

UNITED STATES OF AMERICA 92 FERC ¶ 62,183
FEDERAL ENERGY REGULATORY COMMISSION

City of Ketchikan, Alaska

Project No.
420-009

ORDER ISSUING MAJOR NEW LICENSE
(Issued August 29, 2000)

On June 30, 1998, the City of Ketchikan, Alaska, acting
through Ketchikan Public Utilities (City) filed an application,

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pursuant to Part 1 of the Federal Power Act (FPA), for a new
license authorizing the continued operation and maintenance of
the 4,200-kilowatt (kW) Ketchikan Lakes Hydroelectric Project No.
420, located on Ketchikan Creek and Granite Basin Creek,
partially within the City of Ketchikan, in Ketchikan Gateway
Borough, Alaska. The project occupies about 778 acres of land
that are owned by the United States and located within the
Tongass National Forest.

The original license for the project was issued to the
Citizens' Light, Power, and Water Company in 1928. The City of
Ketchikan purchased the project in 1935. The original license
for the project expired on June 30, 1970. The project continued
operating under annual licenses until a new license was issued on
June 30, 1982. The new license expired on June 30, 2000, and the
project is operating on an annual license. For the reasons
discussed below, I will issue a new license to the City for the
Ketchikan Lakes Hydroelectric Project.

BACKGROUND

In a letter dated September 4, 1996, the City informed the
Commission of its desire to file an applicant-prepared
environmental assessment and requested the Director of the Office
of Hydropower Licensing to waive certain Commission regulations
to facilitate this alternative filing procedure. The Director
approved the City's request and waived the applicable regulations
in a September 18, 1996 letter to the City.

National Environmental Policy Act (NEPA) scoping was conducted in the Fall of 1996 and the City issued a draft applicant-prepared environmental assessment for comment on March 3, 1998 and filed the final applicant-prepared environmental assessment with its application on June 30, 1998.

On January 13, 1999, the Commission issued a public notice accepting the application and soliciting motions to intervene and

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16 U.S.C. § 791(a) - 825r.

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Project No. 420-009

-2-

final terms and conditions, recommendations and prescriptions in

2

the proceeding within 60 days of the date of the notice. No one petitioned for intervenor status in this proceeding. The U.S. Department of the Interior (Interior), National Marine Fisheries Service (NMFS), Alaska Department of Fish and Game (ADF&G), and U.S. Department of Agriculture, Forest Service (Forest Service) filed comments, recommended terms and conditions, and prescriptions.

Commission staff, together with the Forest Service as a cooperating federal agency, issued a draft environmental

3

assessment (DEA) for the project on November 12, 1999. In the DEA, staff recommends the project be licensed as proposed by the City with additional environmental measures. Staff found that, with these measures, licensing the project would not be a major federal action significantly affecting the quality of the human environment. In addition, staff found inconsistencies with some of the agency recommendations for the protection of fish and wildlife and requirements of the FPA. I discuss these findings and the resolution of the inconsistencies in another part of this order.

The Commission issued the final environmental assessment, which is incorporated by reference in this license, on May 18, 2000. Comments filed by the agencies and interested parties have been fully considered and addressed in this order in determining whether, and under what conditions, to issue this license.

PROJECT DESCRIPTION

The Ketchikan Lakes Project consists of: (1) a 1,130-foot-long rockfill dam at the outlet of the natural Ketchikan Lakes, which have a surface area of about 632 acres and a useable storage of 13,800 acre-feet; (2) a concrete diversion dam on Granite Basin Creek; (3) Fawn Lake, a 3.1-acre forebay that discharges into an unnamed tributary to Deer Creek, a tributary of Ketchikan Creek; (4) the Ketchikan Lakes to Fawn Lake conveyance system consisting of a short tunnel section, two 1,800-foot-long above ground pipelines, and a 1,127-foot-long tunnel terminating in Fawn Lake below normal low water level; (5) the Granite Basin Creek diversion to Fawn Lake conveyance system, consisting of a 1,170-foot-long tunnel discharging to a 150-foot-long natural channel that empties into Fawn Lake; (6) a 3,473-foot-long power tunnel with a concrete plug penetrated by three, 36-inch diameter, ductile-iron-pipe penstocks connecting the end of the tunnel to the powerhouse; (7) a concrete powerhouse

2

64 Fed. Reg. 3075 (January 20, 1999).

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64 Fed. Reg. 63024 (November 18, 1999).



Project No. 420-009

-3-

containing three horizontal Francis turbines directly connected to three 1,400-kilowatt generators, for a total rated capacity of 4,200 kilowatts (kW); and (8) appurtenant facilities. A more detailed description of the project works is in ordering paragraph B(1).

The Ketchikan Lakes power plant is remotely operated from the City's Central Control and Dispatch Center at the diesel-fueled Bailey power plant in downtown Ketchikan. Since the water supply for the City of Ketchikan is taken from the power tunnel just ahead of the powerhouse, the Ketchikan Lakes Project operating criteria are based upon domestic water supply requirements together with electrical energy production.

The power supply objective is to capture and utilize as much of the available water for electric energy production as possible. The City has alternative generation resources that are capable and preferable to Ketchikan Lakes for peaking capacity

and load following. The water supply objective is to maintain adequate pressure in the power tunnel to meet water distribution system needs and maintain good water quality. This is achieved by maintaining a stable water level in Fawn Lake which avoids turbidity from turbulence in the reservoir.

The operating criteria which satisfies both of these requirements is to maintain the water level in Fawn Lake at or above 325 feet elevation and to avoid rapidly changing the water level in Fawn Lake. The minimum flow through the project is 35 cubic feet per second (cfs) and the maximum flow is 280 cfs with all three generators operating.

APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10(a)(2)(C) and 15(a) of the
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FPA, staff evaluated the City's record as a licensee with respect to the following: (A) consumption improvement programs; (B) compliance history and ability to comply with the new license; (C) safe management, operation, and maintenance of the project; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission services; (G) cost effectiveness of plans; (H) actions affecting the public; and (I) ancillary services. I accept the staff's conclusion in each of these areas.

A. Consumption Improvement Program

4/16 U.S.C. §§ 803 and 808.



Project No. 420-009

-4-

As part of its marketing policies, the City encourages energy conservation through promotion of efficient and economic uses of energy by its customers. Since 1991, the Ketchikan City Council has annually appropriated funds for the City to make public information announcements over the local radio stations on energy saving measures, such as proper water heater insulation, proper use of ceiling fans in winter and summer months, and

energy efficient forms of lighting. Commission staff finds that the City's programs to conserve and help its customers to conserve electricity represent a good faith effort to conserve electricity.

B. Compliance History and Ability to Comply with the New License

Commission staff have reviewed the City's compliance with the terms and conditions of the existing license, and find the City's overall record of making timely filings and compliance with its license is satisfactory.

