APPENDICES

A. Location Map, Figures, Fact Sheet, and Project Description
B. FERC License
C. FERC Final EA
D. Zones of Effect
E. Photos of Project and Zones of Effect
F. ADEC Section 401 Certification for Water Quality and ADNR Water Use Permits
G. USFS Special Use Permit
H. Grayling Study Results

APPENDIX A

LOCATION MAP, FIGURES, FACT SHEET, AND PROJECT DESCRIPTION

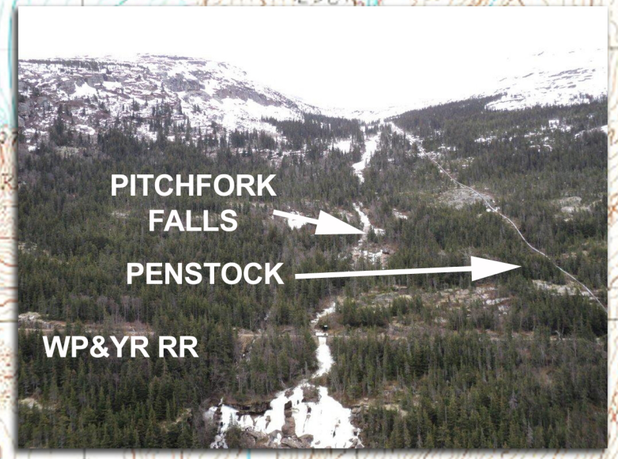

IMAGE OF PITCHFORK FALLS

GOOGLE EARTH IMAGE

N
NORTH

FLOW

POWERHOUSE

TAILRACE

PROJECT
TRANSMISSION
LINE

U.S. CUSTOMS

PRE-EXISTING
TRANSMISSION
LINE

FLOW

SKAGWAY

PENSTOCK
ROUTE

INTAKE

SIPHON

PUMPBACK
STATION

VALVE VAULT

GLACIER MORAINE

TONGASS NATIONAL FOREST

Goat Lake

Clifton

Rocky Point

EAST

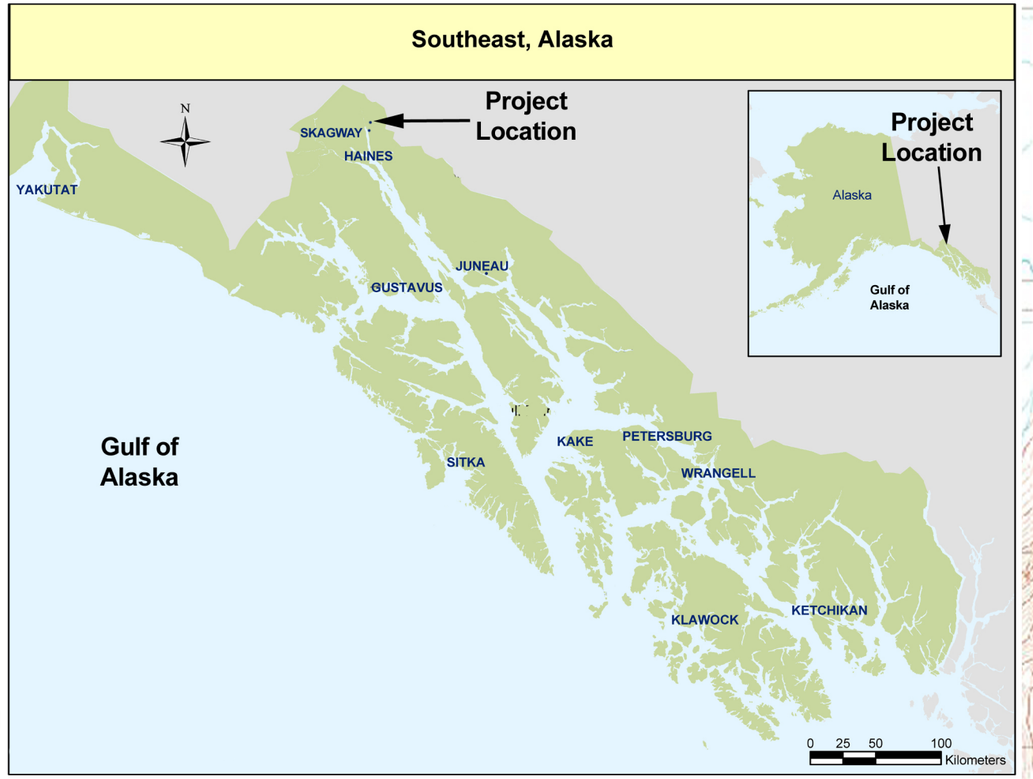

TABLE 2
SUMMARY OF PROJECT FEATURES

Name of Project	Goat Lake Hydroelectric Project, FERC Project No. 11077	
Project Location	Sections 10, 11, 14, 15, and 16; T27S, R60E, CRM. 6.5 miles Northeast of Skagway, Alaska; located in Southeast Alaska. Approximate latitude 59 degrees, 32' and longitude 135 degrees 11'.	
Intake	Submerged wedge wire screen at elevation 2740.	
Reservoir	Name:	Goat Lake
	Surface Elevation:	2925 (elevation as referenced in Commission correspondence of March 28, 1997)
	Surface Area:	204 Acres
	Storage Capacity:	
	Net:	5460 Acre Feet
	Operation:	The net storage will be utilized by siphoning the reservoir down 40 feet to a minimum elevation of 2885.
Siphon	418-foot-long, 30-inch-diameter HDPE penstock and 82-foot-long, 28-inch-diameter Steel penstock with a vacuum pump assembly.	
Catchbasin	8-foot-high by 37-foot-long concrete retaining wall at approximate elevation 2885; impounds 0.014 acre-feet of water.	
Pumpback House	Pump assembly to pump moraine flows back to the lake for regulated storage. 8-foot by 40-foot building will house four pumps of various horsepower. A 640-foot-long by 16-inch-diameter HDPE pipe extends from the pump house to Goat Lake.	
Valve House	8-foot by 20-foot valve house connected with the siphon via a 30-inch-diameter HDPE penstock.	
Penstock	Total Length:	6578 feet
	Diameter and Type:	30-inch HDPE for 704 feet 28-inch HDPE for 959 feet 24-inch Steel for 4,915 feet
Powerhouse	Size:	36-foot by 48-foot by 24 feet high
	Number of Units: One	
	Type of Turbine:	Horizontal Twin-Jet Pelton
	Turbine Rating:	6000 HP
	Flow:	32 cfs
	Head:	
	Gross:	2149
	Friction Loss: 94	Net: 2055
	Power:	6000 HP
	Generator Rating:	4 Megawatts
	Voltage:	4.16 kV
Distribution Line	Voltage:	34.5 kV
	Length:	4,538 feet
	Type:	Overhead on wooden poles
Access	Road from Klondike Highway to the powerhouse	
	Length:	2,990 feet
	Width:	30 feet
Average Annual Energy Production	12,701,000 KWH	

PROJECT DESCRIPTION

LOCATION

The Goat Lake Hydroelectric Project is located approximately 6.5 miles northeast of Skagway, Alaska. The lake is situated in a perched cirque valley at El 2925. The lake lies east and south of the Skagway River. The drainage basin for Goat Lake and Pitchfork Falls Creek includes 4.2 square-miles. The lake is fed by a glacier at its south end. The glacier covers about 1.7 square miles, contributing approximately 80-85% of its runoff to the lake. The glacier terminates near the south end of the lake in a coarse rubble moraine, consisting principally of large angular granitic blocks. The lake outlet, located about 300 feet north of the end of the moraine, flows through a bedrock notch and contributes the major portion of the water flow in Pitchfork Falls. After the falls this same water then joins the Skagway River.

PROJECT DESCRIPTION

The Goat Lake Hydroelectric Project is a storage project with a 4.0 MW capacity that is usually block loaded, but sometimes operated as load following and started operations in December 1997. The lake is used as a reservoir without any dam. The lake continues to have an uncontrolled spillway using the original outlet. A siphon intake extends into the lake a horizontal distance of 369-feet to obtain 185-feet of submergence, or an elevation of 2740, potentially drawing the lake down to the approximate elevation 2885 at peak use, during the winter. The intake, consisting of a v-shaped wedgewire screen assembly, is connected to the siphon pump by a 30-inch-diameter high density polyethylene chloride (HDPE) penstock which changes to a 28-inch-diameter steel penstock approximately 82-feet before the siphon house. The siphon pump connects with a valve house via a 704-foot-long, 30-inch-diameter HDPE penstock. A catchbasin located at approximately 2,885-feet above mean sea level (msl) catches runoff from the glacier moraine that bypasses the lake. The catchbasin is connected to a pumpback house via an 18-inch-diameter HDPE penstock. The pumpback house draws water from the catchbasin and pumps the water back to the lake via a 16-inch-diameter, 640-foot-long HDPE penstock by using four pumps of various horsepower (HP). The valve house also has a 16-inch bypass flow pipe for when additional water is needed in Pitchfork Falls Creek at certain times of the year. A minimum of 8.5 cfs (recently amended from 13 cfs) is required for visual concerns from May 15 – September 30 for 12 hours each day. This is operated via a SCADA system that measures flows and releases or stops releases when required. The valve house also has a 28-inch-diameter HDPE penstock to approximately the 2,610 foot elevation where the penstock transitions to a 24-inch-diameter steel pipe to the powerhouse. At the 990-foot elevation the penstock crosses under the historic White Pass & Yukon Route Railroad (WP&YR-RR) via an approximately 40-foot-long pipe conduit. At the 777-foot elevation the penstock passes through a 48-inch-diameter pipe conduit over the Skagway River, to the west bank, to the powerhouse, at 769-feet above msl.

The powerhouse contains one horizontal shaft Pelton turbine and associated 4.0 MW synchronous generator for a total installed capacity of 4.0 MW. A tailrace transports the turbine discharge approximately 70 feet to the Skagway River. A small substation is located adjacent to the powerhouse. A pole mounted 34.5 kV transmission line begins at the substation and parallels the Skagway River, following the west side for approximately 4,538 feet and ascends to the distribution line from Skagway serving the U.S. Custom's Border Station on the Klondike Highway.

ENVIRONMENT

The lake was stocked with grayling in 1994 by the Alaska Department of Fish & Game, the same year we filed a license application to the Federal Energy Regulatory Commission. After conducting a population and habitat surveys from 2001-2007, the grayling were found to have access to the main spawning stream regardless of the lake elevation at the spawning period in June and July. Further studies were discontinued per agency approval.

Anadromous fish do not get closer than several miles downstream of the project tailrace due to a barrier falls in the Skagway River. The penstock offers adequate measures to allow wildlife to move over or under it along its length. No species were considered to be impacted by the construction and operation of this project.

APPENDIX B

FERC LICENSE

UNITED STATES OF AMERICA 76 FERC 62,032
FEDERAL ENERGY REGULATORY COMMISSION

Alaska Power and Telephone Company) Project No. 11077-001

ORDER ISSUING LICENSE
(Major Project)
(Issued July 15, 1996)

On May 31, 1994, the Alaska Power and Telephone Company (AP&T) filed, pursuant to Part I of the Federal Power Act (FPA),1/ an application for a major license to construct, operate and maintain the 4-megawatt (MW) Goat Lake Hydroelectric Project No. 11077 (Goat Lake Project), to be located on Pitchfork Falls, near the town of Skagway, in the First Judicial District in southeast Alaska. The project would occupy about 270 acres of the Tongass National Forest.

Notice of the application has been published. No one has objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license.

The staff issued a draft environmental assessment (EA), jointly prepared with the Forest Service (FS), for this project on March 11, 1996. Comments on the draft EA were filed by the U.S. Fish and Wildlife Service, AP&T, and the National Park Service. Their concerns were considered in preparing the final EA for this project, which was issued on May 22, 1996, and is attached to and made part of this license order. The staff also completed a Safety and Design Assessment on May 9, 1996, which is available in the Commission's public file for this project.

PROJECT DESCRIPTION

The project would consist of a 14-foot-wide, 125-foot-long spillway to replace the existing natural lake outlet which would be filled in, a submerged wedgewire screen intake assembly in Goat Lake, a 600-foot-long siphon pipe attached to a vacuum pump

1/16 U.S.C. §§ 791a-825r.

assembly within a siphon pump house, a pumpback station (a metal building with two 30-horsepower pumps connected to a 14-inch-diameter pipe for returning water to the lake), a 6,200-foot-long steel penstock extending from the pumpback station to the powerhouse, a powerhouse with an installed capacity of 4 MW, a small substation, a 3,400-foot-long transmission line, and other appurtenances. A detailed project description is contained in ordering paragraph B(2).

WATER QUALITY CERTIFICATION

On September 1, 1994, AP&T applied to the Alaska Department of Environmental Conservation (Alaska DEC) for water quality certification for the Goat Lake Project, as required by Section 401 of the Federal Water Pollution Control Act (Clean Water Act) 2/. The Alaska DEC received this request on September 6, 1994. By letter dated October 3, 1994, the Alaska DEC waived certification for the project.

COASTAL ZONE MANAGEMENT PROGRAM

On August 18, 1994, AP&T applied to the Alaska Division of Governmental Coordination (Alaska DGC) for a consistency determination of the project with the coastal zone management program (CZMP). On September 6, 1994, the Alaska DGC acknowledged receipt of AP&T's certification request.

On November 27, 1995, the Alaska DGC certified that the Goat Lake Project was consistent with the Alaska CZMP and also with the Skagway Coastal Management Plan. No conditions or stipulations were included.

COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA, 16 U.S.C. § 803(a)(2)(A), requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways

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2/33 U.S.C. §1341(a)(1).

affected by the project. 3/ Under Section 10(a)(2)(A), federal and state agencies filed 23 plans that address various resources in Alaska. Of these, the staff identified and reviewed three comprehensive plans that are relevant to this project. 4/ No conflicts were found.

RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Section 10(j)(1) of the FPA 5/ requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act, 6/ for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife. No federal or state fish and wildlife agency recommendations were filed for the project in response to our notice that the application was ready for environmental analysis.

SECTION 4(e) FINDINGS AND CONDITIONS

Section 4(e) of the FPA, 7/ requires that Commission licenses for projects located within United States reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. The project occupies land of the Tongass National

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3/Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (1995).

4/(1) Alaska Department of Natural Resources, 1979, Haines-Skagway Area Land Use Plan, Juneau, Alaska; (2) U.S. Forest Service, 1991, Tongass National Forest Proposed Revised Land and Resource Management Plan, Ketchikan, Alaska; (3) U.S. Fish and Wildlife Service and Canadian Wildlife Service, 1986, North American Wildlife Management Plan, Washington, D.C.

5/16 U.S.C. §803(j)(1).

6/16 U.S.C. §661 et seq.

7/16 U.S.C. §797(e).

Forest, which is under the FS supervision. By letter dated June 17, 1996, the FS submitted its comments on the proposed project and its conditions for inclusion in any license. 8/ The FS's conditions are included in this license as Articles 101 through 112.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1), require the Commission, in acting on applications for license, to give equal consideration to the power and development purposes and to purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

In the EA, the staff examined the proposed project including AP&T's proposed mitigation measures and the no-action alternative. Under the no-action alternative the project would not be built. Therefore, there would be no changes to the

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8/In summary, the Forest Service's conditions are:

Condition No. 1 - Requirement to Obtain a FS Special-Use Authorization
Condition No. 2 - FS Approval of Final Design
Condition No. 3 - Approval of Changes After Initial Construction
Condition No. 4 - Consultation
Condition No. 5 - Minimum Streamflow Regime
Condition No. 6 - Guaranteed Priority Flow Bypass Device
Condition No. 7 - Visual Resource Protection Plan
Condition No. 8 - Erosion Control Plan
Condition No. 9 - Solid Waste and Waste Water Plan
Condition No. 10 - Hazardous Substance Plan
Condition No. 11 - Cultural Resource Protection
Condition No. 12 - Wildlife Mitigation Plan

physical, biological, or cultural resources of the area. The generation that the proposed project would provide would not occur. The recommended (preferred) option the staff selected is to issue a license for the project as proposed by AP&T, including their proposed mitigation. The final FS section 4(e) conditions have been incorporated into the staff's preferred alternative.

The staff recommend this option because: (1) the net benefits of the project outweigh the consequences associated with taking no action; (2) issuance of an original hydropower license would allow AP&T to construct and operate the project as a small but dependable source of electrical energy for its customers; (3) the project would meet the increasing demand for electric power in Skagway and avoid the need for an equivalent amount of fossil-fuel-fired, electric generation and capacity, thereby continuing to help conserve these nonrenewable energy resources and reduce atmospheric pollution; and (4) the proposed environmental
measures by AP&T would protect or mitigate the soil, vegetative, wildlife, aesthetic, and cultural/historic resources in the Skagway River Valley.

The staff concluded, and I concur, that issuance of a new license for the Goat Lake Project would not constitute a major federal action significantly affecting the quality of the human environment.

In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, pursuant to Section 10(a)(1) of the FPA, 16 U.S.C. § 803(a)(1), the Commission considers a number of public interest factors, including the projected economic benefits of project power.

Under the Commission's new approach to evaluating the economics of hydropower projects, as articulated in Mead Corporation, Publishing Paper Division, 9/ the Commission employs an analysis that uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the

9/72 FERC ¶ 61,027 (1995).

Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

Based on current economic conditions, without future escalation or inflation, and assuming AP&T's mid-load forecast, the proposed Goat Lake Project would provide an average of 9.7 GWh of energy annually, at an annual cost of about $952,000 (98 mills/kWh) or about $182,000 (18.8 mills/kWh) less than the current cost of an equivalent amount of power using alternative power resources (diesel-fuel powered generators for the Skagway area).

Based on the staff's review of the agency and public comments filed on this project, my review of staff's evaluation of the environmental and economic effects of the proposed project and its alternatives, and our analysis pursuant to Section 10(a)(1) of the FPA, I find that the Goat Lake Project will be best adapted to comprehensive development of the Pitchfork Falls for beneficial public uses.

TERM OF LICENSE

Section 6 of the FPA 10/ states that licenses under Part I of the FPA shall be issued for a period not to exceed 50 years. Because the Goat Lake Project involves an original license with substantial new construction, the license is issued for a period of 50 years.

SUMMARY OF FINDINGS

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the final

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10/16 U.S.C. § 799.

EA. 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. Analysis of related issues is provided in the S&DA.

I conclude that the project will not conflict with any planned or authorized development, and will be best adapted to a comprehensive plan for development of the waterway for beneficial public uses.

THE DIRECTOR ORDERS:

(A) A license is issued to the Alaska Power and Telephone Company (licensee), for a period of 50 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Goat Lake Project No. 11077. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and to the regulations the Commission issues under the provisions of the FPA.

(B) The Goat Lake Project No. 11077 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:

Exhibit G-	FERC No. 11077-	Showing
1	1	Land Status and Project Location
2	2	Facility Location and Project Boundary
3	3	Wetland Inventory

(2) Project works consisting of: (a) a 125-foot-long spillway to replace the existing natural lake outlet which would be filled in; (b) a submerged intake assembly positioned in Goat Lake at elevation 2,875 feet mean sea level (msl) with a mechanically operated trash rake for cleaning; (c) a 30-inch-diameter, 600-foot-long steel or high density polyethylene chloride siphon pipe attached to a vacuum pump assembly within a 12-foot by 12-foot siphon pump house; (d) a pumpback/valve station consisting of a 10-foot by 18-foot metal building with two 30-horsepower pumps connected to a 14-inch-diameter pipe for returning water to the lake; 11/ (e) an 8-foot-high, 25-foot-long concrete retaining wall with a 14-foot-wide spillway (elevation 2,876 feet msl) forming a 0.014-acre-foot storage catchbasin located in a portion of the existing pond; (f) a 6,200-foot-long, 22-inch-diameter steel penstock extending from the pumpback station to the powerhouse; (g) a powerhouse containing one horizontal twin jet Pelton turbine unit with a generating capacity of 4 MW and a maximum hydraulic capacity of 32 cubic feet per second (cfs); (h) a small substation with a pad-mounted step-up transformer, automatic recloser, and transmission line dead-end structure adjacent to the powerhouse; (i) a 3,400-foot-long, 24.9-kilovolt (kV) aerial transmission line on wooden poles extending from the substation, across the Skagway River to the Customs Border Station where it interties with AP&T's existing 24.9-kV transmission line to Skagway; (j) a single cable, 500-foot-long aerial tram originating near the end of a 1,000-foot-long access road within a 60-foot-wide right-of-way to the Klondike International Highway to provide access to the project; and (k) other appurtenances.

The project works generally described above are more specifically described in Sections 3.1 to 3.11 of Exhibit A of the application and shown by Exhibit F:

Exhibit F-	FERC No. 11077-	Showing
1	4	Site Plan

11/ The proposed 30-inch siphon pipe and 14-inch water return pipe would be laid in the existing 5-foot-wide natural lake outlet before it is filled.

1.1	5	Geology Site Plan
2	6	Penstock Profile
3.1	7	Headworks Plan
3.2	8	Pumpback and Valve House Plan View
3.3	9	Pumpback Catchbasin Profile
4.1	10	Siphon Details
4.2	11	Intake Screen
4.3	12	Siphon Intake
4.4	13	Intake Cleaning Blade Details
5.1	14	Penstock Supports
5.2	15	Penstock Railroad Crossing
6	16	Powerhouse Site Plan
7	17	Powerhouse Floor Plan
8	18	Powerhouse Section
9.1	19	Tram and Access Road Plan View
9.2	20	Tram Profile
9.3	21	Tram Passenger Car

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

(C) Those sections of Exhibit A and Exhibits F and G described above are approved and made part of the license for the Goat Lake Project No. 11077.

(D) The license for the Goat Lake Project No. 11077 is subject to the articles set forth in Form L-2, entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States" (October 1995), and to the following articles. Articles 101 through 112 were submitted by the FS under Section 4(e) of the FPA.

Article 101. Within six months following the date of issuance of this license and before starting any activities the Forest Service (FS) determines to be of a land-disturbing nature, the licensee shall obtain from the FS a special-use authorization for the occupancy and use of National Forest System (NFS) lands, and shall file that authorization with the Director, Office of Hydropower Licensing.

The licensee may commence land-disturbing activities authorized by the license and special-use authorization 60 days following the filing date of such authorization, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Notwithstanding the authorizations granted under the Federal Power Act, NFS lands within the project boundaries shall be managed by the FS under the laws, rules, and regulations applicable to the NFS. The terms and conditions of the FS special-use authorization are enforceable by the FS under the laws, rules, and regulations applicable to the NFS. The violation of such terms and conditions also shall be subject to applicable sanctions and enforcement procedures of the Commission at the request of the FS. In the event there is a conflict between any provisions of the license and FS special-use authorization, the special-use authorization shall prevail on matters which the FS deems to affect NFS resources.

Article 102. Before any construction of the project occurs on National Forest System (NFS) land, the licensee shall obtain the prior written approval of the Forest Service (FS) for all final design plans for project components which the FS deems as affecting or potentially affecting NFS resources. The licensee shall follow the schedules and procedures for design review and

approval specified in the FS special-use authorization. As part of such prior written approval, the FS may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the-
ground conditions. Should such necessary adjustments be deemed by the FS, the Commission, or the licensee to be a substantial change, the licensee shall follow the procedures of Article 2 (Form L-2) of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 (Form L-2) shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to section 4(e) of the Federal Power Act.

Article 103. Notwithstanding any Commission approval or license provisions to make changes to the project, the licensee shall get written approval from the Forest Service (FS) 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 FS, 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 FS for such changes. The licensee shall file an exact copy of this report with the FS at the same time it is filed with the Commission. This article does not relieve the licensee from the amendment or other requirements of Article 2 (Form L-2) or Article 3 (Form L-2) of this license.

Article 104. Each year during the 60 days preceding the anniversary date of the license, the licensee shall consult with the Forest Service (FS) 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 FS. 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.

Article 105. During the construction and operation of the facilities authorized by this license, the licensee shall maintain during twelve daylight hours, in Pitchfork Falls, as

measured above the railroad tracks, the following continuous, minimum flows:

May 1 through September 30	13 cubic feet per second (cfs)
October 1 through April 30	0 cfs

The licensee may temporarily modify minimum flows if required by operating emergencies beyond the control of the licensee. The licensee may also modify minimum flows for short periods upon written consent of the Forest Service.

Article 106. The licensee shall construct, operate, and maintain a guaranteed priority streamflow device as part of the diversion/intake structure. Required stream maintenance flows adequate to maintain the conditions described in Article 105 shall be automatically released through this device, before any flow can be diverted into the conduit. The licensee shall install a water measurement control section with a continuously-recording stream gage, upstream of Pitchfork Falls that will accurately measure the bypass flow. The licensee shall provide a stage-discharge chart to the Forest Service (FS) prior to commencement of operation of the project. The FS approval must be obtained for the design of the bypass mechanism and the design and location of the measuring control section and stream gage prior to construction. The licensee shall file a report of the streamflow at the gaging station by December 31, of each year for the preceding water year. The report must be filed with the Juneau Ranger District of the Tongass National Forest.

Article 107. Within one year following the date of issuance of this license and before starting any activities the Forest Service (FS) determines to be of a land-disturbing nature on National Forest System (NFS) land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the FS for the design and construction of the project facilities in order to preserve or enhance its visual character. The plan must consider facility configurations and alignments, building materials, color, conservation of vegetation, landscaping, and screening. Project facilities of concern to this plan include, among other things, clearings, diversion structures, penstocks, pipes, ditches, transmission lines and corridors, and access roads.

The licensee shall not commence activities the FS 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.

Article 108. Within one year following the date of issuance of this license and before starting any activities the Forest Service (FS) 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 FS for the control of erosion, and soil mass movement.

The licensee shall not commence activities the FS 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.

Article 109. Within one year following the date of issuance of this license and before starting any activities the Forest Service (FS) 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 FS 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 offsite disposal; and maintenance programs.

The licensee shall not commence activities the FS 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.

Article 110. Within one year following the date of issuance of this license and at least 60 days before starting any activities the Forest Service (FS) determines to be of a land-disturbing nature on National Forest System land (NFS), the licensee shall file with the Director, Office of Hydropower

Licensing, a plan approved by the FS for oil and hazardous substances storage and spill prevention and cleanup.

At a minimum, the plan must require the licensee to: (a) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (b) periodically inform the FS of the location of the spill cleanup equipment on NFS lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (c) inform the FS immediately of the nature, time, date, location, and action taken for any spill.

The licensee shall not commence activities the FS 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.

Article 111. Within one year following the date of issuance of this license and before starting any activities the Forest Service (FS) determines to be of a land-disturbing nature, the licensee shall complete the testing as identified in the Memorandum of Agreement (MOA) among the FS, State Historic Preservation Office, the Advisory Council on Historic Preservation, and Commission.

Article 112. Within one year from the issuance of this license and before starting any activities the Forest Service (FS) 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 wildlife habitat mitigation plan approved by the FS. This plan must identify requirements for construction and mitigation measures to meet FS wildlife habitat objectives and standards. The plan also must include dates for accomplishing these objectives and standards and must identify needs for the timing of any additional studies necessary.

The licensee shall not commence activities the FS 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.

