indemnify and hold harmless the United States shall survive for all valid claims for actions that occurred prior to such surrender, transfer or termination.

Condition No. 9 – Damage to Land, Property, and Interests of the United States

The Licensee, including any agents or employees of the licensee acting within the scope of their employment, has an affirmative duty to protect the land, property, and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the Project works or the works appurtenant or accessory thereto under the license. The Licensee's liability for fire and other damages to National Forest System lands shall be determined in accordance with the Federal Power Act and standard Form L-2 Articles 22 and 24.

Condition No. 10 – Risks and Hazards on National Forest System Lands

As part of the occupancy and use of the Project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting National Forest System (NFS) lands or easements within the Project boundary that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties or related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on NFS lands shall be performed after consultation with the Forest Service. In emergency situations, the Licensee must notify the Forest Service of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not the Forest Service is notified or provides consultation, the Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Condition No. 11 – Access

The Forest Service reserves the right to use or permit others to use any part of the licensed area on National Forest System lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Condition No. 12 – Maintenance of Improvements

The Licensee shall maintain all its improvements and premises on National Forest System lands or easements to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the Forest Service. The Licensee shall comply with all applicable Federal, State, and local laws, regulations, including but not limited to, the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., the Resources Conservation and Recovery Act, 42 U.S.C. 6901 et seq., the Comprehensive Environmental Response, Control, and Liability Act, 42 U.S.C. 9601 et seq., and other relevant environmental laws, as well as public health and safety laws and other laws relating to the siting, construction, operation, maintenance of any facility, improvement, or equipment.

Condition No. 13 – Boundary Markers and Survey

The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on National Forest System lands are destroyed by an act or omission of the Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," or (2) the specifications of the Forest Service. Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 14 – Pesticide and Herbicide Use Restrictions

Herbicides may not be used to control undesirable woody and herbaceous vegetation, and aquatic plants, and pesticides may not be used to control undesirable insects, rodents, non-native fish, etc., on National Forest System lands without the prior written approval of the Forest Service. The Licensee must submit a request for approval of planned uses of herbicides and pesticides. The request must cover annual planned use and be updated as required by the Forest Service. The Licensee shall provide information essential for review in the form specified by the Forest Service.

The Licensee must provide at a minimum the following information

- whether pesticide applications are essential for use
- specific locations of use
- specific herbicides and pesticides proposed for use
- application rates
- dose and exposure rates
- safety risks and timeframes for application.

Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

Pesticide use will be excluded from National Forest System (NFS) lands within 500 feet of known locations of the Rough-skinned newt, and Forest Service Special Status or culturally significant plant populations. Application of pesticides must be consistent with Forest Service riparian conservation objectives.

On NFS lands the Licensee shall use only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned. The Licensee must strictly follow label instructions in the preparation and application of herbicides and pesticides and disposal of excess materials and containers.

Condition No. 15 – Revision of Forest Service 4(e) Terms and Conditions

The Forest Service reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the Section 4(e) conditions to accomplish protection and use of National Forest System lands and resources.

The Forest Service also reserves the right to modify these conditions, if necessary, to respond to any significant changes that warrant a revision of these conditions, for example, a Final Biological Opinion issued for this Project by the National Marine Fisheries Service or United States Fish and Wildlife Service or certifications issued for this Project by the State of Alaska.

Condition No. 16 – Signs

The Licensee shall consult with the Forest Service prior to erecting any signs on National Forest System lands and easements relating to this license. The Licensee must obtain the approval of the Forest Service as to the location, design, size, color, and message. The Licensee shall be responsible for maintaining all Licensee erected signs to neat and presentable standards

Condition No. 17 – Additional National Forest System Lands

If the Licensee proposes ground-disturbing activities on or affecting National Forest System lands that were not analyzed in the Commission's Environmental Impact Statement, the Licensee, in consultation with the Forest Service, shall determine the scope of work and potential for Project-related effects, and whether additional information is required to proceed with the planned activity.

The Licensee shall conduct or fund the necessary environmental analysis including, but not limited to, scoping, site-specific resource analysis, and cumulative effects analysis sufficient to meet the criteria set forth in Forest Service regulations for National Environmental Policy Act (NEPA) compliance in existence at the time the process is initiated. The Licensee may refer to or rely on previous NEPA analysis for the activity to the extent the analysis is not out of date as determined by the Forest Service. Contractors used by the Licensee to conduct the NEPA process must be approved by the Forest Service in advance of initiating the work.

Additional lands authorized for use by the Licensee in a new or amended special use authorization shall be subject to laws, rules, and regulations applicable to the National Forest System. The terms and conditions of the Forest Service special use authorization are enforceable by the Forest Service under the laws, rules, and regulations applicable to the National Forest System.