C. Safe Management, Operation, and Maintenance of the Project

Commission staff reviewed the City's record of management, operation, and maintenance of the Ketchikan Lakes Project related to project safety. Based on staff's review, the project dams and other project works are safe and the City's record of managing, operating, and maintaining these facilities supports the decision to issue a license.

D. Ability to Provide Efficient and Reliable Electric Service

Commission staff reviewed the City's operating plans and its ability to provide efficient and reliable electric service. The City's records show that there have been no unscheduled outages in recent years. Ketchikan Public Utilities (KPU) was formed in 1935 and is the only electricity provider serving the Ketchikan area, which is on an island and not connected to any regional power grid. Based on KPU's long history of providing electric service to the City of Ketchikan, staff concludes KPU has the ability to continue to provide efficient and reliable electric service with the Ketchikan Lakes Hydroelectric Project.

E. Need for Power



Commission staff considered the short- and long-term need for the power generated by the Ketchikan Lakes Hydroelectric Project and the cost of alternative power if the City does not receive a new license for the project. The staff concludes that: (1) the power from the existing Ketchikan Lakes Hydroelectric Project helps the City meet part of its power needs; and (2) replacing project power would cost the City about \$1,455,000 annually, based on the current cost of the available alternative.

Hydroelectric energy is critical to the Ketchikan community due to its relatively low cost and the fact that the system is not connected to any regional electric grid. The only other electric energy available is from diesel generation, which is much more expensive due to fuel and operating costs. The City strives to generate as much electricity as possible with hydropower, and as little as possible with diesel.

KPU owns or operates additional hydroelectric power facilities at Beaver Falls, Silvis Lake, and Swan Lake. The Ketchikan Lakes Project generates about 14 percent of the electricity generated by KPU's hydropower resources and about 10 percent of the total generation, which includes supplementation by 12,500 kW of diesel capacity.

The other hydropower operations are not restricted by the domestic water supply constraints that influence operation of Ketchikan Lakes. Therefore, KPU uses other hydropower facilities (Silvis Lake and Beaver Falls) and Swan Lake (operated by KPU) for load following; Ketchikan Lakes is operated to produce energy while maintaining relatively stable water level in Fawn Lake.

F. Transmission Services

The only project transmission lines are the generator leads, which run underground for about 200 feet to a non-jurisdictional substation. The City has no plans to make any transmission line improvements, nor would any be needed for the continued operation of the project.

G. Cost Effectiveness of Plans

The City proposes no capacity modifications to the project facilities. With a plant factor of about 50 percent and spills from the Ketchikan Lakes occurring less than 10 percent of the time, it is unlikely that additional capacity at this site would be cost effective. I conclude that the existing capacity is the most cost effective plan for development of the hydropower

potential of this site.

H. Actions Affecting the Public



Project No. 420-009

-6-

The protection, mitigation and enhancement measures included in the license will significantly improve environmental quality, particularly the habitat provided by Ketchikan Creek for anadromous and resident fish species. The license also provides for the future development of recreational opportunities in Ketchikan Lakes, when water treatment improvements are made and public access to the lakes can be opened. The project will continue to provide economic power for the Ketchikan area and will continue to serve as a source of water to meet the area's domestic water supply needs.

I. Ancillary Services

In analyzing public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary benefits). These benefits include their value as almost instantaneous load-following response to dampen voltage and frequency instability on the transmission system, system-power-factor-correction through condensing operations, and a source of power available to help in quickly putting fossil-fuel based generating stations back on line following a major utility system or regional blackout.

Ancillary benefits are now mostly priced at rates that recover only the cost of providing the electric service at issue, which don't resemble the prices that would occur in competitive markets. As competitive markets for ancillary benefits begin to develop, the ability of hydro projects to provide ancillary services to the system will increase the benefits of the projects.

WATER QUALITY CERTIFICATION

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Under Section 401(a)(1) of the Clean Water Act (CWA), the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency has issued a water quality certification for the project or has waived certification by failing to act upon a request for certification

within a reasonable time, not to exceed one year.

The City requested 401 certification from the Alaska Department of Environmental Conservation (ADEC) on May 30, 1997. A description of the Ketchikan Lakes Project operations and a summary of water quality data derived from the inlet to the municipal water supply was attached to that request. If the ADEC doesn't act on the request within 1 year from the date they receive it, certification is deemed waived under section 4.38(f)(7)(ii) of the Commission's regulations. Since the ADEC

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33 U.S.C. § 1341(a)(1).

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Project No. 420-009

-7-

has not acted on the City's request, certification is deemed waived.

COASTAL ZONE MANAGEMENT

Under the CZMA of 1972, as amended, before the Commission can issue a license for a project, the state must find the project consistent with the state's Coastal Management Program. State review commences on receipt of a consistency certification which is submitted by the applicant. Concurrence by the state is presumed by its failure to act within 180 days of its receipt of the applicant's certification. In Alaska, the Division of Governmental Coordination (ADGC) coordinates the state's consistency review under the CZMA.

On July 10, 2000, the ADGC certified that the Ketchikan Lakes Project is consistent with the Alaska Coastal Management Program (ACMP). The ADGC certification contains nine conditions. Nothing in this license conflicts with these nine conditions and the license includes articles which are substantively the same as seven of these conditions, which are summarized below.

Condition 1 requires the licensee to release a minimum streamflow of 47 cfs into Ketchikan Creek, except during project shutdowns when the 35 cfs continuous flow bypass system is activated, and when operating at a flow between 35 cfs and 47 cfs is needed to protect water quality and supply.

Condition 2 requires the licensee to not exceed the following project flow fluctuations: February 16 to May 31 (daylight) - no ramping, except that ramping up to 1 inch/hour would be permitted when needed to ensure adequate quantity and quality of water for domestic water supply. When flow ramping is needed for these purposes, the City would notify a designated fishery agency representative that a flow change is required to allow the agencies to investigate aquatic resource-related impacts. Daylight is defined as one hour before sunrise and one hour after sunset; February 16 to May 31 (night) - 2 inches per hour maximum; June 1 to September 15 - 1 inch per hour; and September 16 to February 15 - 2 inches per hour.

Condition 3 requires the licensee to monitor stream flow in Ketchikan Creek.

Condition 5 requires the licensee to monitor dam seepage flows.

Condition 7 requires the licensee to conduct a water quality modeling study.

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Project No. 420-009

-8-

Condition 8 requires the licensee to implement the following fish habitat improvement projects: (1) modify the existing Ketchikan Creek fish ladder; (2) modify the entrance to the existing culvert on Schoenbar Creek to improve fish passage and increase rearing capacity of the Ketchikan Creek system, and (3) remove the 5-foot barrier on Ketchikan Creek downstream of Rainbow Falls.

Condition 9 requires the licensee to maintain equipment to remove oil and other contaminants from condensate and leakage from turbines and other equipment before discharging into Ketchikan Creek.