Article 201. The licensee shall pay the United States the following annual charge, effective as of the date of commencement of project construction:

(a) For the purposes of reimbursing the United States for the cost of administering Part I of the Federal Power Act, 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 4,000 kilowatts.

(b) Recompensing the United States for use, occupancy, and enjoyment of 270 acres of its lands, other than for transmission line right-of-way.

Article 202. Pursuant to Section 10(d) of the Federal Power Act, after the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and

preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. Within 45 days of the issuance of the license, the licensee shall file a complete original set and two complete duplicate sets of aperture cards of all the approved drawings, and a third, partial duplicate set of aperture cards showing only the Exhibit G drawings. The set of originals must be reproduced on silver or gelatin 35mm microfilm. The duplicate sets are copies of the originals made on diazo-type microfilm. All microfilm must be mounted on type D (3¼" x 7-3/8") aperture cards. The licensee shall submit two copies of Form FERC-587 with aperture cards.

Prior to microfilming, the FERC Drawing Number (11077-1 through 11077-21) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number must be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (e.g., F-1, G-1, etc.), Drawing Title, and date of issuance of this license must be typed on the upper left corner of each aperture card.

The complete original set and one complete duplicate set of aperture cards, and one copy of the Form FERC-587, must be filed with the Secretary of the Commission, ATTN: DPCA/ERB. The second complete duplicate set of aperture cards shall be filed with Commission's Portland Regional Office. The third, partial duplicate set of aperture cards (Exhibit G only) and the remaining copy of Form FERC-587 shall be filed with the Bureau of Land Management Office at the following address:

State Director
Alaska State Office
Bureau of Land Management
Division of Lands and
  Renewable Resources (AK-930)
ATTN: FERC Withdrawal Recordation
222 W. 7th Avenue, No. 13
Anchorage, AK 99513-7599

Article 301. The licensee shall commence construction of the project works within 2 years from the issuance date of the license and shall complete construction of the project within 4 years from the issuance date of the license.

Article 302. The licensee shall, at least 60 days prior to the start of construction, submit one copy to the Commission's Regional Director and two copies to the Director, Division of Dam Safety and Inspections of the final contract drawings and specifications for such pertinent features of the project, such as water retention structures, all necessary transmission facilities, powerhouse, and water conveyance structures. The Director of Dam Safety and Inspections may require changes in the plans and specifications.

Article 303. Within 90 days after finishing construction, the licensee shall file for Commission approval revised exhibits A, F, and G to describe and show the project as built.

Article 304. Before starting construction, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations and shall make sure construction of the cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of the cofferdam, the licensee shall submit one copy to the Commission's Regional Director and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, Division of Dam Safety and Inspections), of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 401. At least six months before the start of any land-disturbing or land-clearing activities, the licensee shall file with the Commission, for approval, a final erosion and sediment control plan to control soil erosion and to minimize the quantity of sediment resulting from project construction and operation.

The plan shall be based on actual-site geological, soil, and groundwater conditions and on project design. The final erosion and sediment control plan must be complete and specific and shall be based on the draft erosion and sediment control plan submitted on March 30, 1995. The final erosion and sediment control plan shall include the Forest Service's (FS's) mandatory conditions imposed under Section 4(e) of the Federal

Power Act that include: (a) an erosion and sediment control plan (Article 108); (b) a solid waste and waste water plan (Article 109); and (c) a hazardous substance plan (Article 110). The final erosion and sediment control plan shall include sediment control ponds, silt fence barriers, stream bank stabilization, rock entrance roads, a revegetation plan, and must comply with the Best Management Practices described in the FS Region 10 Soil and Water Conservation Handbook for this type of construction.

The licensee shall prepare the plan after consultation with the FS, the U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, Alaska Department of Natural Resources, the Soil and Water Conservation Board and other interested agencies.

The licensee shall include with the plan documentation of consultation and 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 prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on geological, soil, and groundwater conditions at the site.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 402. The wildlife mitigation plan required by Article 112 shall be prepared after consultation with the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game, and shall include measures to: (a) leave as much vegetation as possible during construction of the powerhouse and penstock; (b) revegetate disturbed areas as soon as possible after disturbance and follow Forest Service (FS) guidelines for revegetating the disturbed areas; (c) use a helicopter or donkey-winch to transport the penstock to its location to protect as much natural vegetation as possible; and (d) design the penstock to avoid interference with wildlife movements. The plan must include a schedule for accomplishing these measures.

The licensee shall include with the plan documentation of consultation and 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, if any, are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons for not adopting that recommendation.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan including any changes required by the Commission.

Article 403. The licensee shall design and construct the transmission line based on the licensee's conceptual design plan filed with the Commission in March 1995, in accordance with guidelines set forth in "Suggested Practices for Raptor Protection on Power Lines --- the state of the Art in 1981," by Raptor Research Foundation, Inc.

The licensee shall consult with the U.S. Fish and Wildlife Service, the Alaska Department of Fish and Game, and the Forest Service in implementing these guidelines, and shall develop and implement a design that will provide adequate separation of energized conductors, ground wires, and other metal hardware, adequate insulation, and any other measures necessary to protect raptors and other large birds from electrocution.

As-built drawings of the transmission line must be included in the filings pursuant to Article 303.

Article 404. The licensee shall prepare the visual resource protection plan required by Article 107 in consultation with the Forest Service and the National Park Service, and shall file the plan with the Commission, for approval, within one year of the date of issuance of this license or no later than six months before starting any land-clearing, land-disturbing, or spoil-producing activities at the project.

The licensee shall include with the plan documentation of consultation and 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, if any, are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on landscape conditions and other site-specific conditions.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan including any changes required by the Commission.

Article 405. At least six months before the start of any land-disturbing activities, the licensee shall file with the Commission for approval, a plan to construct, operate, and maintain the priority streamflow release device and the continuously-recording stream gage required in Article 106. The filing shall include a stage-discharge chart.

The licensee shall prepare the plan after consultation with the Forest Service and the National Park Service. The licensee shall include with the plan documentation of consultation and 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, if any, are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on flows and other site-specific conditions.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan including any changes required by the Commission.

Article 406. The licensee shall file, with the Commission, annual reports for the preceding water year of the streamflow at the gaging station required in Article 106. The reports shall be filed by December 31, of each year for the duration of the project's license. The initial report shall be filed by December 31, of the year the project commences operation. The filing shall include comments on the report from the Forest Service.

Article 407. The licensee shall implement the Memorandum of Agreement (MOA) on cultural resources executed on May 20, 1996, for the Goat Lake Hydroelectric Project. Within one year after the date of issuance of the license, the licensee shall file, for Commission approval, the cultural resources management plan prepared pursuant to stipulations of the MOA. In preparing the cultural resources management plan, the licensee shall take into account the comments of the National Park Service in its letter to the Commission dated March 25, 1996, about protecting the visual integrity of the Skagway Historic District and White Pass National Historic Landmark.

Article 408. (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 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 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 Hydropower Licensing, 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 insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

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

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that

land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

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

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

(F) 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 this order, pursuant to 18 C.F.R. § 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.

Fred E. Springer
Director, Office of
Hydropower Licensing

FINAL
ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE

Goat Lake Hydroelectric Project

FERC Project No. 11077-001

Alaska

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
888 First Street, NE
Washington, D.C. 20426

and

U.S. Forest Service
Tongass National Forest - Chatham Area
Juneau Ranger District
8465 Old Dairy Road
Juneau, Alaska 99801

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SUMMARY

The Alaska Power and Telephone Company (AP&T) proposes to construct, operate, and maintain the 4-megawatt Goat Lake Hydroelectric Project on Pitchfork Falls, near the town of Skagway in southeast Alaska. AP&T has applied to the Federal Energy Regulatory Commission (Commission) for an original hydropower license and to the U.S. Forest Service (FS) for a special-use authorization to operate the project on the Tongass National Forest.

To facilitate decisions whether to issue the hydropower license and special-use authorization, we (Commission and FS staffs) prepared this final environmental assessment to evaluate how the proposed project (FERC No. 11077-001) would affect environmental resources in the Goat Lake drainage area and determine whether additional protection or mitigation measures may be needed to protect and improve the environmental resources and provide the best comprehensive development of the waterway. In addition, we also examine the no-action alternative.

Accordingly, we agree with AP&T's proposed project and mitigation. We recommend that AP&T: (1) develop and implement a final erosion and sediment control plan to include detention of pond run-off, preventing localized erosion, stabilizing stream channel banks, controlling access road erosion, and handling solid waste, waste water, and hazardous substances; (2) leave as much vegetation as possible during project construction; (3) revegetate all disturbed areas from construction as soon after disturbance as possible using FS guidelines; (4) use a helicopter or donkey-winch during project construction to protect the natural vegetation; (5) design the penstock to avoid interference with wildlife; (6) construct the transmission line to avoid possible hazards to large birds; (7) adjust the

construction schedule to avoid possible mountain goat disturbance; (8) screen the powerhouse and substation using measures that match the surrounding aesthetic environment; (9) establish a 13 cubic feet per second instream flow over Pitchfork Falls, May through September for 12 hours a day to maintain the natural aesthetics of the area; and (10) develop and implement a cultural resources management plan.

Under our recommended alternative, we find that none of the resources--which include water, fishery, wildlife and terrestrial, visual, recreational, and cultural resources--would suffer significant adverse impacts. Therefore, no environmental impact statement is required.

FINAL ENVIRONMENTAL ASSESSMENT

Federal Energy Regulatory Commission
Office of Hydropower Licensing, Division of Project Review
Washington, D.C.
and
U.S. Forest Service
Tongass National Forest, Juneau Ranger District
Juneau, Alaska

GOAT LAKE HYDROELECTRIC PROJECT
FERC NO. 11077-001- ALASKA

I. INTRODUCTION

The Federal Energy Regulatory Commission (Commission), acting as lead agency, and the U.S. Forest Service (FS) -- Juneau Ranger District, Chatham Area, as cooperating agency,

have prepared this final environmental assessment (FEA) for the proposed Goat Lake Hydroelectric Project. In accordance with the National Environmental Policy Act of 1969,12/ issuing a license decision on the project requires preparation of either an EA or Environmental Impact Statement.

We (the Commission and FS staffs [staff]) analyze the environmental and socioeconomic impacts associated with constructing, operating, and maintaining this project, as proposed by Alaska Power and Telephone Company (AP&T). We also consider effects of alternatives to the project.

II. APPLICATION

On May 31, 1994, AP&T filed an application with the Commission for a license to construct the proposed Goat Lake Hydroelectric Project. The proposed 4-megawatt (MW) seasonal storage project would be constructed along Pitchfork Falls,13/ located about 7 miles northeast of the town of Skagway in southeast Alaska (Figure 1), within sections 10, 11, 14, 15 and 16 of Township 27 South, Range 60 East, of the Copper River Meridian.

Figure 1. Location of the proposed Goat Lake Hydroelectric Project, FERC No. 11077-001, Alaska (Source: Alaska Power and Telephone Company 1994a, b).

12/ Pub. L. 91-190. 42 U.S. C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, §4(b), Sept. 13, 1982.

13/ Pitchfork Falls is a one-mile-long cascading stream that flows from Goat Lake and descends 2,100 feet over a steep, 30 percent gradient to the Skagway River. The most prominent portion of the falls, and the steepest drop, is located between the White Pass and Yukon Route Railroad and the Skagway River.

Pitchfork Falls is a tributary to the Skagway River, which originates in Canada and generally flows southward and terminates at Taiya Inlet, adjacent to the town of Skagway. The project would occupy about 270 acres of the Tongass National Forest, administered by the Juneau Ranger District. A small portion of the project's proposed transmission line lies on 2.9 acres of state-owned lands. The U.S. Army Corps of Engineers (Corps) has concurrently evaluated a permit application from AP&T pursuant to Section 404 of the Clean Water Act, for dredging and filling activities associated with the project (Alaska Power and Telephone Company 1995f). The project is not intended for flood control, navigation, agricultural purposes, or irrigation.

We issued the jointly prepared Goat Lake draft Environmental Assessment (DEA) for comments on March 11, 1996. In response, we received 3 comment letters. We list the commenting entities in "Comments on the Draft Environmental Assessment," section V.F. All comment letters were carefully considered. The sections of the draft EA that have been modified as a result of our reevaluation are identified in Appendix A, "Comments on the Draft EA and Staff Responses."

III. PURPOSE AND NEED FOR ACTION

A. Purpose of Action

The Federal Power Act (FPA) provides the Commission with the exclusive authority to license nonfederal water power projects on navigable waterways and federal lands for a period of up to 50 years.14/ The Commission will use this FEA to decide: (1) whether or not to issue a license, (2) whether issuing AP&T an original hydropower license for the project would be a major federal action significantly affecting the

14/ U.S.C. Sect 791(a)-825(r).

quality of the human environment, and (3) what conditions, if any, would be placed on any license issued for the project.

To ensure that the Goat Lake Hydroelectric Project would be operated in a manner consistent with the National Forest System lands and resources, the FS will use this FEA to decide: (1) what mandatory license terms and conditions they would require, under section 4(e) of the FPA, to adequately protect the Tongass National Forest, should the Commission issue an original license for the project, (2) whether to issue AP&T a special use authorization (SUA) for those portions of the project that fall on national forest lands, and (3) whether these required measures would be consistent with their multiple use, land stewardship responsibilities. The SUA would authorize occupancy and use of forest lands for hydropower development that would include requirements necessary for comprehensive and compatible use of natural resources, consistent with the purposes for which the forest was established.

B. Need for Power

AP&T proposes to use power from the Goat Lake Hydroelectric Project to replace generation from diesel powered generation facilities in the nearby town of Skagway, Alaska. Since Skagway has no transmission lines connected to any other area, there is no market for any power generated from the project other than that needed to meet Skagway's electrical demands. By supplementing AP&T's existing Dewey Lakes Hydropower Project, the proposed project would serve Skagway's residential, commercial, and industrial loads.

In 1994, AP&T's actual peak demand in the Skagway service area was 1,760 kilowatts. For the years 1974 to 1993, AP&T's electric loads for Skagway have been increasing at an average annual rate of 6 percent. From 1994 to 2003, AP&T's mid-load forecast predicts the electric loads will grow at an average of 5.5 percent annually. Beyond 2004, AP&T assumes an average mid-load growth of 1.4 percent annually.

Power from the proposed project would be useful in meeting the above need for power. When operational, power from the project would be available to displace diesel generation on AP&T's system, conserving fossil fuels and reducing atmospheric pollution.

IV. PROPOSED ACTION AND ALTERNATIVES

A. AP&T's Proposal

1. Project Description

AP&T proposes to construct the following project facilities (Figure 2): (1) a 14-foot-wide by 125-foot-long uncontrolled spillway to replace the existing natural lake outlet which would be filled in; (2) a submerged wedgewire screen intake assembly positioned in Goat Lake at elevation 2,875 feet mean sea level (msl), and with a mechanically operated trash rake for cleaning; (3) a 30-inch-diameter, 600-foot-long steel or high density polyethylene chloride siphon pipe attached to a vacuum pump assembly within a 12-foot by 12-foot siphon pump house; (4) a pumpback/valve station consisting of a 10-foot by 18-foot metal building with two 30-horsepower pumps connected to a 14-inch pipe for returning water to the lake;15/ (5) an 8-foot-high by 25-foot-long concrete retaining wall with a 14-foot-wide spillway (elevation 2,876 feet msl) forming a 0.014-acre-foot storage catchbasin located in a portion of the existing pond; (6) a 6,200-foot-long, 22-inch-diameter steel penstock extending from the pumpback station to the powerhouse; (7) a single level, 30-foot by 40-foot powerhouse containing one horizontal twin jet Pelton turbine unit with a generating capacity of 4 MW and a maximum hydraulic capacity of 32 cubic feet per second (cfs); (8) a small substation with a

15/ The proposed 30-inch siphon pipe and 14-inch water return pipe would be laid in the existing 5-foot-wide natural lake outlet before it is filled.

Figure 2. Major Features of the proposed Goat Lake Hydroelectric Project, FERC No. 11077-001, Alaska (Source: Alaska Power and Telephone Company 1994a, b).

pad-mounted step-up transformer, automatic recloser, and transmission line dead-end structure adjacent to the powerhouse; and (9) a 3,400-foot-long, 24.9-kilovolt (kV) aerial transmission line on wooden poles extending from the substation, across the Skagway River to the Customs Border Station where it interties with AP&T's existing 24.9-kV transmission line to Skagway; and (10) a single cable, 500-foot-long aerial tram originating near the end of a 1,000-foot-long access road within a 60-foot-wide right-of-way be built from the Klondike International Highway to provide access to the project.

2. Project Operation

Goat Lake is a very deep natural impoundment. Inflows to Goat Lake come from a combination of precipitation and glacial runoff. The glacier, located above the moraine at the south end of the lake, also provides runoff to the pond below Goat Lake and to Pitchfork Falls, which descends about 2,100 feet in elevation from the pond to its confluence with the Skagway River.

AP&T proposes to automatically operate the project using the normal water outfall from Goat Lake to generate power. They also propose to draft Goat Lake to generate power during periods of low runoff or high energy demands. The normal water surface elevation of Goat Lake is 2,915 feet msl and AP&T proposes to limit lake drawdown to 30 feet.

AP&T also proposes to pump water from the catchbasin below Goat Lake, back to Goat Lake for regulated storage. AP&T would pump from October through April, when there is no requirement to

release flows into Pitchfork Falls,16/ and May through September, during the hours the instream flow is not required. During the hours that AP&T proposes to provide flows to Pitchfork Falls, the pump output would be regulated to allow the required release of water to the falls. If natural water flow to the catchbasin would not be sufficient to meet the instream requirements, a valve would open to release water from Goat Lake to supplement flows.

AP&T would provide to the 6,200-foot-long bypassed reach, a minimum instream flow of 13 cfs May through September for 12 daylight hours per day.

3. Proposed Environmental Measures

AP&T proposes the following measures to protect environmental resources that may be affected by the project:

- Implement an erosion and sediment control plan to include measures that would detain pond run-off, prevent localized erosion, stabilize stream channel banks, and control access road erosion

- Leave as much vegetation as possible during powerhouse and penstock construction; revegetate all vegetated areas disturbed by project construction activities; follow FS guidelines for revegetating disturbed areas

- Use a helicopter or donkey-winch to transport the penstock to its location to protect as much natural vegetation as possible

16/ The flow release into Pitchfork Falls is to maintain the aesthetics, particularly in the steepest, cascading portion between the White Pass and Yukon Route Railroad and the Skagway River.

- ♦Design the penstock to avoid interfering with wildlife movements

- ♦Design and construct the transmission line to prevent hazards to raptors and other large birds

- ♦Adjust the construction schedule of the facilities at the lake to avoid disturbance to mountain goat mating and kidding

- ♦Visually screen the powerhouse and substation with the use of vegetation and/or coloring to match the surrounding environment

- ♦Establish a 13-cfs minimum instream flow over Pitchfork Falls during May through September for 12 daylight hours a day to maintain the aesthetics of the area, by use of a priority flow bypass device

- ♦Implement a cultural resources management plan to protect portions of the Skagway Historic District and White Pass National Historic Landmark (Historic Landmark), which includes the Brackett Wagon Road and White Pass and Yukon Route Railroad (WP&YR RR); and the historic Canadian Oil pipeline affected or potentially affected by the project, pursuant to a memorandum of agreement (MOA) prepared in accordance with the Advisory Council of Historic Preservation's (Advisory Council) regulations (36 CFR 800) for the National Historic Preservation Act.

We discuss each of these measures in the individual resource sections of this FEA.

4. Mandatory Requirements [4(e) Conditions]

Since the project occupies land of the Tongass National Forest, the FS has authority under Section 4(e) of the FPA, to impose mandatory conditions on any hydropower license the Commission would issue for the project. In its May 9, 1996, letter, the FS filed with the Commission, the following preliminary 4(e) conditions for the license (letter from Phil Janik, Regional Forester, U.S. Forest Service - Alaska Region, Juneau, Alaska, May 9, 1996), and stated that the final 4(e) terms and conditions for the license would be provided within 45 days after issuance of this FEA:

- Condition No. 1 - Requirement to Obtain a FS Special-Use Authorization
- Condition No. 2 - FS Approval of Final Design
- Condition No. 3 - Approval of Changes After Initial Construction
- Condition No. 4 - Consultation
- Condition No. 5 - Minimum Steamflow Regime
- Condition No. 6 - Guaranteed Priority Flow Bypass Device
- Condition No. 7 - Visual Resource Protection Plan
- Condition No. 8 - Erosion Control Plan
- Condition No. 9 - Solid Waste and Waste Water Plan
- Condition No. 10 - Hazardous Substance Plan
- Condition No. 11 - Cultural Resource Protection
- Condition No. 12 - Fish and Wildlife Mitigation Plan

B. No-action Alternative

Under the no-action alternative the project would not be built. Therefore, there would be no changes to the physical, biological, or cultural resources of the area. The generation that the proposed project would provide would not occur. The no-action alternative is the benchmark from which we compare the proposed action and other action alternatives.

C. Alternatives Considered but Eliminated from Detailed Study

The following are descriptions of three alternative transmission line routes that were considered but eliminated from further consideration by AP&T:

Along the White Pass and Yukon Route Railroad

This alignment (about 4,400 feet long) would extend from the proposed substation upslope to the WP&YR RR, southerly along the railroad to the Clifton area, downslope across the Skagway River and lastly, upslope to the Customs Border Station. The reasons this alternative was ruled out from further consideration are that: (1) WP&YR RR plans to remove the existing telegraph line along the railroad right-of-way to provide less visual distraction to the natural aesthetics of the area and because the poles are not needed, (2) additional poles would further add to undesired visual impacts of the area, (3) WP&YR RR would impose cost prohibitive charges to AP&T for constructing the transmission line on the right-of-way easement, (4) steep topography and limited access for construction and maintenance presents engineering constraints, and (5) the visual impact to Klondike International Highway users would be potentially significant due to the taller structures (55-foot-high transmission line poles) compared to the existing 30-foot-high telegraph poles.

On the East Side of the Skagway River

This alignment (about 3,400 feet long) would extend from the proposed substation downriver and parallel to the Skagway River for about 2,900 feet to the Clifton area, then upslope to the Customs Border Station. The reasons this alternative was ruled out from further consideration are that: (1) construction would likely disturb the historic Brackett Wagon Road located along the east side of the river, (2) an extensive, time-consuming historic/cultural resources survey would be required to investigate presence of Gold Rush artifacts along this route,

and the National Park Service discourages ground disturbance before completion of such surveys, (3) required mitigation to offset potential resource losses may be prohibitively expensive, (4) the FS and the town of Skagway may be interested in developing a recreational foot trail along the Brackett Wagon Road and a powerline in this area may not be compatible with land use and (5) this location would increase the visibility of the project from the Klondike International Highway.

Along the Klondike International Highway

This alignment (about 3,900 feet long) would extend from the proposed substation across the Skagway River, upslope to the Klondike International Highway, and southerly to the Customs Border Station. The reasons this alternative was ruled out from further consideration are: (1) the degree of slope for powerline construction to the highway and the amount of bedrock present presents two engineering difficulties, (2) the Alaska Department of Transportation disallows pole line construction along the highway due to the scenic nature of the highway, as seen from the WP&YR RR and as viewed from the highway, (3) visual quality would be impaired with the transmission line emerging from the valley to a point near highway pullouts used to view Pitchfork Falls.

Although each of the transmission line routes considered may have some merits, we agree with AP&T that the alternatives are more environmentally-damaging and more costly to construct than the proposed alignment.

V. CONSULTATION AND COMPLIANCE

A. Agency Consultation

The Commission's hydropower regulations require applicants to consult with the appropriate resource agencies before filing a license application. This consultation is the first step in complying with the Fish and Wildlife Coordination Act, the

Endangered Species Act, the National Historic Preservation Act, and other federal statutes. Pre-filing consultation must be complete and documented according to the Commission's regulations.

After the Commission accepts an application, formal comments may be submitted by concerned entities during a public notice period, in accordance with section 4.34(b) of the Commission's regulations under the FPA [18CFR §4.34(b)]. The comments provided by concerned entities are made part of the record and are considered during review of the proposed project.

On August 29, 1995, and October 27, 1995, the Commission issued public notices that solicited comments and recommendations on the project. The Department of Interior (Interior) responded by letter dated November 27, 1995, however no recommendations were made on the project.

B. Interventions

The Commission's January 6, 1995, notice solicited organizations and individuals to petition to intervene and become a party to any subsequent proceedings. There were no motions to intervene filed for the project.

C. Scoping

Before preparing this FEA, we conducted scoping to determine what issues and alternatives should be addressed. A scoping document (SD1) was distributed to agencies and others on May 18, 1995 (Federal Energy Regulatory Commission and U.S. Forest Service 1995), and noticed in the Federal Register, The Skagway News, and Capital City Weekly. Two scoping meetings were held on June 20 and June 22, 1995, in Skagway and Juneau, Alaska, respectively. Verbal comments received during the scoping meetings are recorded in the meeting transcripts (Ann Riley and Associates 1995a, 1995b).

In response to SD1, we received written comments from the National Park Service (NPS) (letter from Clay Alderson, Superintendent, Klondike Gold Rush Park, Skagway, Alaska, June 22, 1995). These comments and the comments received at the scoping meetings were addressed in the final scoping document (SD2) issued September 27, 1995. The main issues identified during scoping were: project impacts on the cultural value of the Brackett Wagon Road, cultural resources protection, access to the project, location and type of transmission system, mitigation of archeological and scenic concerns, minimizing vegetation impacts, measures to protect wildlife, baseline data on mountain goats, time restrictions of bypass instream flows, natural resources management, project economics, contributions of air-borne pollution from fossil-fueled generation, and baseline environmental information. These issues are addressed in this FEA.

D. Water Quality Certification

On September 1, 1994, AP&T applied to the Alaska Department of Environmental Conservation (ADEC) for water quality certification for the Goat Lake Hydroelectric Project, as required by Section 401 of the Clean Water Act (33 U.S.C. §1341). The ADEC received this request on September 6, 1994. On October 3, 1994, the ADEC waived AP&T's Section 401 water quality certificate (letter from R. Flinn, Program Manager, Alaska Department of Environmental Conservation, Juneau, Alaska, October 3, 1994).

E. Coastal Zone Management Act

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

On August 18, 1994, AP&T applied to the Alaska Division of Governmental Coordination (ADGC) for a consistency determination of the project with the coastal zone management program (letter from Stan Selmer, Site Coordinator, Alaska Power and Telephone Company, Skagway, Alaska, August 18, 1994). On September 6, 1994, the ADGC acknowledged AP&T's certification request.

On November 27, 1995, the ADGC certified that the Goat Lake Project was consistent with the Alaska CZMA and also with the Skagway Coastal Management Plan. No conditions or stipulations were included.

F. Comments on the Draft Environmental Assessment

Commenting Entity	Date of Letter
U.S. Fish and Wildlife Service	March 25, 1996
Alaska Power and Telephone Company	April 4, 1996
National Park Service	April 15, 1996

Appendix A includes the comments from the above entities along with our responses to them. Based on our responses, the corresponding sections of the FEA have been modified.