Condition No. 18 – Use of Explosives

In the use of explosives, the Licensee shall exercise the utmost care not to endanger life or property and shall comply with Federal, State and local laws and ordinances. The Licensee shall contact the Forest Service prior to blasting to obtain the requirements of the Forest Service. The Licensee shall be responsible for all damages resulting from the use of explosives and adopt precautions to prevent damage to surrounding objects. The Licensee shall furnish and erect special signs to warn the public of the Licensee's blasting operations. The Licensee shall place and maintain such signs, so they are clear to the public during all critical periods of blasting operations.

The Licensee shall store all explosives in compliance with all applicable Federal, State and local laws and ordinances.

When using explosives on National Forest System lands, the Licensee shall adopt precautions to prevent damage to landscape features and other surrounding objects. When directed by the Forest Service, the Licensee shall leave trees within an area designated to be cleared as a protective screen for surrounding vegetation during blasting operations. The Licensee shall remove and dispose of trees so left when blasting is complete. When necessary, and at any point of special danger, the Licensee shall use suitable mats or other approved methods to smother blasts.

Condition No. 19 – Resource Management Plans

Within one year of license issuance, and in consultation with the Forest Service and applicable Federal and State agencies, the Licensee shall file with the Commission plans addressing specific resource issues and management objectives covered by the Chugach National Forest Land and Resource Management Plan, and an implementation schedule.

The Licensee shall submit the draft plans for Forest Service review and approval, prior to submitting the plans to the Commission. The Licensee shall provide at least 90 days for Forest Service review and approval before the filing deadline in the license. Upon Commission approval, the Licensee shall implement the Plans. The required plans include:

- Construction Plan
- Erosion and Sediment Control Plan
- Fire Prevention Plan
- Hazardous Materials Plan
- Historic Properties Management Plan
- Reservoir Management and Inundation Plan
- Scenery Management Plan
- Solid Waste and Wastewater Plan
- Spoils Disposal Plan
- Aquatic Invasive Species Management Plan
- Vegetation Management Plan

Condition No. 20 – Environmental Compliance Monitor

Several important items require monitoring during the construction phase of the project. To ensure adherence to license conditions, mitigation measures, and other environmental aspects of project construction, the Forest Service will require the Licensee to provide a qualified environmental compliance monitor to oversee the project during major construction activities (e.g. vegetative or land disturbing, spoil producing, blasting activities). Items to be monitored include but are not limited to those stated in the Resource Management Plans listed in Condition No. 19.

The compliance monitor is a liaison between the Forest Service and Licensee. The compliance monitor should have the authority to stop work or issue change orders in the field should conditions so warrant. The compliance monitor should be a third-party contractor independent of the Licensee, subject to approval by both the Licensee and the Forest Service. Once major construction activities are complete the compliance monitor will no longer be needed.

Condition No. 21 – Iditarod National Historical Trail

The Forest Service has a planned route for a segment of the Iditarod National Historic Trail that will be built near the power plant facility. The access road for the Grant Lake outlet and the tunnel/penstock will have to cross this planned trail alignment. The following conditions apply due to the proximity of the trail and project infrastructure:

a. Within one year of license issuance and prior to construction, the Licensee shall coordinate with the Forest Service to ensure that planned hydroelectric facilities minimize adverse impacts to the planned location of the Iditarod National Historic Trail and 100-foot wide easement. The Licensee shall coordinate with the Forest Service on design and development of the access route, focusing on the access road and Iditarod National Historic Trail intersection.

b. Licensee must ensure that the construction and maintenance of the access road minimizes adverse impacts to the trail alignment and 100-foot wide easement for the trail. Concentration of flows from road construction must be mitigated to the extent possible so that the trail remains intact and functional. Licensee must coordinate road drainage structure design with the Forest Service to ensure increased drainage is accounted for and incorporated into trail design and construction. Based on the current trail design, increases in number and size of trail drainage structures necessitated from concentrated roadway flows is the responsibility of the Licensee. If drainage issues on the road impact the trail and easement the Licensee will be responsible for all maintenance and reconstruction on the trail associated with the damage event.

c. Licensee must coordinate with the Forest Service regarding the intersection location between the penstock and the trail alignment and 100-foot easement. Licensee shall ensure that trail function, operability, and sustainability remain intact during project construction and throughout the life of the license. If construction of the penstock located near the powerhouse imposes additional construction costs for either the trail or the trail bridge, Licensee will pay these additional costs.

d. During and after construction for a period of five years the Licensee will remove any trees that blow down across the Iditarod National Historic Trail alignment due to construction of the hydroelectric facilities (access road, detention pond, penstock and tunnel, powerhouse, etc.).

e. Licensee shall provide Forest Service with road access to Grant Lake for administrative activities, including, but not limited to trail maintenance, fire response, monitoring, and law enforcement purposes.

f. The scenery management plan (Condition No. 19) must address minimizing views of project facilities from the Iditarod National Historic Trail. The Plan should address directing security lighting toward the ground to limit effects of light pollution, developing revegetation plans for construction sites, determining color palates for project infrastructure, describing processes for agency coordination for maintenance activities, and monitoring views of project infrastructure over the license term.

g. Licensee shall coordinate with the Forest Service on measures to prevent public entrance to project facilities from the Iditarod National Historic Trail.