Nothing in this license conflicts with ADF&G's Condition 4, requiring the City to report stream flow and stage data quarterly to the ADF&G Statewide and Region 1 Instream Flow Coordinators and Alaska Department of Natural Resources (ADNR) Water Resources Section, and Condition 6, requiring the City to notify ADF&G, the Commission, and ADNR Water Resources Section and other interested

parties whenever required instream flows are not achieved within 12 hours of the beginning of the non-compliance event.

SECTION 4(e) FINDINGS AND CONDITIONS

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Section 4(e) of the FPA states the Commission may issue a license only after a finding that the license will not interfere or be inconsistent with the purpose for which the reservation was

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created or acquired. Section 3(2) of the FPA defines reservations as including national forests. The majority of the Ketchikan Lakes Project (about 778 acres) is located within the Tongass National Forest, which is under the supervision of the Forest Service.

Section 4(e) also requires that licenses issued for hydroelectric projects located within United States reservations must include all conditions that the secretary of the department under whose supervision the reservation falls (in this proceeding, the Secretary of the U.S. Department of Agriculture) shall deem necessary for the adequate protection and utilization of the reservation. Pursuant to Section 4(e), the Forest Service, by letter dated June 27, 2000, submitted terms and conditions, which are set forth in Appendix A of this order and incorporated into the license by ordering paragraph (D).

The Forest Service's 4(e) conditions require the City to: consult with the Forest Service and obtain its approval of any

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16 U.S.C. § 797(e).

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16 U.S.C. § 796(2).

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proposed project changes (Condition 103); annually consult with the Forest Service with regard to measures needed to ensure protection of the project's natural resource values (Condition 104); prepare a plan and/or consult with the Forest Service and resource agencies prior to commencing any new construction or modification of existing facilities to ensure the protection of natural heritage resources (Condition 110), visual resources (Condition 117), sensitive plant resources (Condition 119), and

for the management of erosion (Condition 116), solid waste and wastewater (Condition 124), and hazardous waste (Condition 125); provide for facilities or modifications of project operations to protect fish and wildlife as recommended by the Forest Service and ADF&G (Condition 114) and allow the Forest Service to construct fish and wildlife facilities at their own expense on project lands (Condition 115); obtain an access easement on non-federal lands for use by the Forest Service and the public (Condition 121); provide the Forest Service use of the access road to Ketchikan Lake for administrative purposes (Condition 120); survey an existing project road and amend the project boundaries to reflect the true location of the road (Condition 122); file and implement a comprehensive study plan to manage fish populations and habitat in and above Ketchikan Lakes, if and when the Ketchikan Lakes and its watershed are opened for public access (Condition 111); provide and maintain gages and gaging stations for measuring stream flow, reservoir storage and energy generation (Condition 112); monitor the leakage flows from Ketchikan Lakes dam and Granite Basin Creek diversion dam, to establish a minimum flow to be maintained by the City if it ever decides to repair those leaks (Condition 113); develop a recreation study plan and implement the resulting recommendations for recreational use of the Ketchikan Lakes watershed, when the City decides to provide water supply treatment, thereby ending the need to restrict access to this area (Condition 118); terminate the rights of the licensee or its successors to use and occupy Forest Service lands at the end of the license, unless a new license is issued by the Commission (Condition 123); and upon completion of the requirements of 36 CFR Part 215, the Forest Service may require modifications of the 4(e) conditions resulting from the appeal process (Condition 126).

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

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Section 10(j)(1) of the FPA requires the Commission, when issuing a license, to include conditions based upon recommendations of federal and state fish and wildlife agencies

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16 U.S.C. § 803(j)(1).

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submitted pursuant to the Fish and Wildlife Coordination Act, to "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat)" affected by the project. If the Commission believes that any such recommendations may be inconsistent with the purpose and requirements of Part I of the FPA, or other applicable law, Section 10(j)(2) of the FPA requires the Commission and the agencies to attempt to resolve such inconsistencies, giving due weight to the recommendations, expertise, and statutory responsibilities of such agencies. 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.

FWS, NMFS and ADF&G filed recommendations for license conditions that were considered in the Section 10(j) process in

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this proceeding. I am including in this license conditions based on the agencies' recommendations, including requirements relating to removal of oil prior to discharge into the project tailrace (Article 401); a plan to monitor and maintain leakage flows (Article 402); a water temperature modeling study (Article 404); releasing a minimum flow from the Ketchikan Lakes powerhouse into the project tailrace (Article 405) and Deer Mountain Hatchery (Article 406); ramping rates (Article 407); installing remote water level monitoring equipment at Fawn Lake (Article 408); a plan to install, operate, and maintain streamflow gages (Article 409); a fisheries habitat enhancement plan (Article 410); and a fisheries study and lake management plan should Ketchikan Lakes open to the public in the future (Article 411).

In the DEA, Commission staff made an initial determination that NMFS's and ADF&G's recommendations for minimum flows downstream from the project tailrace, FWS's and ADF&G's recommended ramping rates, and NMFS's recommendation to limit tailrace water temperatures to a maximum of 16 degrees Celsius over an 8-hour period were inconsistent with the requirements of the FPA.

In letters dated November 18, 1999, Commission staff sought to resolve the apparent inconsistencies between NMFS's, ADF&G's, and FWS's recommendations and the FPA. NMFS, ADF&G, and FWS

See letters dated March 5, 1999, March 8, 1999, and March 11, 1999, for recommendations submitted under Section 10(j) of the FPA by FWS, NMFS, and ADF&G, respectively.

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Project No. 420-009

-11-

responded by letters dated December 22, 1999, December 28, 1999, and December 30, 1999, respectively. On February 9, 2000, Commission staff, NMFS, and ADF&G attended a meeting to try and

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resolve the outstanding issues. All inconsistencies were

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resolved.

OTHER ISSUES

A. Aquatic Resources

Article 403 requires the licensee to monitor for 5 years the flow in Ketchikan Creek at a location above the point where the tailrace returns the power flows to the creek. The purpose of this measure is to obtain flow information on the lower part of the bypassed reach which is accessible to anadromous fish. Article 412 provides for agency personnel to obtain access to project lands closed to public access for the protection of the water supply purposes of the project. Article 413 provides for the licensee to hold annual meetings with interested state and federal resource management agencies to discuss matters of mutual interest related to project studies and operations.

In a letter dated April 21, 2000, ADF&G commented on staff's March 3, 2000, summary of the February 9, 2000 meeting to resolve preliminary inconsistencies under section 10(j). ADF&G agreed with the summary but recommended a condition be included in the license requiring a flow continuation system adequate to accommodate a flow of 47 cfs be installed if the licensee makes any major modifications to the project facilities during the term of a new license.

The project currently provides flow continuation in the amount of 35 cfs in the event of an unscheduled plant outage. There is no evidence that the 35-cfs flow continuation provides an inadequate level of protection for aquatic resources, or that

increasing the flow continuation to 47 cfs would provide any significant additional protection. If, however, the City proposes any major modifications to project facilities during the next licensing period, ADF&G could provide recommendations to the Commission at that time. The license conditions I am including in this license will provide monitoring data (article 409) with which ADF&G can assess the adequacy of the existing flow continuation and the need for further protections against unscheduled flow reductions. Article 413, requiring the licensee to hold annual meetings with agency personnel, provides the

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On March 3, 2000, Commission staff issued a summary of the meeting.