VI. ENVIRONMENTAL ANALYSIS

In this section, staff first describes the general environmental setting in the project area. Included is a discussion of environmental resources in the Skagway River Valley that may be subject to cumulative effects from the Goat Lake Project when considered in combination with other actions affecting the resource.

In our detailed assessment, we discuss each environmental resource affected by the project. For each resource, we first describe the affected environment--which is the existing condition and the baseline against which to measure the effects of the proposed project and any alternative actions--and then the environmental effects of the project, including proposed mitigation measures. In evaluating the environmental effects of the project, we consider both site-specific effects and any cumulative effects to resources in the basin.

Unless we say otherwise, the sources of our information are the license application (Alaska Power and Telephone Company 1994a-c) and additional information filings by AP&T (Alaska Power and Telephone Company 1995a-e, 1995g).

A. General Description of the Goat Lake Drainage Area

The project would be located east of the Skagway River along Pitchfork Falls, about 7 miles northeast of Skagway, Alaska. Founded in 1896, at the extreme north end of Lynn Canal, Skagway became an important stopover of gold seekers on their way to the Klondike gold fields. With the ebbing of the Klondike Gold Rush (see section VI.B.6.), Skagway's population dwindled. The present mainstay of Skagway's economy is tourism, where many tourists visit the area each year for the natural scenery in the Skagway River Valley. The project basin is also used occasionally for outdoor recreation such as hunting and camping.

The project area and Skagway River Valley have a remote, wild, and undeveloped character. In particular, the lower portion of Pitchfork Falls has a prominent series of cascading waterfalls which is a popular attraction among local residents and visitors to the area. The three significant linear features that Pitchfork Falls crosses are the WP&YR RR at elevation 1,104 feet msl, the Canadian Oil pipeline along the railroad right-of-way, and the historic Brackett Wagon Road located about 200 feet below and generally parallel to the railroad.

The project's 4.2-square-mile drainage basin includes glaciers, moraines, rugged mountainous terrain, and high-gradient streams with cascades and pools. The topography of the region is primarily the result of glaciation about 13,000 years ago.

The landscape of the project area is made up of forests, mixed with mountain meadows, exposed bedrock and boulders, shrubland communities, meadows, and scattered wetlands. The Tongass National Forest provides habitat for about 54 species of mammals, 231 species of birds, and 5 species of amphibians and reptiles (U.S. Forest Service 1991a, 1991b).

The 943-kilowatt Dewey Lakes Project (FERC No. 1051), located about 1 mile east of Skagway, is the only existing hydropower project in the Skagway region. This project was originally licensed on April 1, 1980, and the license expires on August 29, 2007.

1. Cumulative Impacts

An action may cause cumulative impacts on the environment if its impacts overlap in space and/or time with the impacts of other past, present, and reasonably foreseeable future actions. The individually minor impacts of multiple actions, when added together in space and time, may amount to collectively significant cumulative impacts. The existing environment shows the effects of past and present actions and provides the context for determining the significance of cumulative impacts from future actions.

In SD2, we identified tourism and sightseeing opportunities as two elements that could be cumulatively affected by development of the project in combination with existing and potential development in the area. However, after further analysis, we don't believe there is a potential for these, or other resources to be cumulatively affected. The following is the basis for our conclusion:

♦ The Clinton Customs Border Station, the Klondike International Highway, and the WP&YR RR (Figure 1) are the main non-hydropower developments in the Skagway River Valley. Except for other small and isolated structures, there are no other visible human developments in the valley. None of these developments has contributed, nor is expected to contribute, to adverse impacts on tourism and sightseeing opportunities in the area. At this time, there is no known development planned.

♦ Because of its location in a forested environment, the Dewey Lakes Project is not visible from primary public viewing locations such as the Klondike International Highway, the WP&YR RR, or from the town of Skagway. Visual effects of this development can only be seen from hiking trails that lead to the site from Skagway, or by flying over the project above 500 feet msl elevation. Therefore, the Dewey Lakes Project does not adversely affect tourism and sightseeing opportunities in the valley.

♦ AP&T proposes site-specific measures to minimize potential adverse effects from project development on the aesthetic quality of the Goat Lake Project area (see section VI.B.5.). These measures, which are consistent with the Tongass Land Management Plan, would minimize any impacts to visual resources in the project area; therefore eliminating any impacts to tourism and sightseeing opportunities.

B. Proposed Action and Action Alternatives

1. Geology and Soil Resources

a. Affected Environment: The project area consists of exposed bedrock with talus and alluvium deposits. The slopes range from flat to steep. The steeper slopes have an

accumulation of rock debris that has formed fan shaped deposits (talus deposits) at the base of steep-sided cliffs. The less steep slopes are alluvium deposits of sand, gravel, cobbles, and boulders with traces of silt and woody debris. An organic soil (muskeg) is also found in the project area. Muskegs consist of a soft, highly compressible mixture of peat moss, roots, and other vegetation. The talus and alluvium deposits together with muskeg underlain by bedrock, provide a stable area with little chance of erosion or sedimentation. However, occasionally, water streams with high velocities, water from snow melt, snow avalanches, or major landslides could cause this type of material to shift and move causing erosion and sedimentation.

b. Environmental Impacts and Recommendations: Construction of the penstock, powerhouse, catchbasin, siphon house, pumpback/valvehouse and other project features have the potential to cause erosion and sedimentation that would affect water quality.

On March 30, 1995, AP&T submitted a draft erosion and sediment control plan (ESCP) that outlined the methods and techniques to be followed to control construction impacts during land-disturbing activities. These measures include sediment control ponds, silt fence barriers, streambank stabilization, and use of rock to construct entrance roads. Also, AP&T proposes to use aerial trams and helicopters to transport construction materials to job sites, and to revegetate disturbed areas as quickly as possible after construction is completed.

The U.S. Fish and Wildlife Service (FWS), Alaska Department of Fish and Game (ADFG), and Alaska Department of Natural Resources (ADNR) all agree that the methods and measures outlined in AP&T's draft ESCP address project construction impacts and would ensure maintenance of water quality (letters from Nevin Holmberg, Field Supervisor, U.S. Fish and Wildlife Service, April 17, 1995; John Palmes, Area Habitat Biologist, Alaska Department of Fish and Game, Douglas, Alaska, April 11, 1995; and William Long, Executive Director, Soil and Water

Conservation Board, Alaska Department of Natural Resources, Anchorage, Alaska, May 1, 1995).

The FS concludes that the potential for soil erosion is low and that mitigation for any potential erosion is outlined in the draft ESCP. However, the FS says that under their section 4(e) authority, and granting a SUA, AP&T would have to further develop its draft ESCP. The final plan would be required to comply with the Best Management Practices described in the FS Region 10 Soil and Water Conservation Handbook for this type of construction. Also, under their section 4(e) authority, the FS would require AP&T to develop solid waste, wastewater, and hazardous substance plans before land-disturbing activities.

Staff concludes that the potential for erosion and sedimentation to occur in the project area is low because of the mostly stable slopes. Further, we agree with the agencies that AP&T's draft ESCP outlines methods and measures to be followed during land-disturbing activities that would control construction impacts and protect water quality. However, we also agree with the FS that AP&T needs to develop a final ESCP prior to land-disturbing activities because the draft plan is general and not site-specific enough for construction.

Therefore, we recommend that AP&T develop a final site-specific ESCP using its draft as a basis for the final plan. We further recommend that the final plan include provisions for handling solid waste, wastewater, and hazardous substances. The final plan should be developed in consultation with the FS, and other agencies, and approved by the FS before it is filed for Commission approval.

c. Unavoidable Adverse Impacts: Minor, temporary and localized erosion that would cause temporary sedimentation would be unavoidable during construction activities.

2. Aquatic Resources

a. Affected Environment: The Goat Lake outlet flows through a 5-foot-wide, bedrock notch and combines with runoff from the glacial moraine to form a shallow pond about 600 feet below the lake. The pond outflow descends 2,100 feet over a steep, 30 percent gradient and forms Pitchfork Falls before entering the Skagway River.

Water Quantity

Inflows to Goat Lake result from a combination of precipitation and glacial runoff. AP&T used U.S. Geological Survey (USGS) flow data, recorded for the Skagway River at the town of Skagway from 1964 through 1986, to estimate the inflows to Goat Lake by calculating its drainage as a proportion of the Skagway River drainage. Table 1 shows the estimated average annual and monthly inflows to Goat Lake.

The glacier, located above a moraine area at the south end of Goat Lake, is about 1.7 square miles and provides runoff through the moraine to Goat Lake, the pond below Goat Lake, and to Pitchfork Falls below the pond. To develop hydrologic data for the project site, flow gages were installed at the outlet to Goat Lake, the outlet of the pond below Goat Lake, and above Pitchfork Falls near the railroad line. The data for water years 1991 through 1994 show that about 18 percent of the Pitchfork Falls flows are from glacial runoff and the remainder from the pond outflow. Table 2 shows the estimated average annual and monthly flows in Pitchfork Falls as recorded at the gage located at Pitchfork Falls near the railroad line.

Table 1. Estimated average inflows to Goat Lake for water years 1964 through 1986 (Source: Alaska Power and Telephone Company 1995b).

MONTH	FLOW (cfs)	MONTH	FLOW (cfs)
January	0.9	July	35.2
February	0.7	August	26.1
March	0.7	September	16.2
April	1.5	October	9.4
May	9.9	November	3.4
June	29.9	December	1.1
Annual Average 11.3 cfs			

Table 2. Estimated average flows for Pitchfork Falls for water years 1991 through 1994 (Source: Alaska Power and Telephone Company 1995b).

MONTH	FLOW (cfs) 1/	MONTH	FLOW (cfs) 1/
January	2.1	July	36.8
February	2.1	August	26.8
March	2.1	September	19.2
April	1.9	October	10.9
May	15.7	November	2.0
June	42.9	December	2.8
Annual Average 13.8 cfs			

1/ AP&T developed high and low hydrologic averages by using the average from the gage records as a low estimated average and increasing it by 20 percent to represent a high estimated average. We are using the low estimate as the more realistic average. AP&T provided us with monthly estimated averages only for the high estimate, so we calculated the monthly estimates

for Table 2 by applying the corresponding monthly percents of the high annual average to the low annual average.

Water Quality

Water quality in the proposed project area complies with applicable state standards. AP&T conducted water quality studies during August 1992, March and July 1994, and January and March 1995. Water samples for the study were collected from the surface of Goat Lake, 25 feet below the lake surface, and from the Skagway River above and below the outlet of Pitchfork Falls.

Dissolved oxygen levels ranged from 7.1 milligrams per liter (mg/l) to 12.2 mg/l in Goat Lake and from 8.2 mg/l to 9.8 mg/l in the Skagway River. Turbidity levels ranged from 1.49 nephelometric turbidity units (NTU's) to 9.11 NTU's in Goat Lake and from 0.47 NTU's to 44.2 NTU's in the Skagway River. The pH levels ranged from 6.8 to 7.25 in Goat Lake and from 7.11 to 7.51 in the Skagway River. Conductivity levels ranged from 35 microsiemens per centimeter (µS/cm) to 54.6 µS/cm in Goat Lake and from 23 µS/cm to 64.2 µS/cm in the Skagway River.

Temperature profiles were developed for Goat Lake in August 1992, July 1994, and March 1995. The temperatures in Goat Lake ranged from 0.0° Celsius (C) to 5.5°C with no significant thermal stratification in any single profile.

Fisheries

In April 1994, AP&T and the ADFG conducted a fish survey in the Skagway River upstream and downstream of the Pitchfork Falls outlet. During the survey, no fish were captured or observed. The survey report showed that existing habitat conditions are extremely poor because of the high gradient and lack of overwintering and rearing habitats. The survey results indicate that this section of the Skagway River does not support any

significant fish populations (Alaska Power and Telephone Company 1995b).

Goat Lake is a coldwater, nutrient-poor lake that historically has not supported fish populations. The ADFG and the FS recently conducted an experimental stocking of Arctic grayling in Goat Lake in an effort to establish a naturally reproducing fish population that would support a fly-in sport fishery. The ADFG stocked the lake with 1,000 immature Arctic grayling in 1994 and 1995; however, a fishery survey conducted after the 1995 stocking found no surviving population (personal communication with Mike Schwan, Supervisor, and John Palmes, Area Wildlife Biologist, Alaska Department of Fish and Game, Juneau, Alaska, November 8, 1995).

b. Environmental Impacts and Recommendations:

Water Rights

AP&T has applied to the ADNR for the right to withdraw up to 45 cfs from Goat Lake for hydroelectric power use. There are no existing allocations of water from Goat Lake or the Skagway River for consumptive or non-consumptive uses, so no other water users would be affected by the project.

Fisheries

In SD 2, we identified one aquatic resource issue for analysis:

"Whether project drawdowns would limit Arctic grayling access to spawning streams entering Goat Lake, should a population become successfully established."

During the scoping process we received comments on this issue from the FS, the ADFG, and AP&T. The commenters stated that the effects of a 20- to 30-foot drawdown on the entrances to the spawning streams would not be known until after the areas were exposed (Ann Riley and Associates 1995a, 1995b). Based on

the findings of the ADFG survey conducted after the June 1995 stocking, we have concluded that no Arctic grayling population has established in Goat Lake, eliminating any potential project effects.

c. Unavoidable Adverse Impacts: None

3. Terrestrial Resources

a. Affected Environment: The project area contains a variety of resource habitats: mountain meadows, shrubland communities, herbaceous-sedge meadows, avalanche chutes, bare bedrock and bedrock supporting lichens, open montane coniferous forest, scattered wet-sedge meadows, muskegs, alpine heaths, and sedge mats (letter from Mary Clay Stensvold, Regional Botanist, U.S. Forest Service, Sitka Ranger District, Sitka, Alaska, April 29, 1994). The dominant trees are subalpine fir, Sitka spruce, western hemlock, paper birch, and cottonwood while the understory shrubs are dominated by Sitka alder, rusty menziesia, black current, tall blueberry, devil's club, shield fern, crowberry and mountain heather. Herbaceous vegetation include ferns, bunchberry, mosses, five-leaf bramble, twayblade, and Sitka valerian. According to the national wetland inventory, the project area has seven wetland types that are listed on Table 3.

The project area has varied and unique wildlife, which provides consumptive and nonconsumptive uses by the public, including sport, subsistence, photographic, and viewing activities. Some of the wildlife are black bear, pine marten, mountain goat, river otter, hairy woodpecker, and boreal owl.

Among large birds in the project vicinity is the bald eagle, which is not federally threatened in Alaska as it is in the conterminous United States. During the summer of 1993, there were three known nests near Skagway; two are west of town and the third is in the lower reach of the Taiya Inlet (letter from Mike Jacobson, Eagle Management Specialist, U.S. Fish and Wildlife Service, Juneau, Alaska, September 29, 1993). Bald

eagles frequent the Skagway River. Reportedly, as many as 90 eagles have been observed near the head of Taiya Inlet in early spring when spawning candlefish arrive.

Table 3. Wetlands in the project area (Source: Alaska Power and Telephone Company 1995b).

NO.	DESCRIPTION	NAME OF WETLAND	LOCATION
Wetland -1	Lacustrine, limnetic, unconsolidated, permanently flooded system	Goat Lake	head of project area; principle water source of project
Wetland -2	Riverine, intermittent seasonally flooded streambed	Pitchfork Falls	conveys water from Goat Lake to Skagway River
Wetland -3	Palustrine, scrub-shrub, broad-leaved deciduous	unnamed	about 2,400 feet SSW of the proposed penstock; on west-facing slope
Wetland -4	Riverine, upper perennial, unconsolidated bottom	Skagway River	bottom of project; tailrace discharges directly into river
Wetland -5	Palustrine, unconsolidated, semipermanently flooded	unnamed	about 4,800 feet N of Pitchfork Falls and about 1,200 feet west of Goat Lake

Wetland -6	Palustrine, unconsolidated, permanently flooded Palustrine, unconsolidated, semipermanently flooded	these two unnamed wetland sites are in same area	about 1,800 feet NNE of Goat Lake about 1,800 feet NNE of Goat Lake
Wetland -7	Palustrine emergent, persistent, seasonally flooded	unnamed	about 6,000 feet NNE from Goat Lake

Bald eagles have not been seen at Goat Lake or Pitchfork Falls, probably because of the absence of fish, which is the principal component of their diet. No other raptor nest sites are known in the Goat Lake area. Other large birds that may periodically use the project area, in small numbers, are the great blue heron, trumpeter swan, and perhaps Canada goose and sandhill crane.

Surveys indicate that mountain goat use in the area surrounding Goat Lake is minimal (memorandum from Ben Carney, Wildlife Biologist, Alaska Department of Fish and Game, Douglas, Alaska, November 20, 1995). Only two individuals were observed during seven surveys between 1973 and 1994 in the project area. Most of the goats in the project vicinity were near Laughton Glacier, on south-facing slopes along the East Fork of the Skagway River, or on west-facing areas above Goat Lake (letter from Matt Robus, Area Management Biologist, Alaska Department of Fish and Game, Douglas, Alaska, January 27, 1994). A low use mountain goat winter area was identified on the west side of the Skagway River Valley in 1973 (memorandum from John Palmes, Regional Habitat Coordinator, Alaska Department of Fish and Game, Douglas, Alaska, April 9, 1973).

A habitat capability model was developed to estimate the capability of habitats in southeast Alaska to support mountain

goat populations (Suring et al. 1988). Since wintering habitat is the most limiting factor for mountain goats in southeast Alaska, particularly due to heavy snows and limited access to desired forage, wintering habitat was emphasized in the model. The important components affecting winter habitat suitability and capability in the model were availability of wintering food, escape terrain, distance of use from cliffs, southerly aspects, general slope characteristics, successional stage of vegetation, tree canopy, mobility corridors, predation, human disturbance and harvest (U.S. Forest Service and Bureau of Land Management 1995; Alaska Department of Highways 1973). As a result, predicted goat use areas were plotted and the closest suitable habitat was about 1,400 feet northeast of Goat Lake at elevation 3,150 feet msl, and about 2,000 feet due south of the lake at elevation 3,500 feet msl. Based on physical attributes of the Goat Lake basin, the project area is not expected to be a kidding area.

b. Environmental Impacts and Recommendations:

Habitat Disturbance

Project construction of the valvehouse, new spillway, siphon house, penstock, powerhouse, transmission line, access road, and tramway would physically disturb an estimated 9.25 acres of native soils, vegetation, and habitat used by wildlife. To partially offset these losses and minimize disturbance and alteration to these affected resources, AP&T proposes to: (1) leave as much vegetation as possible during powerhouse and penstock construction; (2) revegetate disturbed areas as soon as possible after disturbance, (3) follow FS guidelines for revegetating disturbed areas; (4) use a helicopter or donkey-winch to transport the penstock to its location to protect as much natural vegetation as possible; and (5) design the penstock to avoid interference with wildlife movements. These measures have largely resulted through agency consultation during the preapplication stage.

Staff believes implementation of these measures would minimize, protect, or avoid adverse effects on terrestrial resources in the project area. Staff, therefore, recommends that the proposed terrestrial resource protection and mitigation measures should be implemented to ensure conservation of these resources.

Wetlands/Riparian

Construction of the new spill route, diversion structure, penstock, tailrace, pumpback house, siphon house, and backfilling of the old channel outlet would affect less than 1.0 acre of small, isolated alpine heaths, sedge-grass meadows, sedge mats, and alpine herbaceous meadows having saturated soils and wetland characteristics. The selected site for the powerhouse and substation is about 1,600 feet downriver and on the east side of the Skagway River from the confluence of Pitchfork Falls with the Skagway River.

On March 16, 1995, the FS agreed that the wetlands and riparian habitats were not in direct conflict with the project features and that unavoidable incidental impacts to wetland habitats would be minor.

We find that since AP&T: (1) has designed the project features to avoid the project area wetlands as much as possible, (2) would avoid effects on wetlands during construction as much as possible, as outlined in the application, and (3) would revegetate disturbed areas as quickly as possible after construction, as outlined in the draft ESCP and recommended in the final ESCP (section VI.B.1.), all reasonable efforts would be made to minimize wetland impacts and protect water quality.

Raptor Protection of Transmission Line

a. Electrocution

AP&T proposes to construct a 3,400-foot-long, 24.9-kV aerial transmission line. The alignment would start at the substation, cross the Skagway River, continue downgradient and parallel along the west side of the Skagway River near Clinton, and then traverse upslope to the Customs Border Station to intertie with AP&T's existing 24.9-kV transmission line to Skagway. The entire west side of the river is state land.

Because the transmission line could represent an electrocution hazard to bald eagles and other large birds in the area, AP&T plans to design and construct the line to prevent possible long-term hazards to raptors and other large birds. Accordingly, AP&T would construct the line to meet or exceed the Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1981 (Olendorff et al. 1981). In particular, the energized conductors would be positioned far enough apart (minimum separation of 60 inches) that large birds would be unable to simultaneously touch two or more of them with their wings or other body parts.

In their March 15, 1995, response, the FWS and FS concurred with AP&T's raptor protection measures on the transmission line.

According to Olendorff et al. (1981), transmission lines less than 69 kV could pose an electrocution hazard to birds because of birds' bodily contact with energized conductors. While we recognize that the project area appears to have only incidental occurrences of bald eagles and other large birds, we nevertheless agree with AP&T's long-term measures to safeguard against any possible electrocution to bald eagles and other large birds.

b. Collision

Due to the absence of eagle nest sites, communal roosts, and endangered raptors in the project area, AP&T doesn't propose collision avoidance measures on the transmission line. In areas of high fog, strong electrical and rain storms, and other

climatic conditions, it is possible that transmission lines could pose collision hazards to small and large birds, including eagles. There are no recommended agency measures to prevent collision hazards.

A literature review shows that raptor collisions with transmission lines are random, low level, and inconsequential. Eagles have keen eyesight, use relatively slow flapping flight speed, and become conditioned to the presence of transmission lines (Olendorff and Lehman 1986).

We agree with AP&T that no collision measures are needed because of the following: (1) large bird populations in the project area are very low in numbers, and (2) it doesn't seem likely that bird strikes with power lines would contribute to substantial bird losses in the project area. We therefore conclude that the overhead transmission line, as proposed, is consistent with accepted protection guidelines that would prevent electrocution hazards to large birds. Therefore, AP&T should construct the transmission line as proposed.

Mountain Goats

Chadwick (1983) reports that mountain goat populations have experienced significant declines following habitat alterations and disturbance from hunting and other human activities. In particular, this species is more sensitive to disturbances than any other big game species in North America. The project area has no road access and limited human use.

Project construction would likely cause localized noise and disturbance from helicopter and machinery use; however, the noise is not expected to last long, nor be offensive to normal mountain goat activities during the spring and summer months. Because Goat Lake does not appear to provide important summer or winter mountain goat habitat, this species is not likely to be significantly affected by construction or maintenance activities associated with the project. The ADFG agrees (memorandum from Ben Carney, Wildlife Biologist, Alaska Department of Fish and

Game, Douglas, Alaska, November 20, 1995; letter from Matt Robus, Area Management Biologist, Alaska Department of Fish and Game, Douglas, Alaska, January 27, 1994; memorandum from John Palmes, Area Habitat Biologist, Alaska Department of Fish and Game, Douglas, Alaska, November 22, 1995).

Nevertheless, to minimize any potential adverse effects on goat mating or kidding during project construction, AP&T proposes to adjust the construction schedule, through coordination with the FS and ADFG, to avoid possible disturbance during the mating and kidding periods. Therefore, we agree with AP&T's proposed protection measure and recommend this protection measure be included in any license issued for the project. To further ensure that wildlife, including goats, are not affected by helicopter activity in the project area, the FS is including in their required section 4(e) conditions, that AP&T file a wildlife habitat plan having the same requirements for minimum distances from wildlife that is required for helicopter tours. This includes maintaining a 1,500-foot vertical and horizontal clearance between helicopters and key goat areas, avoiding known kidding areas from May 15 through June 15, and avoiding harassment of wildlife in any way.

c. Unavoidable Adverse Impacts: Project construction is expected to alter about 9.25 acres of wildlife habitat and existing landscape resources that include shrublands, open montane coniferous stands, herbaceous-sedge meadows, bedrock supporting lichens, avalanche chutes, muskegs, and alpine heaths and sedge mats.

About one acre of wetland would be affected by project construction, particularly for establishing the penstock.

Use of a helicopter and other equipment during project construction would increase noise in the project area, which could cause temporary dispersal and relocation of wildlife. It is expected that this short-term noise would occur only during the construction season. Because of their preferred habitat

away from Goat Lake, it is unlikely that mountain goats would be affected by the project.

4. Threatened and Endangered Species

a. Affected Environment: The FS conducted an extensive plant survey of the project area on July 27, 1993. The survey area included: (1) the proposed penstock corridor from the intake at the lake downgradient to the top of Pitchfork Falls, (2) the existing outlet at the lake to the top of Pitchfork Falls, (3) the subalpine meadow/montane forest mosaic in the general project area, (4) the lower part of the moraine, and (5) montane forest in the Pitchfork Falls vicinity. Only one of the 22 plants designated as sensitive by the FS Regional Forester was located.17/ This plant, the goose-grass sedge (Carex lenticularis var. dolia), is also a species of special concern by the FWS. There are no other listed plants by the FWS in the project area that are threatened, endangered, candidate or species of special concern.

The FWS states that the following federally-listed animal species may occur in the proposed project area as transients, particularly during seasonal migration: endangered American peregrine falcon and Arctic peregrine falcon 18/ (letter from

17/ FS sensitive plant species are those for which population viability is a concern, as evidenced by (a) significant current or predicted downward trends in populations numbers or density, and (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

18/ Although the Arctic peregrine falcon was delisted on October 5, 1994 (Federal Register Vol. 59, No. 192, pp. 50796-50805) and is no longer protected under the Endangered Species Act, the FWS must monitor this species for 5 years following its delisting. Federal agencies are requested to voluntarily

Nevin D. Holmberg, Field Supervisor, U.S. Fish and Wildlife Service, Juneau, Alaska, August 21, 1992; personal communication, John Lindell, Endangered Species Biologist, U.S. Fish and Wildlife Service, Juneau, Alaska, November 21, 1995). Additionally, there are four FWS species of special concern that may occur in the project area: marbled murrelet, northern goshawk, harlequin duck, and spotted frog (U.S. Fish and Wildlife Service 1994).

Goose-Grass Sedge

The first known Alaska collection of the Carex lenticularis var. dolia was in 1913 near Skagway, and its main geographic range in Alaska is the southeast panhandle south to Queen Charlotte Island. There are also widely disjunct populations in the Yukon Territory, British Columbia, Alberta, and Glacier National Park in Montana, its southernmost limit.

Although there have been few individuals collected, this plant seems to prefer high mountain elevations (5,000 to 9,800 feet msl), at high latitudes from timberline to the alpine, and almost always in or at the water's edge (Standley 1985). The goose-grass sedge appears to be an early successional species, colonizing shallow, wet, organic loamy soils along streams and in seep areas of gentle terrain. The soils are usually very shallow and have a high content of stones and gravel. Surrounding vegetation is usually moist meadows or tundra. In some areas it may be one of the first plants to stabilize stream banks and wet, slumping soils of high elevation terraces.