Condition No. 22 – Reroute of Iditarod National Historic Trail

If, at any point during design, construction, and operation of the hydroelectric facility it becomes necessary to reroute any portion of the Iditarod National Historic Trail to accommodate the facility the following condition will apply:

1. The Licensee must develop a plan for the Iditarod National Historic Trail reroute in consultation with the Forest Service, Bureau of Land Management (National Historic Trail Administrator), and State of Alaska Department of Natural Resources (DNR). The plan must be approved by the Forest Service. The plan shall ensure that all trail infrastructure developed by the Licensee as part of the rerouted Iditarod National Historic Trail system meets applicable standards of quality set by the Forest Service, if the Licensee or its assigns occupies an interest in the Project facilities. The plan must include an implementation schedule and coordination procedures for design, construction, and maintenance of the rerouted portion of the Iditarod National Historic Trail segments from Vagt Lake, crossing Grant Creek, and north of Grant Creek to where the rerouted trail joins with the original trail alignment. This must be accomplished within two years of when the need for the reroute is identified. Components of this work include:
    a. Licensee shall work with the State of Alaska DNR and the Forest Service to secure to the Forest Service a 100-foot-wide easement for the rerouted section of the Iditarod National Historic Trail from the State of Alaska.
    b. Licensee shall complete a design narrative for the rerouted trail segments according to Forest Service specifications. The design narrative will describe the rerouted sections of trail including tread width, length, number and kind of trail structures needed, bridge, and other specific trail details to be included in the design. The design narrative will include an estimated cost of construction. The Forest Service must approve the design narrative prior to start of detailed design of trail or bridge construction. The Licensee shall design and construct all trail segments that deviate from the existing planned trail alignment and easement using Forest Service trail construction and engineering standards identified in the Forest Service Directives and the National Strategy for Sustainable Trail Systems. The trail will be designed for pedestrian, bicycling, and pack and saddle stock uses. Trail design and construction must incorporate the Iditarod National Historic Trail design standards. Trail location must be approved by the Forest Service in advance of construction.
    c. The Licensee shall conduct geotechnical and hydrologic investigations according to Forest Service engineering specifications to ensure that the proposed bridge location over Grant Creek is feasible for construction and can be maintained in perpetuity. The investigation report shall be reviewed and approved by the Forest Service prior to approval of

the bridge location. The final proposed bridge location must be approved by the Forest Service.

d. If the reroute requires moving the bridge from its planned location, then the Licensee must construct a bridge across Grant Creek that meets Forest Service engineering specifications and Iditarod National Historic Trail design standards. Approval of the bridge design by the Forest Service is required prior to construction.

e. The Licensee shall submit to the Forest Service an as-built survey for the entire trail reroute, using minimum mapping requirements set forth by the State of Alaska Department of Natural Resources for the Iditarod National Historic Trail segments crossing State of Alaska managed lands. The as-built survey must be completed and submitted for Forest Service approval within one year of completion of the construction of the rerouted trail segments. The as-built survey shall depict the centerline of the 100-foot wide easement. All surveying and platting shall meet Forest Service engineering specifications.

f. Contractors used by the Licensee to construct trail reroute facilities must adhere to the designs and locations approved by the Forest Service. The Licensee shall make accommodation for Forest Service representatives to inspect the work during construction to ensure compliance with design requirements. Should the Forest Service representatives, during inspection, detect deviations from the design requirements, the Licensee shall promptly act to cause their contractor to correct any deviations in the form of re-work and use of corrected construction methodologies. The Forest Service shall inspect the constructed facilities prior to the termination of the contract(s) to ensure compliance with approved designs.

g. Should annual and long-term maintenance costs of the reroute exceed those anticipated for the Forest Service planned route the Licensee will be responsible for annual maintenance, deferred maintenance, long term repairs and replacements of assets, and condition surveys as well as health and safety operations of the rerouted trail segment and trail bridge for the duration of the license.

i. Trail maintenance tasks include removing blowdown annually and after any major storm events, brushing (4-year cycle), tread maintenance and repair, drainage maintenance and repair, and trail structure maintenance and repair.

ii. Condition surveys must be completed once every five years following Forest Service standards or when conditions or events warrant.

iii. The trail bridge at Grant Creek will be inspected once every four years following the Chugach National Forest’s condition survey schedule by an individual certified by the Region 10 bridge program manager. Additionally, an emergency condition survey must be

completed if any unforeseen structural damage occurs to the bridge. Annual maintenance needs will also be completed, this may include adding gravel to the bridge approach, replacing damaged railing, replacing deck boards, etc.

Document Content(s)