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See FEA, section IX.



Project No. 420-009

-12-

opportunity for ADF&G to discuss any new information and find out about any planned major modifications to the project by the City.

B. Cultural Resources

The City of Ketchikan conducted an archeological resources report of the Ketchikan Lakes Hydroelectric Project area and found no historic sites that would be affected by continued project operation. The Alaska Department of Natural Resources, Office of History and Archeology, concluded, and I concur, that the proposed project would not have an effect on historic properties if there is no change in project facilities and operation. If, however, archeological or historic sites are discovered during future operation or construction, Article 414 establishes a procedure for protecting such sites.

C. Recreation Resources

Article 415 provides for the continued access and use by the public of the Deer Mountain Trail within the Ketchikan Lakes watershed and article 416 provides for the development and implementation of a plan for recreational use of the Ketchikan Lakes, if and when such use is no longer prohibited for the protection of the water supply purposes of the project reservoir, as required by the Environmental Protection Agency.

D. Administrative Conditions

The Commission collects annual charges from licensees for the administration of the FPA. Article 201 provides for the collection of such funds. Article 202 requires the revision of Exhibit G to include all existing, non-public project access roads. Article 203 requires the filing of aperture cards for project drawings. Article 204 requires the City to reimburse the owner of a storage reservoir or other headwater improvement project that directly benefits the licensee's project. The benefits will be assessed in accordance with Subpart B of the Commission's regulations. Article 417 provides the licensee the authority to grant permission for certain types of uses of project lands and waters.

CONSISTENCY WITH COMPREHENSIVE PLANS

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Section 10(a)(2)(A) of the FPA requires the Commission to consider the extent to which a hydroelectric project is consistent with federal and state comprehensive plans for

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16 U.S.C. § 803(a)(2)(A).

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Project No. 420-009

-13-

improving, developing, or conserving waterways affected by the

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project. Under Section 10(a)(2)(A), federal and state agencies filed 22 comprehensive plans that address various resources in Alaska. Of these, Commission staff identified and reviewed 3

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plans relevant to this project. No inconsistencies were found.

COMPREHENSIVE DEVELOPMENT

In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public uses, pursuant to Section 10(a)(1), the Commission considers a number of public interest factors, including the projected economic benefits of project power.

Under the Commission's current approach to evaluating the economics of hydropower projects, as articulated in Mead

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Corporation Publishing, Paper Division, the Commission employs an analysis that uses current costs to compare the costs of the project and likely alternative power without incorporating forecasts concerning the effects of potential future inflation, escalation, or deflation. The purpose of the Commission's economic analysis is to provide a general estimate of the power benefits and the costs of a project, and reasonable alternatives to project power. In making its decision, the Commission considers the project power benefits both with the applicant's proposed mitigation and enhancement measures and with the Commission's proposed modifications and additions to the applicant's proposal.

Under the no action alternative, the existing project (without any new environmental enhancements) generates an average of 19,400,000 kilowatthours (kWh) of electricity annually at an average annual cost of about \$561,000 (or about 29 mills/kWh). Based on the current cost of diesel-fueled generation, the value

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See State and Federal Comprehensive Plans, 18 C.F.R. § 2.19 (2000).

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(1) Alaska Department of Natural Resources. Division of Parks. 1981. Alaska Outdoor Recreation Plan, 1981-85. (2) U.S. Forest Service. May 1997. Tongass National Forest Land and Resource Management Plan. Department of Agriculture, Ketchikan, Alaska. (3) U.S. Fish and Wildlife Service. June 1990. North American waterfowl management plan. Gulf Coast joint venture plan. Department of the Interior, Arlington Texas.

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72 FERC § 61,027 (1995).

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of the project's power is about \$1,455,000 (75 mills/kWh). To determine whether the project is currently economically

beneficial, we subtract the project's cost from the value of the project's power. Thus, based on current costs, the project under the no action alternative would have a positive annual net benefit of about \$894,000 (or 46 mills/MWh).

With the environmental enhancement measures proposed by the City, the project would generate the same amount of electricity at an annual cost of about \$585,000 (30 mills/kWh), resulting in a positive annual net benefit of \$870,000 (45 mills/kWh).

As licensed, the project will produce the same amount of energy at an annual cost of about \$595,000 (31 mills/kWh), resulting in a positive net annual benefit of \$860,000 (44 mills/kWh). In addition to the environmental measures proposed by the City, Commission staff recommended six additional 18 environmental measures that are required by this license. These measures add about \$10,000 annually to the cost of the project as proposed by the City.

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Sections 4(e) and 10(a)(1) of the FPA require the Commission, in acting on applications for license, to give equal consideration to developmental and environmental values. Any license issued shall be in the Commission's judgment best adapted to a comprehensive plan for improving or developing the waterways for beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

Based on the record in this proceeding, and for the reasons discussed herein, I conclude that the proposed project with our additional protection, mitigation, and enhancement measures will be best adapted to a comprehensive plan for developing the Ketchikan Creek waterway for beneficial public uses. The average annual generation of 19,400,000 kWh of clean, domestic, and reliable energy that would be produced by the project would displace diesel-fueled electric generation, thereby conserving

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The project power value is based on the incremental cost of operating the City's existing diesel generators. See FEA, pages 85-86.

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These measures are: conducting a water temperature monitoring and modeling study; maintaining a continuous minimum flow of 47 cfs; ramping rate limits; a plan for monitoring flows and ramping rates; fish habitat improvements; and adoption of cultural resource protection measures.

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16 U.S.C. §§ 797(e) and 803(a)(1).

nonrenewable fossil fuels and avoiding the emission of additional noxious gases caused by the combustion of those fuels.

LICENSE TERM

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Section 15 (e) of the FPA specifies that any license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date on which the license is issued. Commission policy is to grant 30-year license terms for projects with little or no redevelopment, new construction, or new environmental mitigation and enhancement requirements; 40-year terms for projects with a moderate amount thereof; and 50-year terms for projects with extensive amounts thereof.

The environmental mitigation and enhancement measures in the new license for the Ketchikan Lakes Hydroelectric Project warrant a term of 30 years, effective the first day of the month in which this license is issued.

SUMMARY OF FINDINGS

Background information, analysis of impacts upon the environment, and support for related license articles are contained in the FEA. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if constructed, operated and maintained in accordance with the requirements of this license.

I conclude that issuing a license for the Ketchikan Lakes Project, with our required enhancement measures, will not conflict with any planned or authorized development, and will be best adapted to a plan for comprehensive development of the waterway for beneficial public uses.