A FS plant survey of the project area revealed that the goose-grass sedge was found above the east side of Goat Lake at about 4,000 feet msl, outside the project area (letter from Mary Clay Stensvold, Regional Botanist, U.S. Forest Service, Sitka Ranger District, Sitka, Alaska, April 29, 1994).

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consider the Arctic peregrine falcon in their planning processes.

American Peregrine Falcon

In Alaska, the American peregrine falcon (Falcon peregrinus anatum) primarily inhabits interior portions of the state. It is highly migratory and winters as far south as Argentina. Although this species may occur in the project area as a transient, primarily during seasonal migration, there has been no reported observation in the vicinity of the project. Migration routes and patterns and forage areas haven't been identified.

During migration across southeast Alaska, availability and abundance of prey most likely determines the birds' flight patterns and stopover areas. About 82 percent of the food consumed by the American peregrine are vertebrates, and the primary prey in Alaska consists of shorebirds, waterfowl, and passerine birds (U.S. Forest Service 1991b). Peregrines forage over bodies of water, marshes, grasslands, shorelines, and over wooded areas and they attack flying prey from above or by chasing them.

Data suggests that the American peregrine populations have recovered as a result of restrictions on organochlorine pesticide use (especially DDT and DDE) in the United States and Canada, and because of successful reintroduction from captive-bred species. In nature, these chemicals have caused eggshell thinning and poor reproductive success among peregrine falcons. No organochlorine pesticides are authorized for use on the Tongass National Forest (U.S. Forest Service 1991a, 1991b). According to Ambrose et al. (1988), American peregrine populations in Alaska are continuing to increase. Therefore, the FWS proposes to remove this species from the list of threatened and endangered wildlife and the critical habitat designation (U.S. Fish and Wildlife Service 1995).

Arctic Peregrine Falcon

As with the American peregrine, the Arctic peregrine falcon (Falcon peregrinus tundrius) populations declined following World War II as a result of organochlorine pesticides use. After 20 years of restriction on the use of these chemicals marked by steady progress toward recovery, reproductive rates in arctic peregrines have steadily increased, and populations continue to rise. About 250 pairs nest in Alaska and thousands nest throughout arctic North America. There has been no reported observation of the Arctic peregrine falcon in the project vicinity.

Arctic peregrines nest in tundra regions of Alaska, Canada, and Greenland and migrate through mid North American latitudes and winter in Latin America. Arctic peregrines occur in southeast Alaska only during the migration periods (U.S. Forest Service 1991b). In Alaska, this subspecies nests mostly along rivers in the northern and western parts of the state. Nests are positioned on cliffs or bluffs usually near rivers or lakes that provide habitat for shorebirds, waterfowl, and songbirds on which the falcons prey.

Although the rate of habitat alteration in nesting, migration, and wintering habitats is greater now than in the past, the rapid population increase over the last 15 years (Ambrose et al. 1988) suggests that habitat modification does not threaten the continued existence of this species.

Marbled Murrelet

The marbled murrelet is regarded as a bird of mystery because its nesting habits are largely unknown and its nearshore feeding habits make it difficult to survey. This small seabird spends most of its time along coastal areas from Alaska to central California and feeds primarily on small Pacific herring, northern anchovies, Pacific sandlances, sea perch, and invertebrates in near-shore marine waters (Federal Register Vol.60, No.154, pp.40892-40908, August 10, 1995). Throughout

forested portions of its range, such as in the Alexander Archipelago in which the project lies, the marbled murrelet nests in mature and old-growth coniferous forests located mostly within 38 miles (60 km) from marine coastal waters. Those murrelet populations in the more westerly Aleutian and Kenai Peninsula Archipelagos generally nest on the ground. Tree nesting murrelets select large diameter, old-growth healthy or decadent trees more than 100 feet above the ground often having mistletoe, deformations, and moss on large limbs (Pacific Seabird Group 1995, Kuletz et al. 1994).

Marbled murrelet population numbers are thought to be declining in the lower forty-eight. The greatest threat to murrelets is nesting habitat loss and modification due to logging, development, and fragmentation of nesting stands (Federal Register Vol.65, No. 119., pp. 28362-28367, June 20, 1991, Pacific Seabird Group 1995). Estimated population numbers are higher in Alaska (50,000-220,000) than in British Columbia, Washington, Oregon, and California combined (32,000-71,900).

Northern Goshawk

The largest of the accipiter hawks, the northern goshawk has a wide geographic breeding range in North America and, in Alaska, it inhabits and breeds in the central and eastern portions of the state (Johnsgard 1990). It winters throughout its breeding range and extends as far south as northern Mexico and Texas. Primarily in April and May, goshawks nest in nearly every kind of coniferous forest, but also use deciduous and mixed woodlands (Apfelbaum and Seelbach 1983). McGowan (1975) found that goshawks in interior Alaska selected paper birch for nesting 94 percent of the time where suitable nest-tree species were present. Generally, nest sites are in old, tall trees having a well-developed understory and are near a water source of moderate slope, usually having a northerly aspect. Large forest stands are favored and there is a great deal of variation in population density throughout its Holarctic range.

The northern goshawk is associated with diverse habitats such as dense coniferous taiga with scattered glade, tall conifers mixed with deciduous woods, river forests, and cultivated coniferous plantations, and stands of birch, aspen, pine in steppe or woodlands. Coniferous forests are preferred over deciduous. The bird shows a lower habitat specificity in the winter often ranging into other habitats, including deserts. In the project area, the northern goshawk is known only as a transient.

All studies have shown that there is a high dependency on birds and mammals of moderate to large size in the goshawk diet (Sherrod 1978). Important prey base for the goshawk are Stellar's jays, grouse, ptarmigan, thrushes, and mid-sized furbearers. Goshawks have not been abundant in southeast Alaska but because they are associated with forested landscapes, they are vulnerable to habitat loss from land disturbance.

Harlequin Duck

In selected areas of its range, such as the Aleutian Islands and parts of British Columbia, the harlequin duck is abundant. But because much of their worldwide range lies in remote regions, accurate populations and distribution has been difficult to determine.

The western populations of harlequins are primarily in Alaska, particularly in the Aleutians, Alexander Archipelago, and the Alaska Peninsula. The Aleutian Islands are considered to be "a center of abundance" for the Pacific harlequin ducks (Palmer 1976). In May, adults leave their wintering areas along coasts for interior breeding grounds. Their breeding distribution extends from northern Alaska to Washington state where the distribution splits southward to the Cascade range and southeasterly to the northern Rocky Mountains. Harlequins have also been observed during the summer on islands in the Bering Sea and Pribolofs.

Harlequins usually nest along rocky shores adjacent to rapids of turbulent mountain streams. In Alaska's eastern Prince William Sound, harlequins selected the largest anadromous salmon streams for nesting (Crowley 1993). The nests were located along first order tributaries near timberline, on steep southwest-facing slopes, and positioned beneath old growth forests. Well concealed nests are generally composed of a thin layer of grass, with dry twigs and leaves, and lined with down. Females incubate assiduously and appear to have a high degree of fidelity when nesting.

In search of food, harlequins can dive to depths of 5 feet in swift currents. Most of their preferred foods are animal material such as crustaceans (mud crabs, hermit crabs, amphipods), mollusks (chitons, periwinkles, limpets, chink shells, blue mussels), insects (stone flies), worms, and fish.

The harlequin duck is thought to occasionally move through the Skagway River Valley in individual or low numbers.

Spotted Frog

The distribution and population status of the spotted frog in Alaska is unknown. The historical range extended from extreme southeastern Alaska south to central Nevada and east to northwestern Wyoming. The specific reasons for its decline are unknown but researchers speculate the following principle causes: (1) habitat loss due to encroachment by man, (2) climatic changes, including droughts, (3) lake acidification as a consequence of climate change or succession, (4) increased UV-B radiation due to ozone depletion, and (5) competition with introduced species such as bullfrogs (Blaustein et al. 1995; Waters 1992; Hayes and Jennings 1986).

The spotted frog habitats range from coniferous northwest forests to semiarid sagebrush sites. Generally the spotted frog is highly aquatic, always found near permanent water and adjacent grassy margins of lakes, streams, and ponds. It is suggested that this elusive species is more common in cold water

habitats than in warm, stagnant ponds. In the Stiking River basin near Wrangell, south of Juneau, they were observed breeding in outwash ponds and in a backwater lake, with possible breeding in muskegs and beaver ponds (Waters 1992). This frog is not an old-growth obligate, but forested areas may represent important refugia from further population losses (Blaustein et al. 1995). This species has been reported in the Haines area (located about 40 miles south of the proposed project site), but has yet to be verified by the FWS.

b. Environmental Impacts and Recommendations: The Goat Lake Project would not adversely affect the federally endangered American peregrine falcon or delisted Arctic peregrine falcon because: (1) both peregrine falcon species are thought to occur in the project area only in small numbers and as occasional migrants; (2) critical habitat for both peregrine species are not known to occur in the project area; (3) preferred prey (shorebirds and waterfowl) are not abundant in the project area, so foraging would not be affected; and (4) the alteration of about 10 acres of forest, shrubland, and muskeg habitats would not affect prey availability for migrating peregrines nor important foraging habitats such as wetlands, ponds, and riparian zones.

We also conclude that the project would not adversely affect the five species of special concern that could occur in the project area for the following reasons: (1) these species have not been found in the project area; (2) the goose-grass sedge was found at the 4,000 foot msl elevation, outside the project's impact area; (3) the project area does not have preferred old growth and mature coniferous habitat for marbled murrelet nesting nor is such habitat known in the Skagway River Valley; (4) populations of the northern goshawk, harlequin duck, and spotted frog that could inhabit the area are likely to be low; (5) the project area is not known to support high populations nor provide known critical habitat for the northern goshawk, harlequin duck, and spotted frog; (6) project construction is not expected to affect nesting or movements of the northern goshawk, harlequin duck, and spotted frog; (7)

because Goat Lake is a nutrient-poor lake with low bioproductivity, it is not probable that Pitchfork Falls, which receives water from Goat Lake, sustains a suitable food base (aquatic invertebrate diversity and numbers) for the harlequin duck; (8) construction of various project features (intake, siphon house, pumpback valve house, penstock, powerhouse/substation, transmission line) are not likely to be sited in desired nesting habitats of northern goshawk, harlequin duck, and spotted frog; and (9) since the project is located about 250 miles north of the known limits of the western spotted frog, it is not likely that this species can be found in the project area.

Therefore, we think that the project would not affect the endangered American peregrine falcon and that no further action pursuant to Section 7 of the Endangered Species Act of 1973, as amended, is required. By letter dated March 25, 1996, the FWS concurred with our determination (letter from Nevin D. Holmberg, Field Supervisor, U.S. Fish and Wildlife Service, Juneau, Alaska, March 25, 1996). We also find that project construction and operation would not affect the delisted Arctic peregrine falcon, and the five species of special concern: goose-grass sedge, marbled murrelet, northern goshawk, harlequin duck, and spotted frog.

c. Unavoidable Adverse Impacts: None

5. Aesthetic Resources

a. Affected Environment: The proposed project is located in the Coast Range of southeast Alaska. The Skagway River Valley is characteristic of the region, with its narrow U-shaped valley with glaciers hanging from the surrounding mountain peaks. The lower elevations are densely forested. The higher areas are mostly exposed bedrock. There are many lakes, streams, and rivers throughout the region. Goat Lake is a typical glacier fed lake located in a steep, hanging valley comprised of bedrock and very little vegetation of significant

size. The lake is difficult to get to, except by floatplane or helicopter, or hikers who do not need an established trail.

The Skagway River is the most prominent of the region's waterforms. Pitchfork Falls, a long cascading series of waterfalls that descends into the Skagway River, is the most prominent of the many streams that cascade down the valley's walls. The falls, along with most of the Skagway River Valley, is visible from the turnouts on the Klondike International Highway and from the WP&YR RR.

The lower part of Pitchfork Falls can be accessed by the WP&YR RR as it passes through the project area. The lower- and mid-level of the project area, which includes Pitchfork Falls, where the penstock, powerhouse, tram, and transmission line would be located, is visible from the Klondike International Highway, on the opposite side of the river and from the WP&YR RR. There are several overlooks along the highway where tourists stop and view the Skagway River corridor, which includes the project area.

b. Environmental Impacts and Recommendations: Constructing and operating the project would affect the aesthetic quality of the project area. The impacts would result from constructing new structures in a relatively undeveloped area and reducing flows over Pitchfork Falls from project operations.

Effect of Project Facilities on Aesthetic Resources

The penstock, which would be located in dense forested vegetation except where it crosses an avalanche area, should not significantly detract from the aesthetic quality of the area. The powerhouse and substation, located about 1,600 feet downriver from the confluence of Pitchfork Falls with the Skagway River, would also be located in dense vegetation. Although the structures would be visible from the highway overlooks, they would only be partially visible because of the screening from the vegetation. The transmission line and

cable\tram would be mostly screened from view by vegetation, but would be visible where they cross the river.

Goat Lake is in the flight path for visitors touring the area by helicopter. The FS completed an EA, dated May 16, 1995, to assess the effects of helicopter landing tours in the Skagway and Haines area. The selected alternative for authorized helicopter landings includes flying over Goat Lake to access a landing site on Laughton Glacier. The passengers would be able to view the reduced lake level and some project facilities, such as the siphon house and pumpback/valve station. This would not be a significant impact as the facilities should not be readily apparent and the exposed bedrock shoreline would appear similar to the surrounding terrain.

Project construction would also cause increased traffic, noise, and dust levels that would temporarily and locally affect visual quality to the project area.

AP&T has proposed using construction methods that would minimize the impacts of the facilities on the aesthetic quality of the area. These are: (1) using materials and coloration so that the structures blend into the landscape; (2) minimizing clearing of existing vegetation and ground disturbance for construction of the penstock, powerhouse and substation; (3) removing spoil material; (4) revegetating areas disturbed during construction; (5) and providing access to the powerhouse site by a cable\tram river crossing. The FS, by letter dated February 14, 1995, agreed with these methods and recommended that the applicant develop a visual resource management plan that would provide further details of these specific measures. The staff agrees with the FS that the erosion control and terrestrial resource measures (revegetate disturbed areas, minimizing vegetative disturbance) proposed by AP&T would assist to effectively maintain the aesthetic quality of the project area.

Therefore, after consultation with the FS, AP&T should file a visual resource management plan to specify the exterior treatment of project facilities, clearing of vegetation, and

revegetating disturbed areas. The plan should be developed in conjunction with the erosion and sediment control plan discussed in section VI.B.1., the terrestrial resource measures in section VI.B.3., and the MOA cultural resources management plan in section
VI.B.6.

Effect of Reduced Flows on Aesthetic Quality of Pitchfork Falls

Pitchfork Falls is a scenic attraction that contributes to the aesthetic quality of the area. It is the focus of viewers from the highway overlooks and from the railcars that pass by the falls. Pitchfork Falls is also mentioned in publications describing the area attractions. Project operation would reduce flows over Pitchfork Falls that could affect the aesthetic quality of the falls.

AP&T and the FS, with assistance from a Visual Impact Analysis prepared by Land Design North (1994), studied different flow alternatives. Reduction of flow would have various levels of impact depending on the selected alternative. By letter dated July 20, 1995, the FS determined that a minimum flow of 13 cfs would maintain the aesthetic quality of the falls. The FS also determined that maintaining the flow would only be necessary during 12 daylight hours per day, from May through September, the peak tourist season (see section VI.B.7.). AP&T, by additional information filed May 30, 1995, agreed to the minimum flow. Project operation from October through April would substantially reduce flows over the falls. However, this is not the time of the year when many tourists visit the area. Therefore, the effects would not be substantial.

We agree that a minimum flow of 13 cfs over Pitchfork Falls, during 12 daylight hours per day from May through September would maintain the aesthetic quality and visual character of the falls and Skagway River Valley. To ensure compliance with this minimum flow recommendation, AP&T proposes installation of an automatically operated, priority stream flow device to measure and record flows, and to operate the bypass or

intake gate to maintain required instream flows. We agree that a stream flow gauge should be electronically interconnected to the bypass and intake gate to ensure minimum flow releases. Due to the variable flows and relatively remote location of the site, an automatically controlled device would be necessary to ensure compliance with the minimum flow requirement. Staff believes that installation of a continuously-recording stream gauge upstream of Pitchfork Falls, and a stage-discharge chart would accurately measure the bypass flow.

Therefore, after consultation with the FS, AP&T should file a plan to maintain minimum instream flows. The plan should specify measures the applicant would implement to ensure the minimum 13 cfs bypass instream flow is provided for 12 daylight hours per day, such as use of the priority flow bypass device.

c. Unavoidable Adverse Impacts: The presence of new structures in a relatively undeveloped area would detract from the undisturbed nature of the Goat Lake basin and to a lesser degree the Skagway River corridor. Operations of the project would marginally reduce flows over Pitchfork Falls from May through September, and substantially during October through April. Constructing the facilities would result in increased traffic, noise, and dust levels that would temporarily affect the natural visual quality of the area.

6. Cultural Resources

a. Affected Environment: AP&T conducted a cultural resources survey of the project area (Campbell 1994) . The survey identified the following cultural resources in the project area: (1) contributing elements of the Historic Landmark, that specifically include the WP&YR RR, a historic tourist trail and viewpoint of Pitchfork Falls, the historic Brackett Wagon Road, and a historic telegraph or telephone line dating from World War II and possibly earlier; and (2) the historic Canadian Oil pipeline dating from World War II. No other cultural resources were located.

The Historic Landmark was established on June 13, 1962, and is listed in the National Register of Historic Places. The Historic Landmark was established to preserve and interpret historical structures and other features of the Skagway area and the White Pass Trail, to the northeast, relating to the Klondike Gold Rush in the late 1890's and early 1900's (National Park Service 1987). Some of the features of the Historic Landmark, such as the historic trail and railroad, contribute to the current tourist industry. Other features relate to historic events, such as the telephone line along that railroad route, which illustrates the military effort in the Skagway-White Pass area during World War II.

The historic Canadian Oil pipeline is eligible for inclusion in the National Register and has been documented in accordance with the standards of the Historic American Engineering Record. The pipeline was constructed in 1943 and is significant as an example of the World War II military effort in the area and as an early means of transporting crude oil from coastal Alaska to the interior of Canada.

The Alaska State Historic Preservation Officer (SHPO), the NPS, the FS, and the Klondike Gold Rush National Historic Park (NPS-Klondike Park) concur that the survey is adequate for identifying cultural resources in the project area (letters from Judith E. Bittner, State Historic Preservation Officer, Alaska Department of Natural Resources, Anchorage, Alaska, February 7, 1995; Sandra Faulkner, Regional Historian, National Park Service, Alaska Regional Office, Anchorage, Alaska, February 9, 1995; Clay Alderson, Superintendent, Klondike Gold Rush National Park, Skagway, Alaska, February 24, 1995; and Karen S. Iwamoto, Forest Archeologist, Tongass National Forest, Sitka, Alaska, March 6, 1995). We concur.

b. Environmental Impacts and Recommendations: The project may affect the historical integrity of the Brackett Wagon Road, the railroad bed, and the historic Canadian Oil pipeline. The proposed penstock would be routed through a culvert constructed under the railroad bed and the Canadian Oil pipeline. The

powerhouse tailrace would be constructed to cross under the Brackett Wagon Road. These construction activities could potentially alter the physical and visual character of these sites. There would be no effect on the historic trail and viewing area, and the historic telephone line. The project is not located in the immediate vicinity of the trail and viewing area, and the historic telephone line is not located in the vicinity of the project facilities.

AP&T proposes to conduct additional work to assess the effects of the project on cultural resources and to implement a cultural resources management plan to protect contributing elements of the Historic Landmark affected or potentially affected by the project, pursuant to an MOA prepared in accordance with the Advisory Council's regulations (36 CFR 800) for the National Historic Preservation Act. After review and revisions, the MOA has been accepted and signed by the SHPO, the FS, the NPS-Klondike Park, the NPS, and AP&T.

AP&T consulted the Skagua Traditional Village Council, representative of the local Native American tribe, and requested the Village Council to be a party and signatory to the MOA. The Village Council declined and said they have no concerns about traditional uses of the area (letters from Pete Johnson, Representative, Skagua Traditional Village Council, Skagway, Alaska, April 11, 1995; and Silas H. Dennis, Jr., Member-at-Large, Skagua Traditional Village Council, Skagway, Alaska, April 12, 1995). The FS has stated that the intent of the Advisory Council's regulations concerning Native American consultation [36 CFR 800(1)(c)(iii)] has been satisfied for the project (letter from Karen S. Iwamoto, Forest Archeologist, Tongass National Forest, Sitka, Alaska, April 20, 1995). The NPS has said AP&T has made a reasonable effort to consult the Village Council and to include the Village Council as a signatory to the MOA (letter from Sandra Faulker, Regional Historian, National Park Service, Alaska Regional Office, Anchorage, Alaska, April 24, 1995). We concur.

The MOA requires AP&T to hire a qualified historical archeologist, and consult with the FS, the SHPO, and the NPS to determine the specific effects of the project on the Historic Landmark and the Canadian Oil pipeline, and to identify mitigative measures to minimize effects. The MOA requires AP&T to develop and implement a cultural resources management plan to implement mitigative measures and to protect cultural resources during project construction and operation, and to adhere to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, the Alaska Comprehensive Preservation Plan, and the cultural resources documentation requirements of Klondike Gold Rush National Park. The MOA also requires AP&T to comply with the Native American Graves Protection and Repatriation Act if discoveries are made during the license term that make it applicable to the project.

We concur the MOA is adequate to protect cultural resources at the project. The project would not have an adverse effect on the Historic Landmark or the historic Canadian Oil pipeline if the MOA is implemented as a condition of a hydropower license. The MOA has been forwarded to the Advisory Council for signature. We recommend a condition requiring implementation of an acceptable MOA be included in any license issued for the project.

c. Unavoidable Adverse Impacts: None

7. Recreation

a. Affected Environment: There are no developed facilities in the Goat Lake basin. The FS manages the area to retain its roadless and wildland character. Major recreational facilities would not be developed. The developed recreational facilities that exist outside of the basin consist of FS cabins, dispersed campsites, and picnic areas. The National Park Service operates the Klondike Gold Rush National Historical Park that includes a visitor center in Skagway and a campground in Dyea.

Because of the difficulty in accessing the Goat Lake basin, very little recreational use occurs in the vicinity of the lake. Major recreational activities in the project vicinity are dispersed activities such as hiking, fishing, and sightseeing. The most common activity is sightseeing. Sightseeing tours are provided by the WP&YR RR, several highway tour operators along the Klondike International Highway, and aircraft companies.

Skagway and its vicinity, due to the attractions and cruise ship moorage, draws a large number of tourists to the area. The Skagway Convention and Visitor Bureau estimates that in 1993 about 350,000 tourists visited the area. Approximately 80 percent of southeast Alaska visitors come to the area by water.

Based on survey results, the applicant determined that many of these visitors are interested in sightseeing and photography. The applicant conducted a survey of the tour operators and was able to estimate that 23,000 visitors stopped at the viewpoints overlooking Pitchfork Falls during the season. In addition, 24 percent of the vehicles using the Klondike International Highway stopped at the viewpoints.

b. Environmental Impacts and Recommendations: The project would be in a remote location that is difficult to access. The site receives very little recreational use and the project would not have a significant effect on existing recreational opportunities with the exception of sightseeing activities from the WP&YR RR and the Klondike International Highway. This issue was discussed in the Aesthetic Resources Section.

As discussed earlier, Goat Lake has no known fish, and the state of Alaska and the FS have abandoned plans to create a sustainable fish population in the lake. Thus, the project would not affect recreational fishing. It is not anticipated that project operations would significantly affect access around the lake, as the lake level is primarily drawn down during the winter and spring months. During the peak visitation of helicopter tours over the project area, the lake level would

either be rising from large inflows or close to normal elevation.

c. Unavoidable Adverse Impacts: None.

8. Socioeconomics

a. Affected Environment: The project would provide power to the town of Skagway and the immediate vicinity. The population of the area is about 800. The economy of the area is driven by tourism. The unemployment for the region was higher than the state average in 1994, 10.6 percent versus 7.8 percent.

b. Environmental Impacts and Recommendations: The project would employ a work force of about 30 people over about a 2-year construction period. The total project construction budget would be about $7.5 million; about 32 percent would be for labor. It's anticipated that workers would be drawn from southeast Alaska. Because of the short construction period, most workers would probably commute either daily or weekly or stay in temporary housing, and few, if any, would relocate to the immediate project area.

Increased employment from the project, albeit short-term, would benefit the region's economy. The project would also provide long-term economic benefits to the state and region from tax revenues that would be collected. The project would also benefit the region by providing a more stable and reliable form of energy than the current system, which relies mostly on diesel generation.

c. Unavoidable Adverse Impacts: None.

C. Impacts of the No-action Alternative

Under the no-action alternative, the project would not be constructed and there would be no changes to the existing physical, biological, or cultural resources of the area. The energy that would have been produced would continue to be

provided by diesel fuel. With this alternative, the public would be denied the opportunity to conserve diesel (non-renewable primary fossil fuel) and to reduce atmospheric pollution. Because of the area's lack of roads and remoteness, diesel fuel is presently delivered by barge thus potentially exposing important aquatic habitats to risks such as oil spills into the environment. These risks would continue with or without the project, although much less with the project, because diesel generators would serve as a back-up during hydropower outages.

VII. DEVELOPMENTAL ANALYSIS

In this section, we look at the project's use of water resources for hydropower purposes to see what effect various environmental measures would have on the project's power benefits. As explained in Mead Corporation,19/ the Commission assesses the potential economics of various alternatives using a current-cost approach that does not purport to predict future economic trends over the term of the license. Rather, it reviews economic factors in light of what is known at the time the application is considered. While no assumptions are made concerning future potential inflation or deflation, the analysis is not entirely a "first-year" approach, as certain costs need to be amortized over the period of years or will change in presently known and measurable ways. Thus, the current cost figures are derived using a 30-year period of analysis.

Because there was no recommended staff proposal that would affect project economics, we did the economic analysis using the applicant's proposal. We compared the benefits of the proposed operation to not building the project and continuing to use more diesel fuel. We found the 30-year net annual benefits for the

19/ See Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027 (July 13, 1995).

low-, mid-, and high-load forecasts using the average hydrology estimate and the following assumptions (see Table 4):

- project operation begins in 1997,
- a 1997 construction cost of $7,500,000,
- a 7 percent discount and interest rate,
- a 1997 power value of 101 mills per kilowatthour (mills/kWh),20/
- a 1997 operating and maintenance cost for the hydroelectric project of 5 mills/kWh, and
- a 1997 insurance cost of $1.00/kWh.

Table 4. Staff's economic analysis of Goat Lake Hydroelectric Project using the average hydrology estimate.

LOAD FORECAST	AVERAGE ANNUAL GENERATION	POWER VALUE BASED ON REPLACING DIESEL GENERATION	COST OF GOAT LAKE PROJECT	NET ANNUAL BENEFITS
Low	6.4 GWh21/	$831,000	$934,000	-$103,000
Mid	9.7 GWh[10]	$1,134,000	$952,000	$182,000
High	11.5 GWh[10]	$1,312,000	$962,000	$350,000

20/ We base the value of the project's power on the average cost of purchasing diesel fuel and diesel O&M costs for the Skagway area.