The Commission orders:

(A) This license is issued to the City (licensee) for a

period of 30 years, effective the first day of the month this license is issued, to operate, and maintain the Ketchikan Lakes Hydroelectric Project. This license is subject to the terms and conditions of the Federal Power Act (FPA), which are incorporated by reference as part of this license, and to the regulations the Commission issues under the provisions of the FPA.

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16 U.S.C. § 808 (e).

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Project No. 420-009

-16-

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G:

| EXHIBITS | FERC NO. | TITLE |
|----------|----------|------------------|
| G-1 | 420-1001 | Project Area Map |

(2) Project works consisting of: (1) a 30-foot-high, 1,130-foot-long rockfill dam with a 103-foot-long concrete spillway section at the outlet of the natural Ketchikan Lakes, which have a surface area of about 632 acres and a useable storage of 13,800 acre-feet; (2) a 30-foot-long, 12-foot-high gated, concrete diversion dam on Granite Basin Creek; (3) Fawn Lake, a 3.1-acre forebay consisting of a 385-foot-long, 22-foot-high rockfill dam, a 200-foot-long, 15-foot-high rockfill dam, and an excavated rock spillway that discharges to an unnamed tributary to Deer Creek, a tributary of Ketchikan Creek; (4) the Ketchikan Lakes to Fawn Lake conveyance system consisting of two 4-foot by 6.5-foot in cross-section parallel tunnels, one 280 and the other 300 feet long; two 54-inch diameter, 1,800-foot-long above ground pipelines; and a 7-foot by 8-foot, 1,127-foot-long tunnel terminating in Fawn Lake below normal low water level; (5) the Granite Basin Creek diversion to Fawn Lake conveyance system, consisting of a 5-foot by 7-foot in cross-section, 1,170-foot-long tunnel discharging to a 150-foot-long natural channel that empties into Fawn Lake; (6) a 7-foot by 8-foot in cross-section, 3,473-foot-long power tunnel with a concrete plug penetrated by three 36-inch diameter, ductile-iron-pipe penstocks connecting the end of the tunnel to the powerhouse; (7) an 81-

foot by 43-foot concrete powerhouse containing three horizontal Francis turbines directly connected to three 1,400-kilowatt generators, for a total rated capacity of 4,200 kilowatts; and (8) appurtenant facilities.

The project works generally described above are more specifically described in Exhibit A of the application and shown by Exhibit F:

| EXHIBITS | FERC NO. | TITLE |
|----------|----------|--|
| F-1 | 420-1002 | Powerhouse Plans and Sections |
| F-2 | 420-1003 | Penstocks and Tunnels |
| F-3 | 420-1004 | Ketchikan Lakes and Fawn Lake Dam Plans and Sections |

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Project No. 420-009

-17-

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|-----|----------|--|
| F-4 | 420-1005 | Granite Basin Creek Dam Plans and Sections |
|-----|----------|--|

(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) Exhibits A , F and G listed above are approved and made part of the license subject to the following revision required by Article 202:

(1) Exhibit G-1 shall be revised as necessary to show, and include in the project boundary, the accurate location of existing non-public, project facility access roads.

(D) This license is subject to the conditions submitted by the Forest Service under section 4(e) of the FPA, as those conditions are set forth in Appendix A to this order. The Commission reserves the right to amend this ordering paragraph and Appendix A to this order as appropriate in light of the Forest Service's ultimate disposition of any appeals of the Section 4(e) conditions that might arise, and to make whatever

additional conforming changes in the license that may be necessitated by any such amendment.

(E) This license is subject to the articles set forth in Form L-1 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States." The license is also subject to the following additional articles:

Article 201. The licensee shall pay the United States the following annual charges, effective the first day of the month that this order is issued:

(a) For the purpose of reimbursing the United States for the cost of administering Part I of the FPA, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 4,200 kilowatts.

(b) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 826 acres of its lands, a reasonable amount as determined in accordance with the provisions of the Commission's regulations, in effect from time to time.

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Project No. 420-009

-18-

Article 202. Within 90 days of the date of issuance of this license, the licensee shall file, for Commission approval, revised Exhibit G-1 showing and including the accurate location of existing non-public, project facility access road locations. The licensee shall consult with the Forest Service as required by Forest Service 4(e) Condition No. 121 and shall ensure that any changes to the project boundaries conform with the requirements of Article 5 of Form L-1.

Article 203. Within 45 days of the effective date of the license, the licensee shall file three sets of aperture cards of the approved drawings. The drawings must be reproduced on silver or gelatin 35 mm microfilm. All microfilm must be mounted on type D (3 1/4" x 7 3/8") aperture cards.

Prior to microfilming, the FERC Drawing Number (420-1001

through 420-1005) shall be shown in the margin below the title block of the approved drawings. After mounting, the FERC Drawing Number must be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC exhibit (i.e., F-1), Drawing Title, and date of this license must be typed on the upper left corner of each aperture card.

Two sets of aperture cards shall be filed with the Secretary of the Commission ATTN: OEP/Division of Hydropower Administration and Compliance. The remaining set of aperture cards shall be filed with the Commission's Portland Regional Office.

Article 204. If the licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

Article 401. The licensee shall continue to operate and maintain the existing oily water separator installed in the powerhouse to remove all oil from water before it is discharged into the project tailrace.

Article 402. Within 1 year from the date of issuance of this license, the licensee shall file for Commission approval a plan and schedule to monitor the seepage that occurs from the Ketchikan Lakes dam and the Granite Creek diversion, as required by Forest Service Condition No. 113. If future repairs would reduce seepage, the licensee shall maintain through some other

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means an amount of flow equal to the amount of the seepage flows measured during the first 2 years of seepage monitoring.

The licensee shall prepare the plan after consultation with the U.S. Forest Service, Alaska Department of Fish and Game, and U.S. Geological Survey. The licensee shall include with the plan

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

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

Article 403. Within 6 months from the date of issuance of this license, the licensee shall file for Commission approval a plan and schedule to conduct flow monitoring for 5 years just upstream of the tailrace to measure seasonal variability of flows in the bypassed reach of Ketchikan Creek. The gaging need not be conducted to U.S. Geological Survey specifications, but should obtain similar results.

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

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

Article 404. Within 6 months from the date of issuance of this license, the licensee shall file for Commission approval a

plan and schedule to conduct a water temperature modeling study to identify the effect of project operations and facilities on water temperatures in Ketchikan Creek downstream of the project tailrace.

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

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

Article 405. Within 60 days of installation of the monitoring equipment required by Article 409, the licensee shall release from the Ketchikan Lakes powerhouse into the project tailrace a minimum flow of 47 cfs, except in the event of a plant power trip or for the purpose of protecting the water supply purposes of the project, when the flow may be reduced to 35 cfs. These minimum flows are for the protection of the fish resources in lower Ketchikan Creek, and shall be measured in accordance with the monitoring requirements developed in the plan required by Article 409.

This flow may be temporarily modified if required by operation emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 406. The licensee shall continue to provide a minimum flow of 4.5-cfs to the Deer Mountain Fish Hatchery.

This flow may be temporarily modified if required by operation emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. If the flow is so modified,

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Project No. 420-009

-21-

the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 407. Within 60 days of installation of the monitoring equipment required by Article 409, the licensee shall limit ramping rates to obtain the following maximum stage changes in Ketchikan Creek downstream from the project tailrace, and shall be measured in accordance with the monitoring requirements developed in the plan required by Article 409:

| | |
|-----------------------------|--|
| February 16 to May 31 | No ramping during the daylight period, except that ramping up to 1 inch/hour would be permitted when needed to ensure adequate quantity and quality of water for domestic water supply; when flow ramping is needed for these purposes, the City would notify a designated fishery agency representative that a flow change is required to allow the agencies to investigate aquatic resource-related impacts; 2 inches per hour maximum at night |
| June 1 to September 15 | 1 inch per hour maximum |
| September 16 to February 15 | 2 inches per hour maximum |

These ramping rates may be temporarily modified if required by operation emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the Alaska Department of Fish and Game, National Marine Fisheries Service, and U.S. Fish and Wildlife Service. If the ramping

rates are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 408. Within 6 months from the date of issuance of this license, the licensee shall file for Commission approval a plan and schedule for installing water level monitoring and recording equipment at Fawn Lake. The plan shall provide for water level data to be integrated on a real time basis into the project SCADA (supervisory control and data acquisition) system located at the City's Central Control and Dispatch Center to allow greater lead times for making flow ramping decisions. The plan shall include a method for recording and reporting the water level in Fawn Lake as part of the project daily operating records available for review by authorized Commission and agency staff.

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Project No. 420-009

-22-

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

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

Article 409. Within 6 months from the date of issuance of this license, the licensee shall file for Commission approval a plan and schedule to install, operate, and maintain streamflow gages necessary to monitor the minimum flow releases required in article 405, and a gage to monitor the ramping rates required in

article 407.

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

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

Article 410. Within 6 months from the date of issuance of this license, the licensee shall file for Commission approval a plan and schedule to develop and implement a fisheries habitat

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Project No. 420-009

-23-

enhancement plan showing the detailed design and feasibility of:
(1) removing the 5-foot barrier on Ketchikan Creek, (2) improving access to (but not passage through) the Shoenbar Creek culvert, (3) enhancing 2,000 square feet of salmonid rearing habitat, and (4) extending the existing fish ladder on Ketchikan Creek.

The licensee shall prepare the plan after consultation with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a

recommendation, the filing shall include the licensee's reasons, based on project-specific information.

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

Article 411. Within 6 months of the date that public recreation access is opened to Ketchikan Lakes, the licensee shall consult with the appropriate resource agencies about conducting fishery studies in the Ketchikan Lakes.

The lakes fishery study plan shall comply with the Forest Service's 4(e) Condition 111 and include a schedule for: implementation of the plan; consultation with the appropriate federal and state agencies; and filing the results, agency comments, and licensee's response to agency comments with the Commission.

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

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

Article 412. The licensee shall permit state and federal fish and wildlife agency personnel, who show proper credentials,

to have access to project lands for the performance of their official duties. The licensee may require agency personnel to make prior arrangements with the licensee for access. The licensee shall develop a protocol for access to project lands by agency personnel and shall request comments on the protocol from the Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Forest Service (as required by 4(e) Condition No. 120). The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the protocol with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the protocol. The protocol shall not be implemented until the licensee is notified that the protocol is approved. Upon Commission approval, the licensee shall follow the protocol, including any changes required by the Commission.

Article 413. The licensee shall hold annual meetings with state and federal fish and wildlife agency personnel, and the Forest Service (as required by 4(e) Condition No. 104), for the purpose of discussing project-related matters of interest to the agencies. Within 30 days after the meeting, the licensee shall file a summary of the meeting with the Commission and the agencies.

Article 414. If archeological or historic sites are discovered during project operation or any future construction activities at the project, the licensee shall: (1) consult with the Alaska State Historic Preservation Officer (SHPO), USDA Forest Service Alaska Region (Forest Service), and any tribe that might be affected; (2) prepare a cultural resources management plan and schedule to evaluate the significance of the sites and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places (NRHP); (3) base the plan on the recommendations of the SHPO, Forest Service, and the Secretary of the Interior's Guidelines for Archeology and Historic Preservation; (4) file the plan for Commission approval, together with the written comments of the SHPO, Forest Service, and any tribe that might be affected; and (5) take the necessary steps to protect the discovered sites from further impact until

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notified by the Commission that all of these requirements have been satisfied.

If any physical modifications to any of the project facilities are proposed that are not routine maintenance or repair work, the licensee shall consult with the SHPO to determine whether the affected facility is eligible for inclusion in the NRHP. All correspondence and findings involving eligibility determinations shall be filed with the Commission. If the affected facility is determined to be eligible for inclusion in the NRHP, the licensee shall: (1) consult with the SHPO, Forest Service, and Advisory Council on Historic Preservation (ACHP); (2) prepare a management plan based on the recommendations of the SHPO, Forest Service, ACHP, and the Secretary of the Interior's Guidelines for Archeology and Historic Preservation, to include as necessary documentation of the affected portions of the facility according to the documentation standards of the Historic American Engineering Record; and (3) file the management plan for Commission approval, together with the written comments of the SHPO, Forest Service, and ACHP.

The Commission may require a cultural resources survey and changes to the cultural resources management plan based on the filings. The licensee shall not: (1) implement a management plan; (2) begin any land-clearing or land-disturbing activities in the vicinity of any discovered sites; or (3) perform non-routine maintenance or repair work on any project facility, until informed by the Commission that the requirements of this article have been fulfilled. Upon Commission approval, the licensee shall implement the management plan, including any changes required by the Commission.

Article 415. The licensee shall continue to allow hikers to use Forest Service trails, including the Deer Mountain Trail, located in the upper reaches of the Ketchikan Creek watershed.

Article 416. Within 2 years of the time the City of Ketchikan decides to construct water supply treatment facilities allowing for the removal of existing restrictions on access to and use of the Ketchikan Lakes for recreational purposes, the licensee shall consult with the Forest Service and others as required by Forest Service 4(e) Condition No. 118 and develop and file with the Commission a plan and schedule for recreational access and use of project lands and reservoirs.

The licensee shall include with the recreation 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

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Project No. 420-009

-26-

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

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

Article 417. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and water

for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's

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authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine,

overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(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

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more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved exhibit R or approved report on recreational resources of an exhibit E; and (7) other uses, if: (I) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use.

Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

- (1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.
- (2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or approved report on recreational resources of an exhibit E; or, if the project does not have an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.
- (3) The instrument of conveyance must include the following covenants running with the land: (I) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the

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grantee shall not unduly restrict public access to project waters.