21/ The average project generation was based on a 30-year period.

We also assumed in our economic analysis that the energy sold for each year would correspond to the load forecast, until the year 2028. For example, in 1997, the Skagway area would need only 6.9 gigawatthours (GWh) of energy from the Goat Lake Project. Therefore, the project would only generate 6.9 GWh in 1997. In 2028, the project would reach its maximum energy generation potential of 13.3 GWh. The average generation over the 30-year economic analysis would be 9.7 GWh for the mid-load forecast.

With the above assumptions, the proposed project, producing an average of 9.7 GWh of energy, would have a net annual benefit for the mid-load forecast, which we consider the most likely forecast, of about $182,000 or 18.8 mills/kWh. The high-load forecast would have greater net annual benefits at $350,000 or 30.4 mills/kWh. For the low-forecast year, the project would cost more than the current cost of the most likely alternative source of power (diesel-fuel powered generators) for the Skagway area.

We realize that this comparison is not the only consideration in assessing the economic feasibility of the project. Among the other considerations is the future cost of fossil-fuel resources, particularly diesel fuel, which represents about two-thirds of the total cost per kWh of generation. The net annual benefits are, therefore, highly sensitive to fuel cost, which could vary widely over the 50-year license term for a new hydropower project. In any event, most of the cost of power that would be produced by the Goat Lake Project is for debt retirement on the initial capital cost and would remain constant over time, and unaffected by inflation. Only about 5 percent of the total cost per kWh is for operation and maintenance, which would be subject to future increases caused by inflation.

VIII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When we review a proposed project, we equally consider the environment, recreation, fish and wildlife, and other non-developmental values of the project as well as power and other developmental values. Accordingly, any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

Based on our independent review of agency and public comments filed on this project, and our review of the environmental and economic effects of the proposed project and its alternatives, we've selected the proposed project, along with the applicant's proposed environmental measures, as the preferred option. The preliminary FS section 4(e) conditions have been incorporated into our preferred alternative. We've determined that none of the measures in our preferred option have an effect on the project's economics.

We recommend the proposed project because: (1) issuance of an original hydropower license would allow AP&T to construct and operate the project as a small but dependable source of electrical energy for its customers; (2) the project would meet the increasing demand for electric power in Skagway and avoid the need for an equivalent amount of fossil-fuel-fired, electric generation and capacity, thereby continuing to help conserve these nonrenewable energy resources and reduce atmospheric pollution; and (3) the recommended environmental measures would protect or mitigate the soil, vegetative, wildlife, aesthetic, and cultural/historic resources in the Skagway River Valley.

We believe that our preferred option would be best adapted to the comprehensive development of Pitchfork Falls for beneficial public uses.

IX. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Under section 10(j) of the FPA, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project.

No fish and wildlife agencies provided recommendations in response to our notices that the application was ready for environmental analysis.

X. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Accordingly, federal and state agencies filed 23 plans with the Commission that address various resources in Alaska. Three are relevant to this project.22/ No conflicts were found.

XI. FINDING OF NO SIGNIFICANT IMPACT

22/ (1) Alaska Department of Natural Resources, 1979, Haines-Skagway area Land Use Plan, Juneau, Alaska; (2) U.S. Forest Service, 1991, Tongass National Forest Proposed Revised Land and Resource Management Plan, Ketchikan, Alaska; (3) U.S. Fish and Wildlife Service and Canadian Wildlife Service, 1986, North American Wildlife Management Plan, Washington, D.C.

In accordance with the National Environmental Policy Act of 1969, we prepared this environmental assessment for the Goat Lake Hydroelectric Project to identify the resources that the licensing decision could impact and discuss the specific impacts the Goat Lake Hydroelectric Project would have on the human environment.

Project construction would cause minor short-term, localized erosion; temporary relocation of wildlife; and increased traffic and dust levels in the project area, In addition, project development would permanently alter about 9.25 acres of native trees and other vegetation (some of which would be revegetated) and 1 acre of wetland habitat. The new structures and altered flows along Pitchfork Falls could detract from the natural aesthetics of the Goat Lake basin and Skagway River Valley.

We find that implementing the protection and mitigation measures described in this FEA would ensure that environmental effects of the project would be insignificant.

On the basis of this independent environmental analysis, we find that issuance of an original hydropower license by the Commission and SUA by the FS for this project would not constitute major federal actions significantly affecting quality of the human environment. Therefore, an environmental impact statement is not required.

XII. LITERATURE CITED

Alaska Department of Highways, Southeast District. 1973. Klondike International Highway. Final Environmental Assessment, Skagway to the Canadian Border. September 1973. Exhibit E, p.46.

Alaska Power and Telephone Company. 1994a. Application for License for Major Unconstructed Project, Goat Lake

Project FERC Project No. 11077. Table of Contents, Initial Statements, Exhibits A, E, F, G. Port Townsend, Washington. May 31, 1994.

Alaska Power and Telephone Company. 1994b. Application for License for Major Unconstructed Project, Goat Lake Project FERC Project No. 11077. Appendices 1- 13. Port Townsend, Washington. May 31, 1994.

Alaska Power and Telephone Company. 1994c. Goat Lake Hydroelectric Project Video, Project #11077. 12 minute video. Port Townsend, Washington. March 8, 1994.

Alaska Power and Telephone Company. 1995a. Additional information responses to AIR #1, 2, 3, 6, 7, 8, 10, 11, 14, 16, 19 and 22. Port Townsend, Washington. March 26, 1995.

Alaska Power and Telephone Company. 1995b. Additional information responses to AIR #4, 5, 9, 12, 13, 15, 17, 18, 20, 21 (Enclosure 1 of 2) and 23, 24, 25-34 (Enclosure 2 of 2). Port Townsend, Washington. May 30, 1995.

Alaska Power and Telephone Company. 1995c. Additional information response to electrical load forecast. Port Townsend, Washington. April 6, 1995. 2 pp. with enclosures.

Alaska Power and Telephone Company. 1995d. Additional information response to project operational

model. Port Townsend, Washington. April 5, 1995. 3 pp. with diskette and enclosure.

Alaska Power and Telephone Company. 1995e. Additional information response to visual impact analysis (January, 1994) and 14pp. - supplemental visual impact analysis (September, 1994). Port Townsend, Washington. March 13, 1995. 29 pp.

Alaska Power and Telephone Company. 1995f. Application for Department of the Army Permit (ENG Form 4345, Sept 91). Juneau, Alaska. August, 1995. W/Exhibits, Figures, Coastal Project Questionnaire, and Certification Statement.

Alaska Power and Telephone Company. 1995g. Revisions to Exhibits A, E, F and G. Port Townsend, Washington. April 27, 1995.

Ambrose, R.E., R.J. Ritchie, C.M. White, P.F. Schempf, T. Swem, R. Dittrick. 1988. Changes in the status of peregrine

falcon populations in Alaska. IN: Peregrine Falcon Populations- Their Management and Recovery, ed. T.J. Cade, J.H. Enderson, C.G. Thelander and C.M. White. The Peregrine Fund, Inc. Boise, Idaho.

Ann Riley and Associates. 1995a. Official Transcript of Proceedings, In the Matter of: Goat Lake Hydroelectric Project Scoping Meeting. Docket No. 11077-001. Vol. 1, No. 1, Thursday, June 22, 1995. Juneau, Alaska. 57 pp. with attachments.

Ann Riley and Associates. 1995b. Official Transcript of Proceedings, In the Matter of: Goat Lake Hydroelectric Project Scoping Meeting. Docket No. 11077-001. Vol. 1, No. 1, Tuesday, June 20, 1995. Skagway, Alaska. 62 pp. with attachments.

Blaustein, Andrew R., Joseph J. Beatty, Deanna H. Olson, and Robert M. Storm. 1995. The biology of amphibians and reptiles in old-growth forests in the Pacific northwest. General Technical Report, PNW-GTR-337. Pacific Northwest Research Station, Corvallis, Oregon. 98 pp.

Campbell, C. 1994. An archeological reconnaissance survey of sections of the Brackett Wagon Road and the remains of the scenic viewing station at Pitchfork Falls

in conjunction with the proposed Goat Lake Hydroelectric Project, FERC Project No. 11077. Ketchikan, Alaska. (also Alaska Power & Telephone Company, 1994, appendix 3).

Chadwick, D.H. 1973. Mountain goat ecology -logging relationships in Bunker Creek drainage of western Montana. M.S. Thesis. University of Montana, Missoula, Montana. 260 pp.

Crowley, David W. 1993. Breeding habitat of harlequin ducks in Prince William Sound, Alaska. Master of Science Thesis. Oregon State University, Corvalis, Oregon. December 9, 1993. 59 pp. with appendix.

Federal Energy Regulatory Commission and U.S. Forest Service. 1995. Scoping Document 1, Goat Lake Hydroelectric Project, FERC Project No. 11077-001. Washington, D.C. May 18, 1995. 24 pp.

Federal Energy Regulatory Commission and U.S. Forest Service. 1994. Additional information requests to Alaska Power and Telephone Company, Port Townsend, Washington. December 15, 1994. 3 pp. with 34 questions.

Hayes, M.P. and M. R. Jennings. 1986. Decline of ranid frog species in western North America: are bullfrogs (Rana catesbiana) responsible? J. Herpetology 20(4):490-509.

Kuletz, Katherine J., Dennis K. Marks, Nancy L. Naslund, Niki G. Stevens, Mary B. Cody. 1994. Information needs for habitat protection: Marbled murrelet habitat identification. Final Report,

Restoration Project 93051B. U.S. Fish and Wildlife Service, Anchorage, Alaska. Migratory Bird Management. 54 pp.

Land Design North. 1994. Goat Lake Hydroelectric Project, Visual Impact Analysis. Anchorage, Alaska. January 1994. 29 pp.

Lesica, P. 1988. Report on the conservation status of Carex lenticularis var. dolia, a candidate threatened species. Montana Natural Heritage Program, Helena, Montana. 40pp. with appendices.

McGowan, J.D. 1975. Distribution, density, and productivity of goshawks in interior Alaska. Alaska Department of Fish and Game. Final Report of Federal Aid in Wildlife Restoration Project W-17-6. 30pp.

National Park Service. 1987. Catalog of National Historic Landmarks. U.S. Department of the Interior, Washington, D. C.

Olendorff, R.R., A.D. Miller, and R.N. Lehman. 1981. Suggested practices for raptor protection on power lines: the state of the art in 1981. Raptor Research Foundation, Inc., Raptor Research Report No. 4. St. Paul, Minnesota. 111 pp.

Olendorff, R.R. and R.N. Lehman. 1986. Raptor collisions with utility lines: an analysis using subjective field observations. Bureau of Land Management. Prepared for Pacific Gas and Electric Company. February 1986. 73 pp.

Pacific Seabird Group. 1995. The Marbled Murrelet. A pamphlet of the Pacific Seabird Group. Seattle, Washington. August 1995. 4 pp.

Palmer, R.S. 1976. Handbook of North American Birds. Vol. 3. Yale University Press. New Haven, Connecticut. 560 pp.

Standley, L.A. 1985. Systematics of the Acutae group of Carex (Cyperaceae) in the Pacific Northwest. Systematic Botany Monographs Vol. 7.

Suring, Lowell H., W. B. Dinneford, A. T. Doyle, R. W. Flynn, M. L. Orme, J. W. Schoen, L. C. Shea, E. L. Young. 1988. Habitat suitability model for mountain goats in southeast Alaska. unpubl. rept. September 13, 1988. 13 pp. with tables.

U.S. Department of the Interior. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register, Vol. 56, No. 225, November 21, 1991. Part 17. pp. 58804-58836.

U.S. Department of the Interior. 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register, Vol. 58, No. 188, September 30, 1993. Part 17. pp. 51144-51190.

U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants. Title 50 (Wildlife and Fisheries), Part 17, Subpart B, §17.11. U.S. Fish and Wildlife Service. August 20, 1994. 42 pp.

U. S. Fish and Wildlife Service. 1995. Endangered and threatened wildlife and plants; Advance notice of a proposal to remove the American peregrine falcon from the list of endangered and threatened wildlife. Proposed Rules, FR, Vol. 60, No. 126, Friday, June 30, 1995.

U.S. Forest Service and Bureau of Land Management. 1995. Environmental Assessment for Helicopter Landing Tours in the Skagway and Haines Area. Department of Agriculture, and Department of Interior, Juneau, Alaska. May 1995. 55pp. with maps.

U.S. Forest Service. 1991a. Tongass Land Management Plan Revision - Supplement to the Draft Environmental Impact Statement. Parts 1 and 2. U.S. Department of Agriculture-Alaska Region. R10-MB-149, August 1991. 7 chapters with appendices.

U.S. Forest Service. 1991b. Tongass Land Management Plan Revision - Supplement to the Draft Environmental Impact Statement. Proposed Revised Forest Plan. U.S. Department of Agriculture-Alaska Region. R10-MB-146, August 1991. 7 chapters with appendices. 511 pp.

Waters, Dana L. 1992. Habitat associations, phenology, and biogrography of amphibians in the Stikine River basin and southeast Alaska. A report to the 1991 pilot project. U.S. Fish and Wildlife Service. Arcata, California. May 28, 1992. 61 pp.

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APPENDIX A

COMMENTS ON THE DRAFT EA AND STAFF RESPONSES

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

FWS-1 Comment noted.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

NPS-1 As discussed on page 20 of the DEA (see *Terrestrial Resources* section), the results of 10 years of surveys by the Alaska Department of Fish and Game (ADFG) indicate that there are not significant goat habitat or populations in the Goat Lake Basin. Information from the ADFG indicated that goat use in the area surrounding Goat Lake is minimal. There haven't been any known signs (hooveprints, fecal droppings, skeletons, carcasses, etc.) detected in the immediate Goat Lake area and there aren't known seasonal movements within the project boundary.

Therefore, neither direct nor cumulative effects to the goat population would result from the use of helicopters during construction of this project. We agree that significant goat habitat exists in the steeper areas beyond the Goat Lake basin; however, these areas would not be affected by the travel route of helicopters accessing the project. This is based on maps and models described in the U.S. Forest Service (FS) 1995 Environmental Assessment for Helicopter Landing Tours in the Skagway and Haines Area.

Although we find that mountain goats would not be affected by project development, AP&T nevertheless proposes to adjust their construction schedule to avoid possible disturbance

during the goat mating and kidding periods. AP&T would consult with the ADFG on acceptable construction timing, and we agree this would be a prudent license requirement (see *Terrestrial Resources* section). To further ensure that no wildlife, including goats, are affected by helicopters, the FS has included as a preliminary 4(e) Condition, that AP&T file a wildlife mitigation plan requiring the same specified clearance from wildlife that is required for the helicopter tours.

The FS and the ADFG, in conjunction with local helicopter tour operators, are working toward developing a monitoring plan for the north Lynn Canal mountain goat populations. The National Park Service (NPS) is welcome to participate in this effort.

We don't require a specific cost amount for mitigating adverse project impacts, but believe our recommended wildlife protection measures would adequately minimize the potential effects on mountain goats.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

NPS-2 The Memorandum of Agreement (MOA) (referenced in the *Cultural Resources* section of the FEA) contains provisions to develop and design alternatives that, to the extent feasible and practicable, would avoid or minimize any visual effect within the National Historic Landmark. The project design decisions regarding visual issues would include consultation with the National Park Service. The National Park Service is a signee to the MOA. In addition, staff's recommended visual resources management plan (referenced in the *Aesthetic Resources* section of the FEA) would require measures to minimize possible visual effects, and would be coordinated with the recommended erosion control, terrestrial resources, and cultural resources management measures.

We don't require a specific cost amount for mitigating project impacts, but believe our recommended measures

in the MOA and visual resources management plan would adequately minimize any anticipated visual resource effects.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

AP&T-1 We agree. We've revised our economic analysis to include the capacity credits. The results are in the Developmental Resources section of the FEA.

AP&T-2 We've revised out economic analysis to include the correct cost.

AP&T-3 After going over this information, we've revised our economic analysis to include our new estimate of the power value.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

AP&T-4 Typographical error corrected in the Developmental Resources section of the FEA.

AP&T-5 In the DEA and FEA economic analyses, we used a current cost approach (as explained in Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027, July 13, 1995) that does not predict future economic trends over time. Our FEA economic analysis (see *Developmental Analysis* section) now shows positive net annual benefits under the mid-load scenario, because we included "capacity benefits". Our DEA did not analyze "capacity benefits" because they were not included in the project application.

Project No. 11077-001

NOTE: Atachments 1, 2, and 3 of AP&T's April 4, 1996, letter has been filed with the Commission and is available upon request.

APPENDIX C

FERC FINAL EA

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Alaska Power and Telephone Company	)	Project No. 11077-001
	)	

NOTICE OF AVAILABILITY OF FINAL ENVIRONMENTAL ASSESSMENT

(May 22, 1996)

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's (Commission's) regulations, 18 CFR Part 380 (Order No. 486, 52 F.R. 47897), the Office of Hydropower Licensing has reviewed the application for an original license for the Goat lake Hydroelectric Project, located on Pitchfork Falls, about 7 miles from the town of Skagway, in southeast Alaska.

The Federal Energy Regulatory Commission and the U.S. Forest Service have prepared a Final Environmental Assessment (FEA) for the project which analyzes existing and potential future environmental effects of the project. Our conclusion is that license issuance for the project, with appropriate environmental protective or enhancement measures, would not be a major federal action significantly affecting the quality of the human environment.

Copies of the FEA are available for review in the Public Reference Branch, Room 2A, of the Commission's offices at 888 First Street, N.E. Washington, D.C. 20426.

Lois D. Cashell
Secretary

To the Agency/Party Addressed:

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's regulations, 18 CFR Part 380 (Order No. 486, 52 F.R. 47897), the Commission's Office of Hydropower Licensing reviewed the development application, and prepared the attached Final Environmental Assessment (FEA). The FEA contains the staffs' analysis of the environmental impacts of the proposal and concludes that approval, with mitigative measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The attached FEA is your information.

Sincerely,

John H. Clements
Director, Division of
Project Review

Enclosure:
Final Environmental Assessment

FINAL
ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE

Goat Lake Hydroelectric Project

FERC Project No. 11077-001

Alaska

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
888 First Street, NE
Washington, D.C. 20426

and

U.S. Forest Service
Tongass National Forest - Chatham Area
Juneau Ranger District
8465 Old Dairy Road
Juneau, Alaska 99801

(May 22, 1996)

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SUMMARY

The Alaska Power and Telephone Company (AP&T) proposes to construct, operate, and maintain the 4-megawatt Goat Lake Hydroelectric Project on Pitchfork Falls, near the town of Skagway in southeast Alaska. AP&T has applied to the Federal Energy Regulatory Commission (Commission) for an original hydropower license and to the U.S. Forest Service (FS) for a special-use authorization to operate the project on the Tongass National Forest.

To facilitate decisions whether to issue the hydropower license and special-use authorization, we (Commission and FS staffs) prepared this final environmental assessment to evaluate how the proposed project (FERC No. 11077-001) would affect environmental resources in the Goat Lake drainage area and determine whether additional protection or mitigation measures may be needed to protect and improve the environmental resources and provide the best comprehensive development of the waterway. In addition, we also examine the no-action alternative.

Accordingly, we agree with AP&T's proposed project and mitigation. We recommend that AP&T: (1) develop and implement a final erosion and sediment control plan to include detention of pond run-off, preventing localized erosion, stabilizing stream channel banks, controlling access road erosion, and handling solid waste, waste water, and hazardous substances; (2) leave as much vegetation as possible during project construction; (3) revegetate all disturbed areas from construction as soon after disturbance as possible using FS guidelines; (4) use a helicopter or donkey-winch during project construction to protect the natural vegetation; (5) design the penstock to avoid interference with wildlife; (6) construct the transmission line to avoid possible hazards to large birds; (7) adjust the construction schedule to avoid possible mountain goat disturbance; (8) screen the powerhouse and substation using measures that match the surrounding aesthetic environment; (9) establish a 13 cubic feet per second instream flow over Pitchfork Falls, May through September for 12 hours a day to maintain the natural aesthetics of the area; and (10) develop and implement a cultural resources management plan.

Under our recommended alternative, we find that none of the resources--which include water, fishery, wildlife and terrestrial, visual, recreational, and cultural resources--would suffer significant adverse impacts. Therefore, no environmental impact statement is required.

FINAL ENVIRONMENTAL ASSESSMENT

Federal Energy Regulatory Commission
Office of Hydropower Licensing, Division of Project Review
Washington, D.C.
and
U.S. Forest Service
Tongass National Forest, Juneau Ranger District
Juneau, Alaska

GOAT LAKE HYDROELECTRIC PROJECT
FERC NO. 11077-001- ALASKA

(May 22, 1996)

I. INTRODUCTION

The Federal Energy Regulatory Commission (Commission), acting as lead agency, and the U.S. Forest Service (FS) -- Juneau Ranger District, Chatham Area, as cooperating agency, have prepared this final environmental assessment (FEA) for the proposed Goat Lake Hydroelectric Project. In accordance with the National Environmental Policy Act of 1969,[1] issuing a license decision on the project requires preparation of either an EA or Environmental Impact Statement.

We (the Commission and FS staffs [staff]) analyze the environmental and socioeconomic impacts associated with constructing, operating, and maintaining this project, as proposed by Alaska Power and Telephone Company (AP&T). We also consider effects of alternatives to the project.

II. APPLICATION

On May 31, 1994, AP&T filed an application with the Commission for a license to construct the proposed Goat Lake Hydroelectric Project. The proposed 4-megawatt (MW) seasonal

[1] Pub. L. 91-190. 42 U.S. C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, §4(b), Sept. 13, 1982.

storage project would be constructed along Pitchfork Falls,[2] located about 7 miles northeast of the town of Skagway in southeast Alaska (Figure 1), within sections 10, 11, 14, 15 and 16 of Township 27 South, Range 60 East, of the Copper River Meridian.

Figure 1. Location of the proposed Goat Lake Hydroelectric Project, FERC No. 11077-001, Alaska (Source: Alaska Power and Telephone Company 1994a, b).

[2] Pitchfork Falls is a one-mile-long cascading stream that flows from Goat Lake and descends 2,100 feet over a steep, 30 percent gradient to the Skagway River. The most prominent portion of the falls, and the steepest drop, is located between the White Pass and Yukon Route Railroad and the Skagway River.

Pitchfork Falls is a tributary to the Skagway River, which originates in Canada and generally flows southward and terminates at Taiya Inlet, adjacent to the town of Skagway. The project would occupy about 270 acres of the Tongass National Forest, administered by the Juneau Ranger District. A small portion of the project's proposed transmission line lies on 2.9 acres of state-owned lands. The U.S. Army Corps of Engineers (Corps) has concurrently evaluated a permit application from AP&T pursuant to Section 404 of the Clean Water Act, for dredging and filling activities associated with the project (Alaska Power and Telephone Company 1995f). The project is not intended for flood control, navigation, agricultural purposes, or irrigation.

We issued the jointly prepared Goat Lake draft Environmental Assessment (DEA) for comments on March 11, 1996. In response, we received 3 comment letters. We list the commenting entities in "Comments on the Draft Environmental Assessment," section V.F. All comment letters were carefully considered. The sections of the draft EA that have been modified as a result of our reevaluation are identified in Appendix A, "Comments on the Draft EA and Staff Responses."

III. PURPOSE AND NEED FOR ACTION

A. Purpose of Action

The Federal Power Act (FPA) provides the Commission with the exclusive authority to license nonfederal water power projects on navigable waterways and federal lands for a period of up to 50 years.[3] The Commission will use this FEA to decide: (1) whether or not to issue a license, (2) whether issuing AP&T

[3] U.S.C. Sect 791(a)-825(r).

an original hydropower license for the project would be a major federal action significantly affecting the quality of the human environment, and (3) what conditions, if any, would be placed on any license issued for the project.

To ensure that the Goat Lake Hydroelectric Project would be operated in a manner consistent with the National Forest System lands and resources, the FS will use this FEA to decide: (1) what mandatory license terms and conditions they would require, under section 4(e) of the FPA, to adequately protect the Tongass National Forest, should the Commission issue an original license for the project, (2) whether to issue AP&T a special use authorization (SUA) for those portions of the project that fall on national forest lands, and (3) whether these required measures would be consistent with their multiple use, land stewardship responsibilities. The SUA would authorize occupancy and use of forest lands for hydropower development that would include requirements necessary for comprehensive and compatible use of natural resources, consistent with the purposes for which the forest was established.

B. Need for Power

AP&T proposes to use power from the Goat Lake Hydroelectric Project to replace generation from diesel powered generation facilities in the nearby town of Skagway, Alaska. Since Skagway has no transmission lines connected to any other area, there is no market for any power generated from the project other than that needed to meet Skagway's electrical demands. By supplementing AP&T's existing Dewey Lakes Hydropower Project, the proposed project would serve Skagway's residential, commercial, and industrial loads.

In 1994, AP&T's actual peak demand in the Skagway service area was 1,760 kilowatts. For the years 1974 to 1993, AP&T's electric loads for Skagway have been increasing at an average annual rate of 6 percent. From 1994 to 2003, AP&T's mid-load forecast predicts the electric loads will grow at an average of

5.5 percent annually. Beyond 2004, AP&T assumes an average mid-load growth of 1.4 percent annually.

Power from the proposed project would be useful in meeting the above need for power. When operational, power from the project would be available to displace diesel generation on AP&T's system, conserving fossil fuels and reducing atmospheric pollution.

IV. PROPOSED ACTION AND ALTERNATIVES

A. AP&T's Proposal

1. Project Description

AP&T proposes to construct the following project facilities (Figure 2): (1) a 14-foot-wide by 125-foot-long uncontrolled spillway to replace the existing natural lake outlet which would be filled in; (2) a submerged wedgewire screen intake assembly positioned in Goat Lake at elevation 2,875 feet mean sea level (msl), and with a mechanically operated trash rake for cleaning; (3) a 30-inch-diameter, 600-foot-long steel or high density polyethylene chloride siphon pipe attached to a vacuum pump assembly within a 12-foot by 12-foot siphon pump house; (4) a pumpback/valve station consisting of a 10-foot by 18-foot metal building with two 30-horsepower pumps connected to a 14-inch pipe for returning water to the lake;[4] (5) an 8-foot-high by 25-foot-long concrete retaining wall with a 14-foot-wide spillway (elevation 2,876 feet msl) forming a 0.014-acre-foot storage catchbasin located in a portion of the

[4] The proposed 30-inch siphon pipe and 14-inch water return pipe would be laid in the existing 5-foot-wide natural lake outlet before it is filled.

Figure 2. Major Features of the proposed Goat Lake Hydroelectric Project, FERC No. 11077-001, Alaska (Source: Alaska Power and Telephone Company 1994a, b).

existing pond; (6) a 6,200-foot-long, 22-inch-diameter steel penstock extending from the pumpback station to the powerhouse; (7) a single level, 30-foot by 40-foot powerhouse containing one horizontal twin jet Pelton turbine unit with a generating capacity of 4 MW and a maximum hydraulic capacity of 32 cubic feet per second (cfs); (8) a small substation with a pad-mounted step-up transformer, automatic recloser, and transmission line dead-end structure adjacent to the powerhouse; and (9) a 3,400-foot-long, 24.9-kilovolt (kV) aerial transmission line on wooden poles extending from the substation, across the Skagway River to the Customs Border Station where it interties with AP&T's existing 24.9-kV transmission line to Skagway; and (10) a single cable, 500-foot-long aerial tram originating near the end of a 1,000-foot-long access road within a 60-foot-wide right-of-way be built from the Klondike International Highway to provide access to the project.