- (4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

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

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

(G) This order is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. Section 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

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APPENDIX A

FOREST SERVICE SECTION 4(e) CONDITIONS

GENERAL

License articles contained in the Commission's Standard Form L-1 (revised October 1975) issued by Order No. 540, dated October 31, 1975, cover general requirements that the Secretary of Agriculture, acting by and through the Forest Service, considers necessary for adequate protection and utilization of the land and resources of the Tongass National Forest. For the purposes of section 4(e) of the Federal Power Act (16 U.S.C. 797(e)), the purposes for which National Forest System lands were created or acquired shall be the protection and utilization of 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 Forest Plans prepared in accordance with the National Forest Management Act. Therefore, pursuant to said section 4(e) of the Federal Power Act, the following conditions covering specific requirements for protection and utilization of National Forest System lands shall also be included in any license issued.

Condition No. 103 - Approval of Changes After Initial Construction

Notwithstanding any Commission approval or license provisions to make changes to the project, the licensee shall get written approval from the Forest Service prior to making any changes in the location of 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 at least 60 days prior to initiating any such changes or departure, 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 an exact copy of this report with the

Forest Service at the same time as it is filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this License.

Condition No. 104 - Consultation

Each year during the 60 days preceding the anniversary date of the license, the Licensee shall consult with the Forest Service



Project No. 420-009

-32-

with regard to measures needed to ensure protection and development of the natural resource values of the project area. 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. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation that may be necessary to accomplish natural resource protection.

Annual consultation meetings are opportunities for the Licensee and the Forest Service to inform each other of planned activities within the Ketchikan Lakes watershed. Activities of interest to the Forest Service, during the annual consultation, include any work of a land disturbing nature. This includes plans for annual maintenance of project facilities such as, but not limited to, road resurfacing, brushing, penstock repair and removal and disposal of woody debris from behind the dam.

Condition No. 110 - Heritage Resource Protection

Prior to commencement of any construction, development, or modification/replacement of any project works or other facilities at the project, the Licensee shall consult and cooperate with the Forest Service and the State Historic Preservation Officer (SHPO) to determine the need for, and extent of, any archeological or historic resource surveys and any mitigative measures that may be necessary. The Licensee shall provide funds in a reasonable amount for such activity. If any previously unrecorded archeological or historic sites are discovered during the course of construction, activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Licensee shall consult with the Forest Service and SHPO to develop a mitigation plan for the protection of significant archeological or historic resources.

If the Licensee, Forest Service and SHPO cannot agree on the amount of money to be expended on archeological or historic work related to the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any such work found necessary.

Condition No. 111 - Aquatic Study

Adaptive license management is a strategy of the future. If and when the Licensee builds a filtration plant or similar water treatment facility for the municipal water supply and recreational access is allowed to Ketchikan Lakes, the Licensee shall file, for Forest Service and Commission approval, a comprehensive study plan for aquatic habitat in the Ketchikan Lakes and Granite Creek watersheds on National Forest System land. This monitoring study plan shall be designed by the Licensee in cooperation with the Forest Service, ADF&G and other interested agencies.

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The primary purpose of this study is to establish a scientifically sound basis for managing fish populations and habitat in and above Ketchikan Lakes and Granite Creek in order to ensure adequate protection of the resources affected by the hydropower project, under increased recreation pressures. Portions of this study will build upon existing, or available information and analysis, while other portions may require collection of new data and additional analysis. This study plan must evaluate: (1) the status of the fisheries and habitat in Ketchikan Lakes and Granite Creek, and tributary streams; (2) the impacts of the project, specifically of lake level fluctuations, on these populations; and (3) measures to manage the fishery to meet goals of the 1997 Modified Tongass Lands and Resource Management Plan, and other agency's resource management plans.

Within one year following approval of the study design, the Licensee shall begin making annual reports of the study plan implementation results to the Forest Service, ADF&G and the Commission. If the currently licensed lake level fluctuations are inadequate to protect aquatic habitat, then the licensee shall submit to the Commission for approval, a Lake Level Management Plan to provide this protection.

Until the Lake Habitat study is completed, the lake levels shall

not be drawn down lower than recorded between 1990 and 1995 with the lowest recorded level being 327 feet elevation, unless otherwise agreed to by USFS, and ADF&G for emergency operations.

Condition No. 112 - Maintain Gages, and Stream-Gaging Stations (same as L-1 #8)

The Licensee shall install and, thereafter, maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation, thereof, shall at all times be satisfactory to the Commission or its authorized representative.

The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation, thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States

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Geological Survey having charge of the 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.

Condition No. 113 - Bypass Water Monitoring and Mitigation
Within one year following the date of issuance of this license, the Licensee will develop a Monitoring Plan to monitor water seepage quantity and timing in the bypass reaches below the

Ketchikan Lake Dam and Granite Creek Diversion. This monitoring plan shall be designed by the Licensee in cooperation with the Forest Service, ADF&G and other interested agencies. This plan shall be implemented as described by Condition #112.

The monitoring will also determine the relationship between the lake level and bypass flows. The correlation will be made for the range of lake levels between the spillway level and the 327 ft. elevation, or for the lake levels which occur during the five years following licensing, whichever requires the shorter time. At a minimum, the Plan will require the Licensee to monitor bypass flows at new or existing weirs below both the Ketchikan Lakes Dam and the Granite Basin Diversion.

In the event the Licensee plans to make repairs to either the dam or diversion structure that could result in a reduction of current seepage flows, the Licensee commits to maintain, through some other means, an amount of flow in the by-pass reaches of Ketchikan and Granite Creeks equal to or greater than the actual amount of the seepage flows released historically. If bypass flows are shown to be related to lake levels, the Licensee will develop an analysis of the historic lake level fluctuations, and will propose a release quantity and frequency to the Forest Service, ADF&G and the Commission for approval.

Condition No. 114 -Licensee Development of Fish and Wildlife Facilities -(Same as L-1 #15) The Licensee shall, for the conservation and development of fish and wildlife resources, design, construct, maintain and operate, or arrange for the design, construction, maintenance, and operation of 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 Agriculture or the ADF&G, after notice and opportunity for hearing.

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Condition No. 115 - Forest Service Option to Develop Fish and Wildlife Facilities (Same as L-1 #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 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. (Same as L-1 #16)

Condition No. 116 - Erosion Control Plan

At least 90 days prior to starting any activities, the Forest Service determines to be of a land clearing or land-disturbing nature on National Forest System land, the Licensee shall file with the Director, Office of Hydropower Licensing for Commission approval, a plan approved by the Forest Service to control erosion, stream sedimentation, dust, and soil-mass movement consistent with the standards and guidelines of the Tongass Land Management Plan. Upon Commission approval, the Licensee shall implement the plan.