2. Project Operation

Goat Lake is a very deep natural impoundment. Inflows to Goat Lake come from a combination of precipitation and glacial runoff. The glacier, located above the moraine at the south end of the lake, also provides runoff to the pond below Goat Lake and to Pitchfork Falls, which descends about 2,100 feet in elevation from the pond to its confluence with the Skagway River.

AP&T proposes to automatically operate the project using the normal water outfall from Goat Lake to generate power. They also propose to draft Goat Lake to generate power during periods of low runoff or high energy demands. The normal water surface elevation of Goat Lake is 2,915 feet msl and AP&T proposes to limit lake drawdown to 30 feet.

AP&T also proposes to pump water from the catchbasin below Goat Lake, back to Goat Lake for regulated storage. AP&T would pump from October through April, when there is no requirement to release flows into Pitchfork Falls,[5] and May through September, during the hours the instream flow is not required. During the hours that AP&T proposes to provide flows to Pitchfork Falls, the pump output would be regulated to allow the required release of water to the falls. If natural water flow to the catchbasin would not be sufficient to meet the instream requirements, a valve would open to release water from Goat Lake to supplement flows.

AP&T would provide to the 6,200-foot-long bypassed reach, a minimum instream flow of 13 cfs May through September for 12 daylight hours per day.

3. Proposed Environmental Measures

AP&T proposes the following measures to protect environmental resources that may be affected by the project:

- Implement an erosion and sediment control plan to include measures that would detain pond run-off, prevent localized erosion, stabilize stream channel banks, and control access road erosion

- Leave as much vegetation as possible during powerhouse and penstock construction; revegetate all vegetated areas disturbed by project construction activities; follow FS guidelines for revegetating disturbed areas

[5] The flow release into Pitchfork Falls is to maintain the aesthetics, particularly in the steepest, cascading portion between the White Pass and Yukon Route Railroad and the Skagway River.

- Use a helicopter or donkey-winch to transport the penstock to its location to protect as much natural vegetation as possible

- Design the penstock to avoid interfering with wildlife movements

- Design and construct the transmission line to prevent hazards to raptors and other large birds

- Adjust the construction schedule of the facilities at the lake to avoid disturbance to mountain goat mating and kidding

- Visually screen the powerhouse and substation with the use of vegetation and/or coloring to match the surrounding environment

- Establish a 13-cfs minimum instream flow over Pitchfork Falls during May through September for 12 daylight hours a day to maintain the aesthetics of the area, by use of a priority flow bypass device

- Implement a cultural resources management plan to protect portions of the Skagway Historic District and White Pass National Historic Landmark (Historic Landmark), which includes the Brackett Wagon Road and White Pass and Yukon Route Railroad (WP&YR RR); and the historic Canadian Oil pipeline affected or potentially affected by the project, pursuant to a memorandum of agreement (MOA) prepared in accordance with the Advisory Council of Historic Preservation's (Advisory Council) regulations (36 CFR 800) for the National Historic Preservation Act.

We discuss each of these measures in the individual resource sections of this FEA.

4. Mandatory Requirements [4(e) Conditions]

Since the project occupies land of the Tongass National Forest, the FS has authority under Section 4(e) of the FPA, to impose mandatory conditions on any hydropower license the Commission would issue for the project. In its May 9, 1996, letter, the FS filed with the Commission, the following preliminary 4(e) conditions for the license (letter from Phil Janik, Regional Forester, U.S. Forest Service - Alaska Region, Juneau, Alaska, May 9, 1996), and stated that the final 4(e) terms and conditions for the license would be provided within 45 days after issuance of this FEA:

- Condition No. 1 - Requirement to Obtain a FS Special-Use Authorization
- Condition No. 2 - FS Approval of Final Design
- Condition No. 3 - Approval of Changes After Initial Construction
- Condition No. 4 - Consultation
- Condition No. 5 - Minimum Steamflow Regime
- Condition No. 6 - Guaranteed Priority Flow Bypass Device
- Condition No. 7 - Visual Resource Protection Plan
- Condition No. 8 - Erosion Control Plan
- Condition No. 9 - Solid Waste and Waste Water Plan
- Condition No. 10 - Hazardous Substance Plan
- Condition No. 11 - Cultural Resource Protection
- Condition No. 12 - Fish and Wildlife Mitigation Plan

B. No-action Alternative

Under the no-action alternative the project would not be built. Therefore, there would be no changes to the physical,

biological, or cultural resources of the area. The generation that the proposed project would provide would not occur. The no-action alternative is the benchmark from which we compare the proposed action and other action alternatives.

C. Alternatives Considered but Eliminated from Detailed Study

The following are descriptions of three alternative transmission line routes that were considered but eliminated from further consideration by AP&T:

Along the White Pass and Yukon Route Railroad

This alignment (about 4,400 feet long) would extend from the proposed substation upslope to the WP&YR RR, southerly along the railroad to the Clifton area, downslope across the Skagway River and lastly, upslope to the Customs Border Station. The reasons this alternative was ruled out from further consideration are that: (1) WP&YR RR plans to remove the existing telegraph line along the railroad right-of-way to provide less visual distraction to the natural aesthetics of the area and because the poles are not needed, (2) additional poles would further add to undesired visual impacts of the area, (3) WP&YR RR would impose cost prohibitive charges to AP&T for constructing the transmission line on the right-of-way easement, (4) steep topography and limited access for construction and maintenance presents engineering constraints, and (5) the visual impact to Klondike International Highway users would be potentially significant due to the taller structures (55-foot-high transmission line poles) compared to the existing 30-foot-high telegraph poles.

On the East Side of the Skagway River

This alignment (about 3,400 feet long) would extend from the proposed substation downriver and parallel to the Skagway River for about 2,900 feet to the Clifton area, then upslope to

the Customs Border Station. The reasons this alternative was ruled out from further consideration are that: (1) construction would likely disturb the historic Brackett Wagon Road located along the east side of the river, (2) an extensive, time-consuming historic/cultural resources survey would be required to investigate presence of Gold Rush artifacts along this route, and the National Park Service discourages ground disturbance before completion of such surveys, (3) required mitigation to offset potential resource losses may be prohibitively expensive, (4) the FS and the town of Skagway may be interested in developing a recreational foot trail along the Brackett Wagon Road and a powerline in this area may not be compatible with land use and (5) this location would increase the visibility of the project from the Klondike International Highway.

Along the Klondike International Highway

This alignment (about 3,900 feet long) would extend from the proposed substation across the Skagway River, upslope to the Klondike International Highway, and southerly to the Customs Border Station. The reasons this alternative was ruled out from further consideration are: (1) the degree of slope for powerline construction to the highway and the amount of bedrock present presents two engineering difficulties, (2) the Alaska Department of Transportation disallows pole line construction along the highway due to the scenic nature of the highway, as seen from the WP&YR RR and as viewed from the highway, (3) visual quality would be impaired with the transmission line emerging from the valley to a point near highway pullouts used to view Pitchfork Falls.

Although each of the transmission line routes considered may have some merits, we agree with AP&T that the alternatives are more environmentally-damaging and more costly to construct than the proposed alignment.

V. CONSULTATION AND COMPLIANCE

A. Agency Consultation

The Commission's hydropower regulations require applicants to consult with the appropriate resource agencies before filing a license application. This consultation is the first step in complying with the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, and other federal statutes. Pre-filing consultation must be complete and documented according to the Commission's regulations.

After the Commission accepts an application, formal comments may be submitted by concerned entities during a public notice period, in accordance with section 4.34(b) of the Commission's regulations under the FPA [18CFR §4.34(b)]. The comments provided by concerned entities are made part of the record and are considered during review of the proposed project.

On August 29, 1995, and October 27, 1995, the Commission issued public notices that solicited comments and recommendations on the project. The Department of Interior (Interior) responded by letter dated November 27, 1995, however no recommendations were made on the project.

B. Interventions

The Commission's January 6, 1995, notice solicited organizations and individuals to petition to intervene and become a party to any subsequent proceedings. There were no motions to intervene filed for the project.

C. Scoping

Before preparing this FEA, we conducted scoping to determine what issues and alternatives should be addressed. A scoping document (SD1) was distributed to agencies and others on

May 18, 1995 (Federal Energy Regulatory Commission and U.S. Forest Service 1995), and noticed in the Federal Register, The Skagway News, and Capital City Weekly. Two scoping meetings were held on June 20 and June 22, 1995, in Skagway and Juneau, Alaska, respectively. Verbal comments received during the scoping meetings are recorded in the meeting transcripts (Ann Riley and Associates 1995a, 1995b).

In response to SD1, we received written comments from the National Park Service (NPS) (letter from Clay Alderson, Superintendent, Klondike Gold Rush Park, Skagway, Alaska, June 22, 1995). These comments and the comments received at the scoping meetings were addressed in the final scoping document (SD2) issued September 27, 1995. The main issues identified during scoping were: project impacts on the cultural value of the Brackett Wagon Road, cultural resources protection, access to the project, location and type of transmission system, mitigation of archeological and scenic concerns, minimizing vegetation impacts, measures to protect wildlife, baseline data on mountain goats, time restrictions of bypass instream flows, natural resources management, project economics, contributions of air-borne pollution from fossil-fueled generation, and baseline environmental information. These issues are addressed in this FEA.

D. Water Quality Certification

On September 1, 1994, AP&T applied to the Alaska Department of Environmental Conservation (ADEC) for water quality certification for the Goat Lake Hydroelectric Project, as required by Section 401 of the Clean Water Act (33 U.S.C. §1341). The ADEC received this request on September 6, 1994. On October 3, 1994, the ADEC waived AP&T's Section 401 water quality certificate (letter from R. Flinn, Program Manager, Alaska Department of Environmental Conservation, Juneau, Alaska, October 3, 1994).

E. Coastal Zone Management Act

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

On August 18, 1994, AP&T applied to the Alaska Division of Governmental Coordination (ADGC) for a consistency determination of the project with the coastal zone management program (letter from Stan Selmer, Site Coordinator, Alaska Power and Telephone Company, Skagway, Alaska, August 18, 1994). On September 6, 1994, the ADGC acknowledged AP&T's certification request.

On November 27, 1995, the ADGC certified that the Goat Lake Project was consistent with the Alaska CZMA and also with the Skagway Coastal Management Plan. No conditions or stipulations were included.

F. Comments on the Draft Environmental Assessment

Commenting Entity	Date of Letter
U.S. Fish and Wildlife Service	March 25, 1996
Alaska Power and Telephone Company	April 4, 1996
National Park Service	April 15, 1996

Appendix A includes the comments from the above entities along with our responses to them. Based on our responses, the corresponding sections of the FEA have been modified.

VI. ENVIRONMENTAL ANALYSIS

In this section, staff first describes the general environmental setting in the project area. Included is a discussion of environmental resources in the Skagway River Valley that may be subject to cumulative effects from the Goat Lake Project when considered in combination with other actions affecting the resource.

In our detailed assessment, we discuss each environmental resource affected by the project. For each resource, we first describe the affected environment--which is the existing condition and the baseline against which to measure the effects of the proposed project and any alternative actions--and then the environmental effects of the project, including proposed mitigation measures. In evaluating the environmental effects of the project, we consider both site-specific effects and any cumulative effects to resources in the basin.

Unless we say otherwise, the sources of our information are the license application (Alaska Power and Telephone Company 1994a-c) and additional information filings by AP&T (Alaska Power and Telephone Company 1995a-e, 1995g).

A. General Description of the Goat Lake Drainage Area

The project would be located east of the Skagway River along Pitchfork Falls, about 7 miles northeast of Skagway, Alaska. Founded in 1896, at the extreme north end of Lynn Canal, Skagway became an important stopover of gold seekers on their way to the Klondike gold fields. With the ebbing of the Klondike Gold Rush (see section VI.B.6.), Skagway's population dwindled. The present mainstay of Skagway's economy is tourism, where many tourists visit the area each year for the natural scenery in the Skagway River Valley. The project basin is also used occasionally for outdoor recreation such as hunting and camping.

The project area and Skagway River Valley have a remote, wild, and undeveloped character. In particular, the lower portion of Pitchfork Falls has a prominent series of cascading waterfalls which is a popular attraction among local residents and visitors to the area. The three significant linear features that Pitchfork Falls crosses are the WP&YR RR at elevation 1,104 feet msl, the Canadian Oil pipeline along the railroad right-of-way, and the historic Brackett Wagon Road located about 200 feet below and generally parallel to the railroad.

The project's 4.2-square-mile drainage basin includes glaciers, moraines, rugged mountainous terrain, and high-gradient streams with cascades and pools. The topography of the region is primarily the result of glaciation about 13,000 years ago.

The landscape of the project area is made up of forests, mixed with mountain meadows, exposed bedrock and boulders, shrubland communities, meadows, and scattered wetlands. The Tongass National Forest provides habitat for about 54 species of mammals, 231 species of birds, and 5 species of amphibians and reptiles (U.S. Forest Service 1991a, 1991b).

The 943-kilowatt Dewey Lakes Project (FERC No. 1051), located about 1 mile east of Skagway, is the only existing hydropower project in the Skagway region. This project was originally licensed on April 1, 1980, and the license expires on August 29, 2007.

1. Cumulative Impacts

An action may cause cumulative impacts on the environment if its impacts overlap in space and/or time with the impacts of other past, present, and reasonably foreseeable future actions. The individually minor impacts of multiple actions, when added together in space and time, may amount to collectively significant cumulative impacts. The existing environment shows

the effects of past and present actions and provides the context for determining the significance of cumulative impacts from future actions.

In SD2, we identified tourism and sightseeing opportunities as two elements that could be cumulatively affected by development of the project in combination with existing and potential development in the area. However, after further analysis, we don't believe there is a potential for these, or other resources to be cumulatively affected. The following is the basis for our conclusion:

♦ The Clinton Customs Border Station, the Klondike International Highway, and the WP&YR RR (Figure 1) are the main non-hydropower developments in the Skagway River Valley. Except for other small and isolated structures, there are no other visible human developments in the valley. None of these developments has contributed, nor is expected to contribute, to adverse impacts on tourism and sightseeing opportunities in the area. At this time, there is no known development planned.

♦ Because of its location in a forested environment, the Dewey Lakes Project is not visible from primary public viewing locations such as the Klondike International Highway, the WP&YR RR, or from the town of Skagway. Visual effects of this development can only be seen from hiking trails that lead to the site from Skagway, or by flying over the project above 500 feet msl elevation. Therefore, the Dewey Lakes Project does not adversely affect tourism and sightseeing opportunities in the valley.

♦ AP&T proposes site-specific measures to minimize potential adverse effects from project development on the aesthetic quality of the Goat Lake Project area (see section VI.B.5.). These measures, which are consistent with the Tongass Land Management Plan, would minimize any impacts to visual

resources in the project area; therefore eliminating any impacts to tourism and sightseeing opportunities.

B. Proposed Action and Action Alternatives

1. Geology and Soil Resources

a. Affected Environment: The project area consists of exposed bedrock with talus and alluvium deposits. The slopes range from flat to steep. The steeper slopes have an accumulation of rock debris that has formed fan shaped deposits (talus deposits) at the base of steep-sided cliffs. The less steep slopes are alluvium deposits of sand, gravel, cobbles, and boulders with traces of silt and woody debris. An organic soil (muskeg) is also found in the project area. Muskegs consist of a soft, highly compressible mixture of peat moss, roots, and other vegetation. The talus and alluvium deposits together with muskeg underlain by bedrock, provide a stable area with little chance of erosion or sedimentation. However, occasionally, water streams with high velocities, water from snow melt, snow avalanches, or major landslides could cause this type of material to shift and move causing erosion and sedimentation.

b. Environmental Impacts and Recommendations: Construction of the penstock, powerhouse, catchbasin, siphon house, pumpback/valvehouse and other project features have the potential to cause erosion and sedimentation that would affect water quality.

On March 30, 1995, AP&T submitted a draft erosion and sediment control plan (ESCP) that outlined the methods and techniques to be followed to control construction impacts during land-disturbing activities. These measures include sediment control ponds, silt fence barriers, streambank stabilization, and use of rock to construct entrance roads. Also, AP&T proposes to use aerial trams and helicopters to transport construction materials to job sites, and to revegetate disturbed areas as quickly as possible after construction is completed.

The U.S. Fish and Wildlife Service (FWS), Alaska Department of Fish and Game (ADFG), and Alaska Department of Natural Resources (ADNR) all agree that the methods and measures outlined in AP&T's draft ESCP address project construction impacts and would ensure maintenance of water quality (letters from Nevin Holmberg, Field Supervisor, U.S. Fish and Wildlife Service, April 17, 1995; John Palmes, Area Habitat Biologist, Alaska Department of Fish and Game, Douglas, Alaska, April 11, 1995; and William Long, Executive Director, Soil and Water Conservation Board, Alaska Department of Natural Resources, Anchorage, Alaska, May 1, 1995).

The FS concludes that the potential for soil erosion is low and that mitigation for any potential erosion is outlined in the draft ESCP. However, the FS says that under their section 4(e) authority, and granting a SUA, AP&T would have to further develop its draft ESCP. The final plan would be required to comply with the Best Management Practices described in the FS Region 10 Soil and Water Conservation Handbook for this type of construction. Also, under their section 4(e) authority, the FS would require AP&T to develop solid waste, wastewater, and hazardous substance plans before land-disturbing activities.

Staff concludes that the potential for erosion and sedimentation to occur in the project area is low because of the mostly stable slopes. Further, we agree with the agencies that AP&T's draft ESCP outlines methods and measures to be followed during land-disturbing activities that would control construction impacts and protect water quality. However, we also agree with the FS that AP&T needs to develop a final ESCP prior to land-disturbing activities because the draft plan is general and not site-specific enough for construction.

Therefore, we recommend that AP&T develop a final site-specific ESCP using its draft as a basis for the final plan. We further recommend that the final plan include provisions for handling solid waste, wastewater, and hazardous substances. The

final plan should be developed in consultation with the FS, and other agencies, and approved by the FS before it is filed for Commission approval.

c. Unavoidable Adverse Impacts: Minor, temporary and localized erosion that would cause temporary sedimentation would be unavoidable during construction activities.

2. Aquatic Resources

a. Affected Environment: The Goat Lake outlet flows through a 5-foot-wide, bedrock notch and combines with runoff from the glacial moraine to form a shallow pond about 600 feet below the lake. The pond outflow descends 2,100 feet over a steep, 30 percent gradient and forms Pitchfork Falls before entering the Skagway River.

Water Quantity

Inflows to Goat Lake result from a combination of precipitation and glacial runoff. AP&T used U.S. Geological Survey (USGS) flow data, recorded for the Skagway River at the town of Skagway from 1964 through 1986, to estimate the inflows to Goat Lake by calculating its drainage as a proportion of the Skagway River drainage. Table 1 shows the estimated average annual and monthly inflows to Goat Lake.

The glacier, located above a moraine area at the south end of Goat Lake, is about 1.7 square miles and provides runoff through the moraine to Goat Lake, the pond below Goat Lake, and to Pitchfork Falls below the pond. To develop hydrologic data for the project site, flow gages were installed at the outlet to Goat Lake, the outlet of the pond below Goat Lake, and above Pitchfork Falls near the railroad line. The data for water years 1991 through 1994 show that about 18 percent of the Pitchfork Falls flows are from glacial runoff and the remainder from the pond outflow. Table 2 shows the estimated average

annual and monthly flows in Pitchfork Falls as recorded at the gage located at Pitchfork Falls near the railroad line.

Table 1. Estimated average inflows to Goat Lake for water years 1964 through 1986 (Source: Alaska Power and Telephone Company 1995b).

MONTH	FLOW (cfs)	MONTH	FLOW (cfs)
January	0.9	July	35.2
February	0.7	August	26.1
March	0.7	September	16.2
April	1.5	October	9.4
May	9.9	November	3.4
June	29.9	December	1.1
Annual Average 11.3 cfs			

Table 2. Estimated average flows for Pitchfork Falls for water years 1991 through 1994 (Source: Alaska Power and Telephone Company 1995b).

MONTH	FLOW (cfs) 1/	MONTH	FLOW (cfs) 1/
January	2.1	July	36.8
February	2.1	August	26.8
March	2.1	September	19.2
April	1.9	October	10.9
May	15.7	November	2.0
June	42.9	December	2.8

MONTH	FLOW (cfs) 1/	MONTH	FLOW (cfs) 1/
January	2.1	July	36.8
February	2.1	August	26.8
March	2.1	September	19.2
Annual Average 13.8 cfs			

1/ AP&T developed high and low hydrologic averages by using the average from the gage records as a low estimated average and increasing it by 20 percent to represent a high estimated average. We are using the low estimate as the more realistic average. AP&T provided us with monthly estimated averages only for the high estimate, so we calculated the monthly estimates for Table 2 by applying the corresponding monthly percents of the high annual average to the low annual average.

Water Quality

Water quality in the proposed project area complies with applicable state standards. AP&T conducted water quality studies during August 1992, March and July 1994, and January and March 1995. Water samples for the study were collected from the surface of Goat Lake, 25 feet below the lake surface, and from the Skagway River above and below the outlet of Pitchfork Falls.

Dissolved oxygen levels ranged from 7.1 milligrams per liter (mg/l) to 12.2 mg/l in Goat Lake and from 8.2 mg/l to 9.8 mg/l in the Skagway River. Turbidity levels ranged from 1.49 nephelometric turbidity units (NTU's) to 9.11 NTU's in Goat Lake and from 0.47 NTU's to 44.2 NTU's in the Skagway River. The pH levels ranged from 6.8 to 7.25 in Goat Lake and from 7.11 to 7.51 in the Skagway River. Conductivity levels ranged from 35 microsiemens per centimeter

(μS/cm) to 54.6 μS/cm in Goat Lake and from 23 μS/cm to 64.2 μS/cm in the Skagway River.

Temperature profiles were developed for Goat Lake in August 1992, July 1994, and March 1995. The temperatures in Goat Lake ranged from 0.0° Celsius (C) to 5.5°C with no significant thermal stratification in any single profile.

Fisheries

In April 1994, AP&T and the ADFG conducted a fish survey in the Skagway River upstream and downstream of the Pitchfork Falls outlet. During the survey, no fish were captured or observed. The survey report showed that existing habitat conditions are extremely poor because of the high gradient and lack of overwintering and rearing habitats. The survey results indicate that this section of the Skagway River does not support any significant fish populations (Alaska Power and Telephone Company 1995b).

Goat Lake is a coldwater, nutrient-poor lake that historically has not supported fish populations. The ADFG and the FS recently conducted an experimental stocking of Arctic grayling in Goat Lake in an effort to establish a naturally reproducing fish population that would support a fly-in sport fishery. The ADFG stocked the lake with 1,000 immature Arctic grayling in 1994 and 1995; however, a fishery survey conducted after the 1995 stocking found no surviving population (personal communication with Mike Schwan, Supervisor, and John Palmes, Area Wildlife Biologist, Alaska Department of Fish and Game, Juneau, Alaska, November 8, 1995).

b. Environmental Impacts and Recommendations:

Water Rights

AP&T has applied to the ADNR for the right to withdraw up to 45 cfs from Goat Lake for hydroelectric power use. There are

no existing allocations of water from Goat Lake or the Skagway River for consumptive or non-consumptive uses, so no other water users would be affected by the project.

Fisheries

In SD 2, we identified one aquatic resource issue for analysis:

"Whether project drawdowns would limit Arctic grayling access to spawning streams entering Goat Lake, should a population become successfully established."

During the scoping process we received comments on this issue from the FS, the ADFG, and AP&T. The commenters stated that the effects of a 20- to 30-foot drawdown on the entrances to the spawning streams would not be known until after the areas were exposed (Ann Riley and Associates 1995a, 1995b). Based on the findings of the ADFG survey conducted after the June 1995 stocking, we have concluded that no Arctic grayling population has established in Goat Lake, eliminating any potential project effects.

c. Unavoidable Adverse Impacts: None

3. Terrestrial Resources

a. Affected Environment: The project area contains a variety of resource habitats: mountain meadows, shrubland communities, herbaceous-sedge meadows, avalanche chutes, bare bedrock and bedrock supporting lichens, open montane coniferous forest, scattered wet-sedge meadows, muskegs, alpine heaths, and sedge mats (letter from Mary Clay Stensvold, Regional Botanist, U.S. Forest Service, Sitka Ranger District, Sitka, Alaska, April 29, 1994). The dominant trees are subalpine fir, Sitka spruce, western hemlock, paper birch, and cottonwood while the understory shrubs are dominated by Sitka alder, rusty menziesia, black current, tall blueberry, devil's club, shield fern, crowberry and mountain heather. Herbaceous vegetation include

ferns, bunchberry, mosses, five-leaf bramble, twayblade, and Sitka valerian. According to the national wetland inventory, the project area has seven wetland types that are listed on Table 3.

The project area has varied and unique wildlife, which provides consumptive and nonconsumptive uses by the public, including sport, subsistence, photographic, and viewing activities. Some of the wildlife are black bear, pine marten, mountain goat, river otter, hairy woodpecker, and boreal owl.

Among large birds in the project vicinity is the bald eagle, which is not federally threatened in Alaska as it is in the conterminous United States. During the summer of 1993, there were three known nests near Skagway; two are west of town and the third is in the lower reach of the Taiya Inlet (letter from Mike Jacobson, Eagle Management Specialist, U.S. Fish and Wildlife Service, Juneau, Alaska, September 29, 1993). Bald eagles frequent the Skagway River. Reportedly, as many as 90 eagles have been observed near the head of Taiya Inlet in early spring when spawning candlefish arrive.

Table 3. Wetlands in the project area (Source: Alaska Power and Telephone Company 1995b).

NO.	DESCRIPTION	NAME OF WETLAND	LOCATION
Wetland -1	Lacustrine, limnetic, unconsolidated, permanently flooded system	Goat Lake	head of project area; principle water source of project
Wetland -2	Riverine, intermittent seasonally flooded streambed	Pitchfork Falls	conveys water from Goat Lake to Skagway River

Wetland -3	Palustrine, scrub-shrub, broad-leaved deciduous	unnamed	about 2,400 feet SSW of the proposed penstock; on west-facing slope
Wetland -4	Riverine, upper perennial, unconsolidated bottom	Skagway River	bottom of project; tailrace discharges directly into river
Wetland -5	Palustrine, unconsolidated, semipermanently flooded	unnamed	about 4,800 feet N of Pitchfork Falls and about 1,200 feet west of Goat Lake
Wetland -6	Palustrine, unconsolidated, permanently flooded Palustrine, unconsolidated, semipermanently flooded	these two unnamed wetland sites are in same area	about 1,800 feet NNE of Goat Lake about 1,800 feet NNE of Goat Lake
Wetland -7	Palustrine emergent, persistent, seasonally flooded	unnamed	about 6,000 feet NNE from Goat Lake

Bald eagles have not been seen at Goat Lake or Pitchfork Falls, probably because of the absence of fish, which is the principal component of their diet. No other raptor nest sites are known in the Goat Lake area. Other large birds that may periodically use the project area, in small numbers, are the

great blue heron, trumpeter swan, and perhaps Canada goose and sandhill crane.

Surveys indicate that mountain goat use in the area surrounding Goat Lake is minimal (memorandum from Ben Carney, Wildlife Biologist, Alaska Department of Fish and Game, Douglas, Alaska, November 20, 1995). Only two individuals were observed during seven surveys between 1973 and 1994 in the project area. Most of the goats in the project vicinity were near Laughton Glacier, on south-facing slopes along the East Fork of the Skagway River, or on west-facing areas above Goat Lake (letter from Matt Robus, Area Management Biologist, Alaska Department of Fish and Game, Douglas, Alaska, January 27, 1994). A low use mountain goat winter area was identified on the west side of the Skagway River Valley in 1973 (memorandum from John Palmes, Regional Habitat Coordinator, Alaska Department of Fish and Game, Douglas, Alaska, April 9, 1973).

A habitat capability model was developed to estimate the capability of habitats in southeast Alaska to support mountain goat populations (Suring et al. 1988). Since wintering habitat is the most limiting factor for mountain goats in southeast Alaska, particularly due to heavy snows and limited access to desired forage, wintering habitat was emphasized in the model. The important components affecting winter habitat suitability and capability in the model were availability of wintering food, escape terrain, distance of use from cliffs, southerly aspects, general slope characteristics, successional stage of vegetation, tree canopy, mobility corridors, predation, human disturbance and harvest (U.S. Forest Service and Bureau of Land Management 1995; Alaska Department of Highways 1973). As a result, predicted goat use areas were plotted and the closest suitable habitat was about 1,400 feet northeast of Goat Lake at elevation 3,150 feet msl, and about 2,000 feet due south of the lake at elevation 3,500 feet msl. Based on physical attributes of the Goat Lake basin, the project area is not expected to be a kidding area.

b. Environmental Impacts and Recommendations:

Habitat Disturbance

Project construction of the valvehouse, new spillway, siphon house, penstock, powerhouse, transmission line, access road, and tramway would physically disturb an estimated 9.25 acres of native soils, vegetation, and habitat used by wildlife. To partially offset these losses and minimize disturbance and alteration to these affected resources, AP&T proposes to: (1) leave as much vegetation as possible during powerhouse and penstock construction; (2) revegetate disturbed areas as soon as possible after disturbance, (3) follow FS guidelines for revegetating disturbed areas; (4) use a helicopter or donkey-winch to transport the penstock to its location to protect as much natural vegetation as possible; and (5) design the penstock to avoid interference with wildlife movements. These measures have largely resulted through agency consultation during the preapplication stage.

Staff believes implementation of these measures would minimize, protect, or avoid adverse effects on terrestrial resources in the project area. Staff, therefore, recommends that the proposed terrestrial resource protection and mitigation measures should be implemented to ensure conservation of these resources.

Wetlands/Riparian

Construction of the new spill route, diversion structure, penstock, tailrace, pumpback house, siphon house, and backfilling of the old channel outlet would affect less than 1.0 acre of small, isolated alpine heaths, sedge-grass meadows, sedge mats, and alpine herbaceous meadows having saturated soils and wetland characteristics. The selected site for the powerhouse and substation is about 1,600 feet downriver and on the east side of the Skagway River from the confluence of Pitchfork Falls with the Skagway River.

On March 16, 1995, the FS agreed that the wetlands and riparian habitats were not in direct conflict with the project features and that unavoidable incidental impacts to wetland habitats would be minor.

We find that since AP&T: (1) has designed the project features to avoid the project area wetlands as much as possible, (2) would avoid effects on wetlands during construction as much as possible, as outlined in the application, and (3) would revegetate disturbed areas as quickly as possible after construction, as outlined in the draft ESCP and recommended in the final ESCP (section VI.B.1.), all reasonable efforts would be made to minimize wetland impacts and protect water quality.

Raptor Protection of Transmission Line

a. Electrocution

AP&T proposes to construct a 3,400-foot-long, 24.9-kV aerial transmission line. The alignment would start at the substation, cross the Skagway River, continue downgradient and parallel along the west side of the Skagway River near Clinton, and then traverse upslope to the Customs Border Station to intertie with AP&T's existing 24.9-kV transmission line to Skagway. The entire west side of the river is state land.

Because the transmission line could represent an electrocution hazard to bald eagles and other large birds in the area, AP&T plans to design and construct the line to prevent possible long-term hazards to raptors and other large birds. Accordingly, AP&T would construct the line to meet or exceed the Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1981 (Olendorff et al. 1981). In particular, the energized conductors would be positioned far enough apart (minimum separation of 60 inches) that large birds would be unable to simultaneously touch two or more of them with their wings or other body parts.

In their March 15, 1995, response, the FWS and FS concurred with AP&T's raptor protection measures on the transmission line.

According to Olendorff et al. (1981), transmission lines less than 69 kV could pose an electrocution hazard to birds because of birds' bodily contact with energized conductors. While we recognize that the project area appears to have only incidental occurrences of bald eagles and other large birds, we nevertheless agree with AP&T's long-term measures to safeguard against any possible electrocution to bald eagles and other large birds.

b. Collision

Due to the absence of eagle nest sites, communal roosts, and endangered raptors in the project area, AP&T doesn't propose collision avoidance measures on the transmission line. In areas of high fog, strong electrical and rain storms, and other climatic conditions, it is possible that transmission lines could pose collision hazards to small and large birds, including eagles. There are no recommended agency measures to prevent collision hazards.

A literature review shows that raptor collisions with transmission lines are random, low level, and inconsequential. Eagles have keen eyesight, use relatively slow flapping flight speed, and become conditioned to the presence of transmission lines (Olendorff and Lehman 1986).

We agree with AP&T that no collision measures are needed because of the following: (1) large bird populations in the project area are very low in numbers, and (2) it doesn't seem likely that bird strikes with power lines would contribute to substantial bird losses in the project area. We therefore conclude that the overhead transmission line, as proposed, is consistent with accepted protection guidelines that would

prevent electrocution hazards to large birds. Therefore, AP&T should construct the transmission line as proposed.

Mountain Goats

Chadwick (1983) reports that mountain goat populations have experienced significant declines following habitat alterations and disturbance from hunting and other human activities. In particular, this species is more sensitive to disturbances than any other big game species in North America. The project area has no road access and limited human use.

Project construction would likely cause localized noise and disturbance from helicopter and machinery use; however, the noise is not expected to last long, nor be offensive to normal mountain goat activities during the spring and summer months. Because Goat Lake does not appear to provide important summer or winter mountain goat habitat, this species is not likely to be significantly affected by construction or maintenance activities associated with the project. The ADFG agrees (memorandum from Ben Carney, Wildlife Biologist, Alaska Department of Fish and Game, Douglas, Alaska, November 20, 1995; letter from Matt Robus, Area Management Biologist, Alaska Department of Fish and Game, Douglas, Alaska, January 27, 1994; memorandum from John Palmes, Area Habitat Biologist, Alaska Department of Fish and Game, Douglas, Alaska, November 22, 1995).

Nevertheless, to minimize any potential adverse effects on goat mating or kidding during project construction, AP&T proposes to adjust the construction schedule, through coordination with the FS and ADFG, to avoid possible disturbance during the mating and kidding periods. Therefore, we agree with AP&T's proposed protection measure and recommend this protection measure be included in any license issued for the project. To further ensure that wildlife, including goats, are not affected by helicopter activity in the project area, the FS is including in their required section 4(e) conditions, that AP&T file a wildlife habitat plan having the same requirements for minimum

distances from wildlife that is required for helicopter tours. This includes maintaining a 1,500-foot vertical and horizontal clearance between helicopters and key goat areas, avoiding known kidding areas from May 15 through June 15, and avoiding harassment of wildlife in any way.

c. Unavoidable Adverse Impacts: Project construction is expected to alter about 9.25 acres of wildlife habitat and existing landscape resources that include shrublands, open montane coniferous stands, herbaceous-sedge meadows, bedrock supporting lichens, avalanche chutes, muskegs, and alpine heaths and sedge mats.

About one acre of wetland would be affected by project construction, particularly for establishing the penstock.

Use of a helicopter and other equipment during project construction would increase noise in the project area, which could cause temporary dispersal and relocation of wildlife. It is expected that this short-term noise would occur only during the construction season. Because of their preferred habitat away from Goat Lake, it is unlikely that mountain goats would be affected by the project.

4. Threatened and Endangered Species

a. Affected Environment: The FS conducted an extensive plant survey of the project area on July 27, 1993. The survey area included: (1) the proposed penstock corridor from the intake at the lake downgradient to the top of Pitchfork Falls, (2) the existing outlet at the lake to the top of Pitchfork Falls, (3) the subalpine meadow/montane forest mosaic in the general project area, (4) the lower part of the moraine, and (5) montane forest in the Pitchfork Falls vicinity. Only one of the 22 plants designated as sensitive by the FS Regional Forester

was located.[6] This plant, the goose-grass sedge (Carex lenticularis var. dolia), is also a species of special concern by the FWS. There are no other listed plants by the FWS in the project area that are threatened, endangered, candidate or species of special concern.

The FWS states that the following federally-listed animal species may occur in the proposed project area as transients, particularly during seasonal migration: endangered American peregrine falcon and Arctic peregrine falcon [7] (letter from Nevin D. Holmberg, Field Supervisor, U.S. Fish and Wildlife Service, Juneau, Alaska, August 21, 1992; personal communication, John Lindell, Endangered Species Biologist, U.S. Fish and Wildlife Service, Juneau, Alaska, November 21, 1995). Additionally, there are four FWS species of special concern that may occur in the project area: marbled murrelet, northern goshawk, harlequin duck, and spotted frog (U.S. Fish and Wildlife Service 1994).

Goose-Grass Sedge

The first known Alaska collection of the Carex lenticularis var. dolia was in 1913 near Skagway, and its main geographic range in Alaska is the southeast panhandle south to Queen

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[6] FS sensitive plant species are those for which population viability is a concern, as evidenced by (a) significant current or predicted downward trends in populations numbers or density, and (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

[7] Although the Arctic peregrine falcon was delisted on October 5, 1994 (Federal Register Vol. 59, No. 192, pp. 50796-50805) and is no longer protected under the Endangered Species Act, the FWS must monitor this species for 5 years following its delisting. Federal agencies are requested to voluntarily consider the Arctic peregrine falcon in their planning processes.

Charlotte Island. There are also widely disjunct populations in the Yukon Territory, British Columbia, Alberta, and Glacier National Park in Montana, its southernmost limit.

Although there have been few individuals collected, this plant seems to prefer high mountain elevations (5,000 to 9,800 feet msl), at high latitudes from timberline to the alpine, and almost always in or at the water's edge (Standley 1985). The goose-grass sedge appears to be an early successional species, colonizing shallow, wet, organic loamy soils along streams and in seep areas of gentle terrain. The soils are usually very shallow and have a high content of stones and gravel. Surrounding vegetation is usually moist meadows or tundra. In some areas it may be one of the first plants to stabilize stream banks and wet, slumping soils of high elevation terraces.

A FS plant survey of the project area revealed that the goose-grass sedge was found above the east side of Goat Lake at about 4,000 feet msl, outside the project area (letter from Mary Clay Stensvold, Regional Botanist, U.S. Forest Service, Sitka Ranger District, Sitka, Alaska, April 29, 1994).

American Peregrine Falcon

In Alaska, the American peregrine falcon (Falcon peregrinus anatum) primarily inhabits interior portions of the state. It is highly migratory and winters as far south as Argentina. Although this species may occur in the project area as a transient, primarily during seasonal migration, there has been no reported observation in the vicinity of the project. Migration routes and patterns and forage areas haven't been identified.

During migration across southeast Alaska, availability and abundance of prey most likely determines the birds' flight patterns and stopover areas. About 82 percent of the food consumed by the American peregrine are vertebrates, and the primary prey in Alaska consists of shorebirds, waterfowl, and

passerine birds (U.S. Forest Service 1991b). Peregrines forage over bodies of water, marshes, grasslands, shorelines, and over wooded areas and they attack flying prey from above or by chasing them.

Data suggests that the American peregrine populations have recovered as a result of restrictions on organochlorine pesticide use (especially DDT and DDE) in the United States and Canada, and because of successful reintroduction from captive-bred species. In nature, these chemicals have caused eggshell thinning and poor reproductive success among peregrine falcons. No organochlorine pesticides are authorized for use on the Tongass National Forest (U.S. Forest Service 1991a, 1991b). According to Ambrose et al. (1988), American peregrine populations in Alaska are continuing to increase. Therefore, the FWS proposes to remove this species from the list of threatened and endangered wildlife and the critical habitat designation (U.S. Fish and Wildlife Service 1995).

Arctic Peregrine Falcon

As with the American peregrine, the Arctic peregrine falcon (Falcon peregrinus tundrius) populations declined following World War II as a result of organochlorine pesticides use. After 20 years of restriction on the use of these chemicals marked by steady progress toward recovery, reproductive rates in arctic peregrines have steadily increased, and populations continue to rise. About 250 pairs nest in Alaska and thousands nest throughout arctic North America. There has been no reported observation of the Arctic peregrine falcon in the project vicinity.

Arctic peregrines nest in tundra regions of Alaska, Canada, and Greenland and migrate through mid North American latitudes and winter in Latin America. Arctic peregrines occur in southeast Alaska only during the migration periods (U.S. Forest Service 1991b). In Alaska, this subspecies nests mostly along rivers in the northern and western parts of the state. Nests

are positioned on cliffs or bluffs usually near rivers or lakes that provide habitat for shorebirds, waterfowl, and songbirds on which the falcons prey.

Although the rate of habitat alteration in nesting, migration, and wintering habitats is greater now than in the past, the rapid population increase over the last 15 years (Ambrose et al. 1988) suggests that habitat modification does not threaten the continued existence of this species.

Marbled Murrelet

The marbled murrelet is regarded as a bird of mystery because its nesting habits are largely unknown and its nearshore feeding habits make it difficult to survey. This small seabird spends most of its time along coastal areas from Alaska to central California and feeds primarily on small Pacific herring, northern anchovies, Pacific sandlances, sea perch, and invertebrates in near-shore marine waters (Federal Register Vol.60, No.154, pp.40892-40908, August 10, 1995). Throughout forested portions of its range, such as in the Alexander Archipelago in which the project lies, the marbled murrelet nests in mature and old-growth coniferous forests located mostly within 38 miles (60 km) from marine coastal waters. Those murrelet populations in the more westerly Aleutian and Kenai Peninsula Archipelagos generally nest on the ground. Tree nesting murrelets select large diameter, old-growth healthy or decadent trees more than 100 feet above the ground often having mistletoe, deformations, and moss on large limbs (Pacific Seabird Group 1995, Kuletz et al. 1994).

Marbled murrelet population numbers are thought to be declining in the lower forty-eight. The greatest threat to murrelets is nesting habitat loss and modification due to logging, development, and fragmentation of nesting stands (Federal Register Vol.65, No. 119., pp. 28362-28367, June 20, 1991, Pacific Seabird Group 1995). Estimated population numbers

are higher in Alaska (50,000-220,000) than in British Columbia, Washington, Oregon, and California combined (32,000-71,900).

Northern Goshawk

The largest of the accipiter hawks, the northern goshawk has a wide geographic breeding range in North America and, in Alaska, it inhabits and breeds in the central and eastern portions of the state (Johnsgard 1990). It winters throughout its breeding range and extends as far south as northern Mexico and Texas. Primarily in April and May, goshawks nest in nearly every kind of coniferous forest, but also use deciduous and mixed woodlands (Apfelbaum and Seelbach 1983). McGowan (1975) found that goshawks in interior Alaska selected paper birch for nesting 94 percent of the time where suitable nest-tree species were present. Generally, nest sites are in old, tall trees having a well-developed understory and are near a water source of moderate slope, usually having a northerly aspect. Large forest stands are favored and there is a great deal of variation in population density throughout its Holarctic range.

The northern goshawk is associated with diverse habitats such as dense coniferous taiga with scattered glade, tall conifers mixed with deciduous woods, river forests, and cultivated coniferous plantations, and stands of birch, aspen, pine in steppe or woodlands. Coniferous forests are preferred over deciduous. The bird shows a lower habitat specificity in the winter often ranging into other habitats, including deserts. In the project area, the northern goshawk is known only as a transient.

All studies have shown that there is a high dependency on birds and mammals of moderate to large size in the goshawk diet (Sherrod 1978). Important prey base for the goshawk are Stellar's jays, grouse, ptarmigan, thrushes, and mid-sized furbearers. Goshawks have not been abundant in southeast Alaska but because they are associated with forested landscapes, they are vulnerable to habitat loss from land disturbance.

Harlequin Duck

In selected areas of its range, such as the Aleutian Islands and parts of British Columbia, the harlequin duck is abundant. But because much of their worldwide range lies in remote regions, accurate populations and distribution has been difficult to determine.

The western populations of harlequins are primarily in Alaska, particularly in the Aleutians, Alexander Archipelago, and the Alaska Peninsula. The Aleutian Islands are considered to be "a center of abundance" for the Pacific harlequin ducks (Palmer 1976). In May, adults leave their wintering areas along coasts for interior breeding grounds. Their breeding distribution extends from northern Alaska to Washington state where the distribution splits southward to the Cascade range and southeasterly to the northern Rocky Mountains. Harlequins have also been observed during the summer on islands in the Bering Sea and Pribolofs.

Harlequins usually nest along rocky shores adjacent to rapids of turbulent mountain streams. In Alaska's eastern Prince William Sound, harlequins selected the largest anadromous salmon streams for nesting (Crowley 1993). The nests were located along first order tributaries near timberline, on steep southwest-facing slopes, and positioned beneath old growth forests. Well concealed nests are generally composed of a thin layer of grass, with dry twigs and leaves, and lined with down. Females incubate assiduously and appear to have a high degree of fidelity when nesting.

In search of food, harlequins can dive to depths of 5 feet in swift currents. Most of their preferred foods are animal material such as crustaceans (mud crabs, hermit crabs,

amphipods), mollusks (chitons, periwinkles, limpets, chink shells, blue mussels), insects (stone flies), worms, and fish.

The harlequin duck is thought to occasionally move through the Skagway River Valley in individual or low numbers.

Spotted Frog

The distribution and population status of the spotted frog in Alaska is unknown. The historical range extended from extreme southeastern Alaska south to central Nevada and east to northwestern Wyoming. The specific reasons for its decline are unknown but researchers speculate the following principle causes: (1) habitat loss due to encroachment by man, (2) climatic changes, including droughts, (3) lake acidification as a consequence of climate change or succession, (4) increased UV-B radiation due to ozone depletion, and (5) competition with introduced species such as bullfrogs (Blaustein et al. 1995; Waters 1992; Hayes and Jennings 1986).

The spotted frog habitats range from coniferous northwest forests to semiarid sagebrush sites. Generally the spotted frog is highly aquatic, always found near permanent water and adjacent grassy margins of lakes, streams, and ponds. It is suggested that this elusive species is more common in cold water habitats than in warm, stagnant ponds. In the Stiking River basin near Wrangell, south of Juneau, they were observed breeding in outwash ponds and in a backwater lake, with possible breeding in muskegs and beaver ponds (Waters 1992). This frog is not an old-growth obligate, but forested areas may represent important refugia from further population losses (Blaustein et al. 1995). This species has been reported in the Haines area (located about 40 miles south of the proposed project site), but has yet to be verified by the FWS.

b. Environmental Impacts and Recommendations: The Goat Lake Project would not adversely affect the federally endangered American peregrine falcon or delisted Arctic peregrine falcon

because: (1) both peregrine falcon species are thought to occur in the project area only in small numbers and as occasional migrants; (2) critical habitat for both peregrine species are not known to occur in the project area; (3) preferred prey (shorebirds and waterfowl) are not abundant in the project area, so foraging would not be affected; and (4) the alteration of about 10 acres of forest, shrubland, and muskeg habitats would not affect prey availability for migrating peregrines nor important foraging habitats such as wetlands, ponds, and riparian zones.

We also conclude that the project would not adversely affect the five species of special concern that could occur in the project area for the following reasons: (1) these species have not been found in the project area; (2) the goose-grass sedge was found at the 4,000 foot msl elevation, outside the project's impact area; (3) the project area does not have preferred old growth and mature coniferous habitat for marbled murrelet nesting nor is such habitat known in the Skagway River Valley; (4) populations of the northern goshawk, harlequin duck, and spotted frog that could inhabit the area are likely to be low; (5) the project area is not known to support high populations nor provide known critical habitat for the northern goshawk, harlequin duck, and spotted frog; (6) project construction is not expected to affect nesting or movements of the northern goshawk, harlequin duck, and spotted frog; (7) because Goat Lake is a nutrient-poor lake with low bioproductivity, it is not probable that Pitchfork Falls, which receives water from Goat Lake, sustains a suitable food base (aquatic invertebrate diversity and numbers) for the harlequin duck; (8) construction of various project features (intake, siphon house, pumpback valve house, penstock, powerhouse/substation, transmission line) are not likely to be sited in desired nesting habitats of northern goshawk, harlequin duck, and spotted frog; and (9) since the project is located about 250 miles north of the known limits of the western spotted frog, it is not likely that this species can be found in the project area.

Therefore, we think that the project would not affect the endangered American peregrine falcon and that no further action pursuant to Section 7 of the Endangered Species Act of 1973, as amended, is required. By letter dated March 25, 1996, the FWS concurred with our determination (letter from Nevin D. Holmberg, Field Supervisor, U.S. Fish and Wildlife Service, Juneau, Alaska, March 25, 1996). We also find that project construction and operation would not affect the delisted Arctic peregrine falcon, and the five species of special concern: goose-grass sedge, marbled murrelet, northern goshawk, harlequin duck, and spotted frog.

c. Unavoidable Adverse Impacts: None

5. Aesthetic Resources

a. Affected Environment: The proposed project is located in the Coast Range of southeast Alaska. The Skagway River Valley is characteristic of the region, with its narrow U-shaped valley with glaciers hanging from the surrounding mountain peaks. The lower elevations are densely forested. The higher areas are mostly exposed bedrock. There are many lakes, streams, and rivers throughout the region. Goat Lake is a typical glacier fed lake located in a steep, hanging valley comprised of bedrock and very little vegetation of significant size. The lake is difficult to get to, except by floatplane or helicopter, or hikers who do not need an established trail.

The Skagway River is the most prominent of the region's waterforms. Pitchfork Falls, a long cascading series of waterfalls that descends into the Skagway River, is the most prominent of the many streams that cascade down the valley's walls. The falls, along with most of the Skagway River Valley, is visible from the turnouts on the Klondike International Highway and from the WP&YR RR.

The lower part of Pitchfork Falls can be accessed by the WP&YR RR as it passes through the project area. The lower- and mid-level of the project area, which includes Pitchfork Falls, where the penstock, powerhouse, tram, and transmission line would be located, is visible from the Klondike International Highway, on the opposite side of the river and from the WP&YR RR. There are several overlooks along the highway where tourists stop and view the Skagway River corridor, which includes the project area.

b. Environmental Impacts and Recommendations: Constructing and operating the project would affect the aesthetic quality of the project area. The impacts would result from constructing new structures in a relatively undeveloped area and reducing flows over Pitchfork Falls from project operations.

Effect of Project Facilities on Aesthetic Resources

The penstock, which would be located in dense forested vegetation except where it crosses an avalanche area, should not significantly detract from the aesthetic quality of the area. The powerhouse and substation, located about 1,600 feet downriver from the confluence of Pitchfork Falls with the Skagway River, would also be located in dense vegetation. Although the structures would be visible from the highway overlooks, they would only be partially visible because of the screening from the vegetation. The transmission line and cable\tram would be mostly screened from view by vegetation, but would be visible where they cross the river.

Goat Lake is in the flight path for visitors touring the area by helicopter. The FS completed an EA, dated May 16, 1995, to assess the effects of helicopter landing tours in the Skagway and Haines area. The selected alternative for authorized helicopter landings includes flying over Goat Lake to access a landing site on Laughton Glacier. The passengers would be able to view the reduced lake level and some project facilities, such

as the siphon house and pumpback/valve station. This would not be a significant impact as the facilities should not be readily apparent and the exposed bedrock shoreline would appear similar to the surrounding terrain.

Project construction would also cause increased traffic, noise, and dust levels that would temporarily and locally affect visual quality to the project area.

AP&T has proposed using construction methods that would minimize the impacts of the facilities on the aesthetic quality of the area. These are: (1) using materials and coloration so that the structures blend into the landscape; (2) minimizing clearing of existing vegetation and ground disturbance for construction of the penstock, powerhouse and substation; (3) removing spoil material; (4) revegetating areas disturbed during construction; (5) and providing access to the powerhouse site by a cable\tram river crossing. The FS, by letter dated February 14, 1995, agreed with these methods and recommended that the applicant develop a visual resource management plan that would provide further details of these specific measures. The staff agrees with the FS that the erosion control and terrestrial resource measures (revegetate disturbed areas, minimizing vegetative disturbance) proposed by AP&T would assist to effectively maintain the aesthetic quality of the project area.

Therefore, after consultation with the FS, AP&T should file a visual resource management plan to specify the exterior treatment of project facilities, clearing of vegetation, and revegetating disturbed areas. The plan should be developed in conjunction with the erosion and sediment control plan discussed in section VI.B.1., the terrestrial resource measures in section VI.B.3., and the MOA cultural resources management plan in section
VI.B.6.

Effect of Reduced Flows on Aesthetic Quality of Pitchfork Falls

Pitchfork Falls is a scenic attraction that contributes to the aesthetic quality of the area. It is the focus of viewers from the highway overlooks and from the railcars that pass by the falls. Pitchfork Falls is also mentioned in publications describing the area attractions. Project operation would reduce flows over Pitchfork Falls that could affect the aesthetic quality of the falls.

AP&T and the FS, with assistance from a Visual Impact Analysis prepared by Land Design North (1994), studied different flow alternatives. Reduction of flow would have various levels of impact depending on the selected alternative. By letter dated July 20, 1995, the FS determined that a minimum flow of 13 cfs would maintain the aesthetic quality of the falls. The FS also determined that maintaining the flow would only be necessary during 12 daylight hours per day, from May through September, the peak tourist season (see section VI.B.7.). AP&T, by additional information filed May 30, 1995, agreed to the minimum flow. Project operation from October through April would substantially reduce flows over the falls. However, this is not the time of the year when many tourists visit the area. Therefore, the effects would not be substantial.

We agree that a minimum flow of 13 cfs over Pitchfork Falls, during 12 daylight hours per day from May through September would maintain the aesthetic quality and visual character of the falls and Skagway River Valley. To ensure compliance with this minimum flow recommendation, AP&T proposes installation of an automatically operated, priority stream flow device to measure and record flows, and to operate the bypass or intake gate to maintain required instream flows. We agree that a stream flow gauge should be electronically interconnected to the bypass and intake gate to ensure minimum flow releases. Due to the variable flows and relatively remote location of the site, an automatically controlled device would be necessary to ensure compliance with the minimum flow requirement. Staff believes that installation of a continuously-recording stream

gauge upstream of Pitchfork Falls, and a stage-discharge chart would accurately measure the bypass flow.