The plan shall be based on actual-site geological, soil and groundwater conditions and shall include: (1) a description of the actual site conditions, including any existing erosion or sedimentation problems from roads, stream crossings, trails, or other facilities; (2) detailed descriptions, design drawings, and specific topographic locations of all control measures; (3) measures to divert runoff away from disturbed land surfaces; (4) measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites; (5) revegetating test-drive areas outside of the roadbed; (6) measures to dissipate energy and prevent erosion at the tailrace; (7) and a monitoring and maintenance schedule; (8) and any other measures the Forest Service, and the Licensee mutually identify as needing care to ensure resource protection. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

The Licensee shall not commence activities the Forest Service determines to be affected by the plan until after 60 days



following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 117 - Visual Resource Protection

At least 90 days before starting any activities, the Forest Service determines to be of a land clearing, land-disturbing or spoil-producing nature on National Forest System land, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for design and construction of new facilities, or for design and modification of existing facilities in order to preserve or enhance its visual character consistent with the standards and guidelines for affected management areas in the Tongass Land Management Plan. The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

The plan must address facility configurations and alignments, architectural theme, building materials, color, conservation of vegetation, landscaping, signs, and screening. Project facilities to be covered by this plan include, among other things, clearings, diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines and corridors, recreation facilities, and access roads.

In particular, the plan must at least include the following: (1) the powerhouse and associated facilities such as security fences, tailrace, equipment storage, access and parking, and communication equipment; (2) diversion structure and associated facilities such as access and parking, power sources for sensing and monitoring equipment, and inlet controls; (3) power transmission line; (4) pipelines and ditches; and (5) recreation facilities.

Mitigation measures shall include, but are not limited to: (1) surface treatments with colors that will be in harmony with the surrounding landscape; (2) use of non-specular conductors for the transmission lines; (3) use of native plant species to screen facilities from view; (4) reshaping and revegetating disturbed areas to blend with surrounding visual characteristics; and (5) locating transmission facilities to minimize visual impacts, etc.

Condition No. 118 - Recreation Implementation Plan

Per 18 CFR Section 2.7- Recreation development at Licensed Projects, Adaptive license management is a strategy of the

future. If and when the Licensee builds a filtration plant or similar water treatment facility for the Ketchikan municipal water supply and recreational access is allowed to Ketchikan Lakes, the Licensee shall commence a Recreation Implementation



Project No. 420-009

-37-

Plan that will be developed in collaboration with City, State, and Federal agencies and other public interest groups and approved by the Forest Service. The Plan will identify measures to mitigate lost recreation opportunities due to the project and will provide for recreation needs over the life of the license, consistent with the standards and guidelines for affected areas in the 1997 Modified Tongass Land and Resource Management Plan. These shall include, but not be limited to, public access roads, hiking, bicycling, launching ramps, interpretive signs, beaches, day use and overnight camping areas, sport fishing, sanitary facilities, and utilities. The final Recreation Implementation Plan shall be filed with the Commission within two years of the date when a decision is made by the Licensee to build a filtration plant or similar water treatment facility for the municipal water supply.

The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

Upon Commission approval, the Licensee shall implement the plan. The Licensee shall design, construct, maintain, and operate, or shall arrange for the design, construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, that the Plan has identified, giving consideration to appropriate accessibility standards. The Licensee 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 Agriculture or other interested Federal or State agencies, after notice and opportunity for hearings.

Condition No. 119 - Sensitive Plant and Habitat Plan

At least 90 days prior to starting any land-clearing, land-disturbing, or spoil-producing activities, the Licensee shall file for Commission approval, a Sensitive-Plant Habitat Plan

approved by the Forest Service. The plan shall be prepared in consultation with the Forest Service and other affected State or Federal agencies. Upon Commission approval, the Licensee shall implement the plan. The Commission may require changes to the study plan to ensure adequate assessment and protection of the environmental, scenic, and cultural values of the project area.

This plan shall identify requirements for construction, operation, maintenance, and monitoring measures to meet Forest Service sensitive-plant and habitat objectives and standards identified in the most current version of the Tongass Land Management Plan. The plan shall include a schedule for accomplishing these objectives and standards shall identify any needs for additional studies. Due to the unknown nature of the

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Project No. 420-009

-38-

project's impacts on sensitive-plant species, some of the studies (requiring a year or more) will need to be completed prior to new construction, or land-disturbing activities associated with maintenance and operations, because of the required mitigation measure's effects on the viability of the total project.

The Licensee shall also prepare a monitoring plan to determine the effectiveness of mitigations on sensitive-plant species. If monitoring indicates to the Forest Service that changes in project structures or operations are necessary to maintain sensitive species, the Licensee may be required by the Forest Service to file, with the Commission, a schedule, approved by the Forest Service, for implementing specific changes in project structures or operations.

Condition No. 120 - Administrative Access

The Licensee shall provide the Forest Service use of the access road to Ketchikan Lake for administrative purposes. The protocols shall be developed in consultation with the Forest Service.

Condition No. 121 - Easement Acquisition

The Licensee shall obtain an easement in the name of the United States, in a form acceptable to the United States, without contribution or compensation from the United States, to provide for access by the United States and the general public, along that portion of the access road that the Licensee constructed

which is not located on National Forest System land. The Licensee shall obtain Forest Service approval of the easement language and evidence of unencumbered title to the easement prepared by a certified title examiner prior to execution of the easement.

Condition No. 122 - Project Area Boundary Modification
The Licensee must immediately submit surveys as necessary for FERC to amend the project boundaries to reflect the existing road location.

Condition No. 123 - Lands
The right of Licensee and of its successors and assigns to use and 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.

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Condition No. 124 - Solid Waste and Waste Water Plan
At least 90 days prior to starting any activities, the Forest Service determines to be of a land-disturbing nature on National Forest System land, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan, approved by the Forest Service, for the treatment and disposal of solid waste and waste water generated during construction and operation of the project. At a minimum, the plan must address the estimated quantity of solid waste and waste water generated each day; the location of disposal sites and methods of treatment; implementation schedule; areas available for disposal of wastes; design of facilities; comparisons between on- and off-site disposal; and maintenance programs.

The Licensee shall not commence activities the Forest Service determines to be affected by the plan until after 60 days following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 125 - Hazardous Substance Plan

At least 90 days before starting any activities, the Forest Service determines to be of a land-disturbing nature on National Forest System land, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan, approved by the Forest Service, for oil and hazardous substances storage and spill prevention and cleanup.

At a minimum, the plan must require the Licensee to: (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill.

The Licensee shall not commence activities the Forest Service determines to be affected by the plan until after 60 days following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 126 - Implementation and Modification of Forest Service Conditions

The licensee shall not commence implementation of the License Articles deemed necessary by the Forest Service under Federal Power Act Section 4(e) Authority, until Forest Service completion

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Project No. 420-009

-40-

of requirements under 36 CFR Part 215 providing appeal rights of Forest Service 4(e) conditions. Upon completion of said 36 CFR Part 215 requirements, the Forest Service may require modifications of the 4(e) conditions resulting from the appeal process. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation based on 7 Forest Service modifications of the 4(e) conditions.

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