Therefore, after consultation with the FS, AP&T should file a plan to maintain minimum instream flows. The plan should specify measures the applicant would implement to ensure the minimum 13 cfs bypass instream flow is provided for 12 daylight hours per day, such as use of the priority flow bypass device.

c. Unavoidable Adverse Impacts: The presence of new structures in a relatively undeveloped area would detract from the undisturbed nature of the Goat Lake basin and to a lesser degree the Skagway River corridor. Operations of the project would marginally reduce flows over Pitchfork Falls from May through September, and substantially during October through April. Constructing the facilities would result in increased traffic, noise, and dust levels that would temporarily affect the natural visual quality of the area.

6. Cultural Resources

a. Affected Environment: AP&T conducted a cultural resources survey of the project area (Campbell 1994) . The survey identified the following cultural resources in the project area: (1) contributing elements of the Historic Landmark, that specifically include the WP&YR RR, a historic tourist trail and viewpoint of Pitchfork Falls, the historic Brackett Wagon Road, and a historic telegraph or telephone line dating from World War II and possibly earlier; and (2) the historic Canadian Oil pipeline dating from World War II. No other cultural resources were located.

The Historic Landmark was established on June 13, 1962, and is listed in the National Register of Historic Places. The Historic Landmark was established to preserve and interpret historical structures and other features of the Skagway area and the White Pass Trail, to the northeast, relating to the Klondike Gold Rush in the late 1890's and early 1900's (National Park

Service 1987). Some of the features of the Historic Landmark, such as the historic trail and railroad, contribute to the current tourist industry. Other features relate to historic events, such as the telephone line along that railroad route, which illustrates the military effort in the Skagway-White Pass area during World War II.

The historic Canadian Oil pipeline is eligible for inclusion in the National Register and has been documented in accordance with the standards of the Historic American Engineering Record. The pipeline was constructed in 1943 and is significant as an example of the World War II military effort in the area and as an early means of transporting crude oil from coastal Alaska to the interior of Canada.

The Alaska State Historic Preservation Officer (SHPO), the NPS, the FS, and the Klondike Gold Rush National Historic Park (NPS-Klondike Park) concur that the survey is adequate for identifying cultural resources in the project area (letters from Judith E. Bittner, State Historic Preservation Officer, Alaska Department of Natural Resources, Anchorage, Alaska, February 7, 1995; Sandra Faulkner, Regional Historian, National Park Service, Alaska Regional Office, Anchorage, Alaska, February 9, 1995; Clay Alderson, Superintendent, Klondike Gold Rush National Park, Skagway, Alaska, February 24, 1995; and Karen S. Iwamoto, Forest Archeologist, Tongass National Forest, Sitka, Alaska, March 6, 1995). We concur.

b. Environmental Impacts and Recommendations: The project may affect the historical integrity of the Brackett Wagon Road, the railroad bed, and the historic Canadian Oil pipeline. The proposed penstock would be routed through a culvert constructed under the railroad bed and the Canadian Oil pipeline. The powerhouse tailrace would be constructed to cross under the Brackett Wagon Road. These construction activities could potentially alter the physical and visual character of these sites. There would be no effect on the historic trail and viewing area, and the historic telephone line. The project is

not located in the immediate vicinity of the trail and viewing area, and the historic telephone line is not located in the vicinity of the project facilities.

AP&T proposes to conduct additional work to assess the effects of the project on cultural resources and to implement a cultural resources management plan to protect contributing elements of the Historic Landmark affected or potentially affected by the project, pursuant to an MOA prepared in accordance with the Advisory Council's regulations (36 CFR 800) for the National Historic Preservation Act. After review and revisions, the MOA has been accepted and signed by the SHPO, the FS, the NPS-Klondike Park, the NPS, and AP&T.

AP&T consulted the Skagua Traditional Village Council, representative of the local Native American tribe, and requested the Village Council to be a party and signatory to the MOA. The Village Council declined and said they have no concerns about traditional uses of the area (letters from Pete Johnson, Representative, Skagua Traditional Village Council, Skagway, Alaska, April 11, 1995; and Silas H. Dennis, Jr., Member-at-Large, Skagua Traditional Village Council, Skagway, Alaska, April 12, 1995). The FS has stated that the intent of the Advisory Council's regulations concerning Native American consultation [36 CFR 800(1)(c)(iii)] has been satisfied for the project (letter from Karen S. Iwamoto, Forest Archeologist, Tongass National Forest, Sitka, Alaska, April 20, 1995). The NPS has said AP&T has made a reasonable effort to consult the Village Council and to include the Village Council as a signatory to the MOA (letter from Sandra Faulker, Regional Historian, National Park Service, Alaska Regional Office, Anchorage, Alaska, April 24, 1995). We concur.

The MOA requires AP&T to hire a qualified historical archeologist, and consult with the FS, the SHPO, and the NPS to determine the specific effects of the project on the Historic Landmark and the Canadian Oil pipeline, and to identify mitigative measures to minimize effects. The MOA requires AP&T

to develop and implement a cultural resources management plan to implement mitigative measures and to protect cultural resources during project construction and operation, and to adhere to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, the Alaska Comprehensive Preservation Plan, and the cultural resources documentation requirements of Klondike Gold Rush National Park. The MOA also requires AP&T to comply with the Native American Graves Protection and Repatriation Act if discoveries are made during the license term that make it applicable to the project.

We concur the MOA is adequate to protect cultural resources at the project. The project would not have an adverse effect on the Historic Landmark or the historic Canadian Oil pipeline if the MOA is implemented as a condition of a hydropower license. The MOA has been forwarded to the Advisory Council for signature. We recommend a condition requiring implementation of an acceptable MOA be included in any license issued for the project.

c. Unavoidable Adverse Impacts: None

7. Recreation

a. Affected Environment: There are no developed facilities in the Goat Lake basin. The FS manages the area to retain its roadless and wildland character. Major recreational facilities would not be developed. The developed recreational facilities that exist outside of the basin consist of FS cabins, dispersed campsites, and picnic areas. The National Park Service operates the Klondike Gold Rush National Historical Park that includes a visitor center in Skagway and a campground in Dyea.

Because of the difficulty in accessing the Goat Lake basin, very little recreational use occurs in the vicinity of the lake. Major recreational activities in the project vicinity are dispersed activities such as hiking, fishing, and sightseeing.

The most common activity is sightseeing. Sightseeing tours are provided by the WP&YR RR, several highway tour operators along the Klondike International Highway, and aircraft companies.

Skagway and its vicinity, due to the attractions and cruise ship moorage, draws a large number of tourists to the area. The Skagway Convention and Visitor Bureau estimates that in 1993 about 350,000 tourists visited the area. Approximately 80 percent of southeast Alaska visitors come to the area by water.

Based on survey results, the applicant determined that many of these visitors are interested in sightseeing and photography. The applicant conducted a survey of the tour operators and was able to estimate that 23,000 visitors stopped at the viewpoints overlooking Pitchfork Falls during the season. In addition, 24 percent of the vehicles using the Klondike International Highway stopped at the viewpoints.

b. Environmental Impacts and Recommendations: The project would be in a remote location that is difficult to access. The site receives very little recreational use and the project would not have a significant effect on existing recreational opportunities with the exception of sightseeing activities from the WP&YR RR and the Klondike International Highway. This issue was discussed in the Aesthetic Resources Section.

As discussed earlier, Goat Lake has no known fish, and the state of Alaska and the FS have abandoned plans to create a sustainable fish population in the lake. Thus, the project would not affect recreational fishing. It is not anticipated that project operations would significantly affect access around the lake, as the lake level is primarily drawn down during the winter and spring months. During the peak visitation of helicopter tours over the project area, the lake level would either be rising from large inflows or close to normal elevation.

c. Unavoidable Adverse Impacts: None.

8. Socioeconomics

a. Affected Environment: The project would provide power to the town of Skagway and the immediate vicinity. The population of the area is about 800. The economy of the area is driven by tourism. The unemployment for the region was higher than the state average in 1994, 10.6 percent versus 7.8 percent.

b. Environmental Impacts and Recommendations: The project would employ a work force of about 30 people over about a 2-year construction period. The total project construction budget would be about $7.5 million; about 32 percent would be for labor. It's anticipated that workers would be drawn from southeast Alaska. Because of the short construction period, most workers would probably commute either daily or weekly or stay in temporary housing, and few, if any, would relocate to the immediate project area.

Increased employment from the project, albeit short-term, would benefit the region's economy. The project would also provide long-term economic benefits to the state and region from tax revenues that would be collected. The project would also benefit the region by providing a more stable and reliable form of energy than the current system, which relies mostly on diesel generation.

c. Unavoidable Adverse Impacts: None.

C. Impacts of the No-action Alternative

Under the no-action alternative, the project would not be constructed and there would be no changes to the existing physical, biological, or cultural resources of the area. The energy that would have been produced would continue to be provided by diesel fuel. With this alternative, the public would be denied the opportunity to conserve diesel (non-renewable primary fossil fuel) and to reduce atmospheric

pollution. Because of the area's lack of roads and remoteness, diesel fuel is presently delivered by barge thus potentially exposing important aquatic habitats to risks such as oil spills into the environment. These risks would continue with or without the project, although much less with the project, because diesel generators would serve as a back-up during hydropower outages.

VII. DEVELOPMENTAL ANALYSIS

In this section, we look at the project's use of water resources for hydropower purposes to see what effect various environmental measures would have on the project's power benefits. As explained in Mead Corporation,[8] the Commission assesses the potential economics of various alternatives using a current-cost approach that does not purport to predict future economic trends over the term of the license. Rather, it reviews economic factors in light of what is known at the time the application is considered. While no assumptions are made concerning future potential inflation or deflation, the analysis is not entirely a "first-year" approach, as certain costs need to be amortized over the period of years or will change in presently known and measurable ways. Thus, the current cost figures are derived using a 30-year period of analysis.

Because there was no recommended staff proposal that would affect project economics, we did the economic analysis using the applicant's proposal. We compared the benefits of the proposed operation to not building the project and continuing to use more diesel fuel. We found the 30-year net annual benefits for the low-, mid-, and high-load forecasts using the average hydrology estimate and the following assumptions (see Table 4):

- project operation begins in 1997,

[8] See Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027 (July 13, 1995).

- a 1997 construction cost of $7,500,000,
- a 7 percent discount and interest rate,
- a 1997 power value of 101 mills per kilowatthour (mills/kWh),[9]
- a 1997 operating and maintenance cost for the hydroelectric project of 5 mills/kWh, and
- a 1997 insurance cost of $1.00/kWh.

Table 4. Staff's economic analysis of Goat Lake Hydroelectric Project using the average hydrology estimate.

LOAD FORECAST	AVERAGE ANNUAL GENERATION	POWER VALUE BASED ON REPLACING DIESEL GENERATION	COST OF GOAT LAKE PROJECT	NET ANNUAL BENEFITS
Low	6.4 GWh[10]	$831,000	$934,000	-$103,000
Mid	9.7 GWh[10]	$1,134,000	$952,000	$182,000
High	11.5 GWh[10]	$1,312,000	$962,000	$350,000

[9] We base the value of the project's power on the average cost of purchasing diesel fuel and diesel O&M costs for the Skagway area.

[10] The average project generation was based on a 30-year period.

We also assumed in our economic analysis that the energy sold for each year would correspond to the load forecast, until the year 2028. For example, in 1997, the Skagway area would need only 6.9 gigawatthours (GWh) of energy from the Goat Lake Project. Therefore, the project would only generate 6.9 GWh in 1997. In 2028, the project would reach its maximum energy generation potential of 13.3 GWh. The average generation over the 30-year economic analysis would be 9.7 GWh for the mid-load forecast.

With the above assumptions, the proposed project, producing an average of 9.7 GWh of energy, would have a net annual benefit for the mid-load forecast, which we consider the most likely forecast, of about $182,000 or 18.8 mills/kWh. The high-load forecast would have greater net annual benefits at $350,000 or 30.4 mills/kWh. For the low-forecast year, the project would cost more than the current cost of the most likely alternative source of power (diesel-fuel powered generators) for the Skagway area.

We realize that this comparison is not the only consideration in assessing the economic feasibility of the project. Among the other considerations is the future cost of fossil-fuel resources, particularly diesel fuel, which represents about two-thirds of the total cost per kWh of generation. The net annual benefits are, therefore, highly sensitive to fuel cost, which could vary widely over the 50-year license term for a new hydropower project. In any event, most of the cost of power that would be produced by the Goat Lake Project is for debt retirement on the initial capital cost and would remain constant over time, and unaffected by inflation. Only about 5 percent of the total cost per kWh is for operation and maintenance, which would be subject to future increases caused by inflation.

VIII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When we review a proposed project, we equally consider the environment, recreation, fish and wildlife, and other non-developmental values of the project as well as power and other developmental values. Accordingly, any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

Based on our independent review of agency and public comments filed on this project, and our review of the environmental and economic effects of the proposed project and its alternatives, we've selected the proposed project, along with the applicant's proposed environmental measures, as the preferred option. The preliminary FS section 4(e) conditions have been incorporated into our preferred alternative. We've determined that none of the measures in our preferred option have an effect on the project's economics.

We recommend the proposed project because: (1) issuance of an original hydropower license would allow AP&T to construct and operate the project as a small but dependable source of electrical energy for its customers; (2) the project would meet the increasing demand for electric power in Skagway and avoid the need for an equivalent amount of fossil-fuel-fired, electric generation and capacity, thereby continuing to help conserve these nonrenewable energy resources and reduce atmospheric pollution; and (3) the recommended environmental measures would protect or mitigate the soil, vegetative, wildlife, aesthetic, and cultural/historic resources in the Skagway River Valley.

We believe that our preferred option would be best adapted to the comprehensive development of Pitchfork Falls for beneficial public uses.

IX. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Under section 10(j) of the FPA, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project.

No fish and wildlife agencies provided recommendations in response to our notices that the application was ready for environmental analysis.

X. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Accordingly, federal and state agencies filed 23 plans with the Commission that address various resources in Alaska. Three are relevant to this project.[11] No conflicts were found.

XI. FINDING OF NO SIGNIFICANT IMPACT

[11] (1) Alaska Department of Natural Resources, 1979, Haines-Skagway area Land Use Plan, Juneau, Alaska; (2) U.S. Forest Service, 1991, Tongass National Forest Proposed Revised Land and Resource Management Plan, Ketchikan, Alaska; (3) U.S. Fish and Wildlife Service and Canadian Wildlife Service, 1986, North American Wildlife Management Plan, Washington, D.C.

In accordance with the National Environmental Policy Act of 1969, we prepared this environmental assessment for the Goat Lake Hydroelectric Project to identify the resources that the licensing decision could impact and discuss the specific impacts the Goat Lake Hydroelectric Project would have on the human environment.

Project construction would cause minor short-term, localized erosion; temporary relocation of wildlife; and increased traffic and dust levels in the project area, In addition, project development would permanently alter about 9.25 acres of native trees and other vegetation (some of which would be revegetated) and 1 acre of wetland habitat. The new structures and altered flows along Pitchfork Falls could detract from the natural aesthetics of the Goat Lake basin and Skagway River Valley.

We find that implementing the protection and mitigation measures described in this FEA would ensure that environmental effects of the project would be insignificant.

On the basis of this independent environmental analysis, we find that issuance of an original hydropower license by the Commission and SUA by the FS for this project would not constitute major federal actions significantly affecting quality of the human environment. Therefore, an environmental impact statement is not required.

XII. LITERATURE CITED

Alaska Department of Highways, Southeast District. 1973. Klondike International Highway. Final Environmental Assessment, Skagway to the Canadian Border. September 1973. Exhibit E, p.46.

Alaska Power and Telephone Company. 1994a. Application for License for Major Unconstructed Project, Goat Lake Project FERC Project No. 11077. Table of Contents, Initial Statements, Exhibits A, E, F, G. Port Townsend, Washington. May 31, 1994.

Alaska Power and Telephone Company. 1994b. Application for License for Major Unconstructed Project, Goat Lake Project FERC Project No. 11077. Appendices 1- 13. Port Townsend, Washington. May 31, 1994.

Alaska Power and Telephone Company. 1994c. Goat Lake Hydroelectric Project Video, Project #11077. 12 minute video. Port Townsend, Washington. March 8, 1994.

Alaska Power and Telephone Company. 1995a. Additional information responses to AIR #1, 2, 3, 6, 7, 8, 10, 11, 14, 16, 19 and 22. Port Townsend, Washington. March 26, 1995.

Alaska Power and Telephone Company. 1995b. Additional information responses to AIR #4, 5, 9, 12, 13, 15, 17, 18, 20, 21 (Enclosure 1 of 2) and 23, 24, 25-34 (Enclosure 2 of 2). Port Townsend, Washington. May 30, 1995.

Alaska Power and Telephone Company. 1995c. Additional information response to electrical load forecast. Port

Townsend, Washington. April 6, 1995. 2 pp. with enclosures.

Alaska Power and Telephone Company. 1995d. Additional information response to project operational model. Port Townsend, Washington. April 5, 1995. 3 pp. with diskette and enclosure.

Alaska Power and Telephone Company. 1995e. Additional information response to visual impact analysis (January, 1994) and 14pp. - supplemental visual impact analysis (September, 1994). Port Townsend, Washington. March 13, 1995. 29 pp.

Alaska Power and Telephone Company. 1995f. Application for Department of the Army Permit (ENG Form 4345, Sept 91). Juneau, Alaska. August, 1995. W/Exhibits, Figures, Coastal Project Questionnaire, and Certification Statement.

Alaska Power and Telephone Company. 1995g. Revisions to Exhibits A, E, F and G. Port Townsend, Washington. April 27, 1995.

Ambrose, R.E., R.J. Ritchie, C.M. White, P.F. Schempf, T. Swem, R. Dittrick. 1988. Changes in the status of peregrine falcon populations in Alaska. IN: Peregrine Falcon Populations- Their Management and Recovery, ed. T.J. Cade, J.H. Enderson, C.G. Thelander and C.M. White. The Peregrine Fund, Inc. Boise, Idaho.

Ann Riley and Associates. 1995a. Official Transcript of Proceedings, In the Matter of: Goat Lake Hydroelectric Project Scoping Meeting. Docket No. 11077-001. Vol. 1, No. 1, Thursday, June 22, 1995. Juneau, Alaska. 57 pp. with attachments.

Ann Riley and Associates. 1995b. Official Transcript of Proceedings, In the Matter of: Goat Lake Hydroelectric Project Scoping Meeting. Docket No. 11077-001. Vol. 1, No. 1, Tuesday, June 20, 1995. Skagway, Alaska. 62 pp. with attachments.

Blaustein, Andrew R., Joseph J. Beatty, Deanna H. Olson, and Robert M. Storm. 1995. The biology of amphibians and reptiles in old-growth forests in the Pacific northwest. General Technical Report, PNW-GTR-337. Pacific Northwest Research Station, Corvallis, Oregon. 98 pp.

Campbell, C. 1994. An archeological reconnaissance survey of sections of the Brackett Wagon Road and the remains of the scenic viewing station at Pitchfork Falls in conjunction with the proposed Goat Lake Hydroelectric Project, FERC Project No. 11077. Ketchikan, Alaska. (also Alaska Power & Telephone Company, 1994, appendix 3).

Chadwick, D.H. 1973. Mountain goat ecology -logging relationships in Bunker Creek drainage of western Montana. M.S. Thesis. University of Montana, Missoula, Montana. 260 pp.

Crowley, David W. 1993. Breeding habitat of harlequin ducks in Prince William Sound, Alaska. Master of Science Thesis. Oregon State University, Corvalis, Oregon. December 9, 1993. 59 pp. with appendix.

Federal Energy Regulatory Commission and U.S. Forest Service. 1995. Scoping Document 1, Goat Lake Hydroelectric Project, FERC Project No. 11077-001. Washington, D.C. May 18, 1995. 24 pp.

Federal Energy Regulatory Commission and U.S. Forest Service. 1994. Additional information requests to Alaska Power and Telephone Company, Port Townsend, Washington. December 15, 1994. 3 pp. with 34 questions.

Hayes, M.P. and M. R. Jennings. 1986. Decline of ranid frog species in western North America: are bullfrogs (Rana catesbiana) responsible? J. Herpetology 20(4):490-509.

Kuletz, Katherine J., Dennis K. Marks, Nancy L. Naslund, Niki G. Stevens, Mary B. Cody. 1994. Information needs for habitat protection: Marbled murrelet habitat identification. Final Report, Restoration Project 93051B. U.S. Fish and Wildlife Service, Anchorage, Alaska. Migratory Bird Management. 54 pp.

Land Design North. 1994. Goat Lake Hydroelectric Project, Visual Impact Analysis. Anchorage, Alaska. January 1994. 29 pp.

Lesica, P. 1988. Report on the conservation status of Carex lenticularis var. dolia, a candidate threatened species. Montana Natural Heritage Program, Helena, Montana. 40pp. with appendices.

McGowan, J.D. 1975. Distribution, density, and productivity of goshawks in interior Alaska. Alaska Department of Fish and Game. Final Report of Federal Aid in Wildlife Restoration Project W-17-6. 30pp.

National Park Service. 1987. Catalog of National Historic Landmarks. U.S. Department of the Interior, Washington, D. C.

Olendorff, R.R., A.D. Miller, and R.N. Lehman. 1981. Suggested practices for raptor protection on power lines: the state of the art in 1981. Raptor Research Foundation,

Inc., Raptor Research Report No. 4. St. Paul, Minnesota. 111 pp.

Olendorff, R.R. and R.N. Lehman. 1986. Raptor collisions with utility lines: an analysis using subjective field observations. Bureau of Land Management. Prepared for Pacific Gas and Electric Company. February 1986. 73 pp.

Pacific Seabird Group. 1995. The Marbled Murrelet. A pamphlet of the Pacific Seabird Group. Seattle, Washington. August 1995. 4 pp.

Palmer, R.S. 1976. Handbook of North American Birds. Vol. 3. Yale University Press. New Haven, Connecticut. 560 pp.

Standley, L.A. 1985. Systematics of the Acutae group of Carex (Cyperaceae) in the Pacific Northwest. Systematic Botany Monographs Vol. 7.

Suring, Lowell H., W. B. Dinneford, A. T. Doyle, R. W. Flynn, M. L. Orme, J. W. Schoen, L. C. Shea, E. L. Young. 1988. Habitat suitability model for mountain goats in southeast Alaska. unpubl. rept. September 13, 1988. 13 pp. with tables.

U.S. Department of the Interior. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register, Vol. 56, No. 225, November 21, 1991. Part 17. pp. 58804-58836.

U.S. Department of the Interior. 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register, Vol. 58, No. 188, September 30, 1993. Part 17. pp. 51144-51190.

U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants. Title 50 (Wildlife and

Fisheries), Part 17, Subpart B, §17.11. U.S. Fish and Wildlife Service. August 20, 1994. 42 pp.

U. S. Fish and Wildlife Service. 1995. Endangered and threatened wildlife and plants; Advance notice of a proposal to remove the American peregrine falcon from the list of endangered and threatened wildlife. Proposed Rules, FR, Vol. 60, No. 126, Friday, June 30, 1995.

U.S. Forest Service and Bureau of Land Management. 1995. Environmental Assessment for Helicopter Landing Tours in the Skagway and Haines Area. Department of Agriculture, and Department of Interior, Juneau, Alaska. May 1995. 55pp. with maps.

U.S. Forest Service. 1991a. Tongass Land Management Plan Revision - Supplement to the Draft Environmental Impact Statement. Parts 1 and 2. U.S. Department of Agriculture-Alaska Region. R10-MB-149, August 1991. 7 chapters with appendices.

U.S. Forest Service. 1991b. Tongass Land Management Plan Revision - Supplement to the Draft Environmental Impact Statement. Proposed Revised Forest Plan. U.S. Department of Agriculture-Alaska Region. R10-MB-146, August 1991. 7 chapters with appendices. 511 pp.

Waters, Dana L. 1992. Habitat associations, phenology, and biogrography of amphibians in the Stikine River basin and southeast Alaska. A report to the 1991 pilot project. U.S. Fish and Wildlife Service. Arcata, California. May 28, 1992. 61 pp.

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APPENDIX A

COMMENTS ON THE DRAFT EA AND STAFF RESPONSES

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STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

FWS-1 Comment noted.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

NPS-1 As discussed on page 20 of the DEA (see *Terrestrial Resources* section), the results of 10 years of surveys by the Alaska Department of Fish and Game (ADFG) indicate that there are not significant goat habitat or populations in the Goat Lake Basin. Information from the ADFG indicated that goat use in the area surrounding Goat Lake is minimal. There haven't been any known signs (hooveprints, fecal droppings, skeletons, carcasses, etc.) detected in the immediate Goat Lake area and there aren't known seasonal movements within the project boundary.

Therefore, neither direct nor cumulative effects to the goat population would result from the use of helicopters during construction of this project. We agree that significant goat habitat exists in the steeper areas beyond the Goat Lake basin; however, these areas would not be affected by the travel route of helicopters accessing the project. This is based on maps and models described in the U.S. Forest Service (FS) 1995 Environmental Assessment for Helicopter Landing Tours in the Skagway and Haines Area.

Although we find that mountain goats would not be affected by project development, AP&T nevertheless proposes to adjust their construction schedule to avoid possible disturbance during the goat mating and kidding periods. AP&T would consult with the ADFG on acceptable construction timing, and we agree this would be a prudent license requirement (see *Terrestrial Resources* section). To further ensure that no wildlife, including goats, are affected by helicopters, the FS has included as a preliminary 4(e) Condition, that AP&T file a wildlife mitigation plan requiring the same specified clearance from wildlife that is required for the helicopter tours.

The FS and the ADFG, in conjunction with local helicopter tour operators, are working toward developing a monitoring plan for the north Lynn Canal mountain goat populations. The National Park Service (NPS) is welcome to participate in this effort.

We don't require a specific cost amount for mitigating adverse project impacts, but believe our recommended wildlife protection measures would adequately minimize the potential effects on mountain goats.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

NPS-2 The Memorandum of Agreement (MOA) (referenced in the *Cultural Resources* section of the FEA) contains provisions to develop and design alternatives that, to the extent feasible and practicable, would avoid or minimize any visual effect within the National Historic Landmark. The project design decisions regarding visual issues would include consultation with the National Park Service. The National Park Service is a signee to the MOA. In addition, staff's recommended visual resources management plan (referenced in the *Aesthetic Resources* section of the FEA) would require measures to minimize possible visual effects, and would be coordinated with the recommended erosion control, terrestrial resources, and cultural resources management measures.

We don't require a specific cost amount for mitigating project impacts, but believe our recommended measures

in the MOA and visual resources management plan would adequately minimize any anticipated visual resource effects.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

AP&T-1 We agree. We've revised our economic analysis to include the capacity credits. The results are in the Developmental Resources section of the FEA.

AP&T-2 We've revised out economic analysis to include the correct cost.

AP&T-3 After going over this information, we've revised our economic analysis to include our new estimate of the power value.

STAFF'S RESPONSES TO COMMENTS ON THE GOAT LAKE DEA

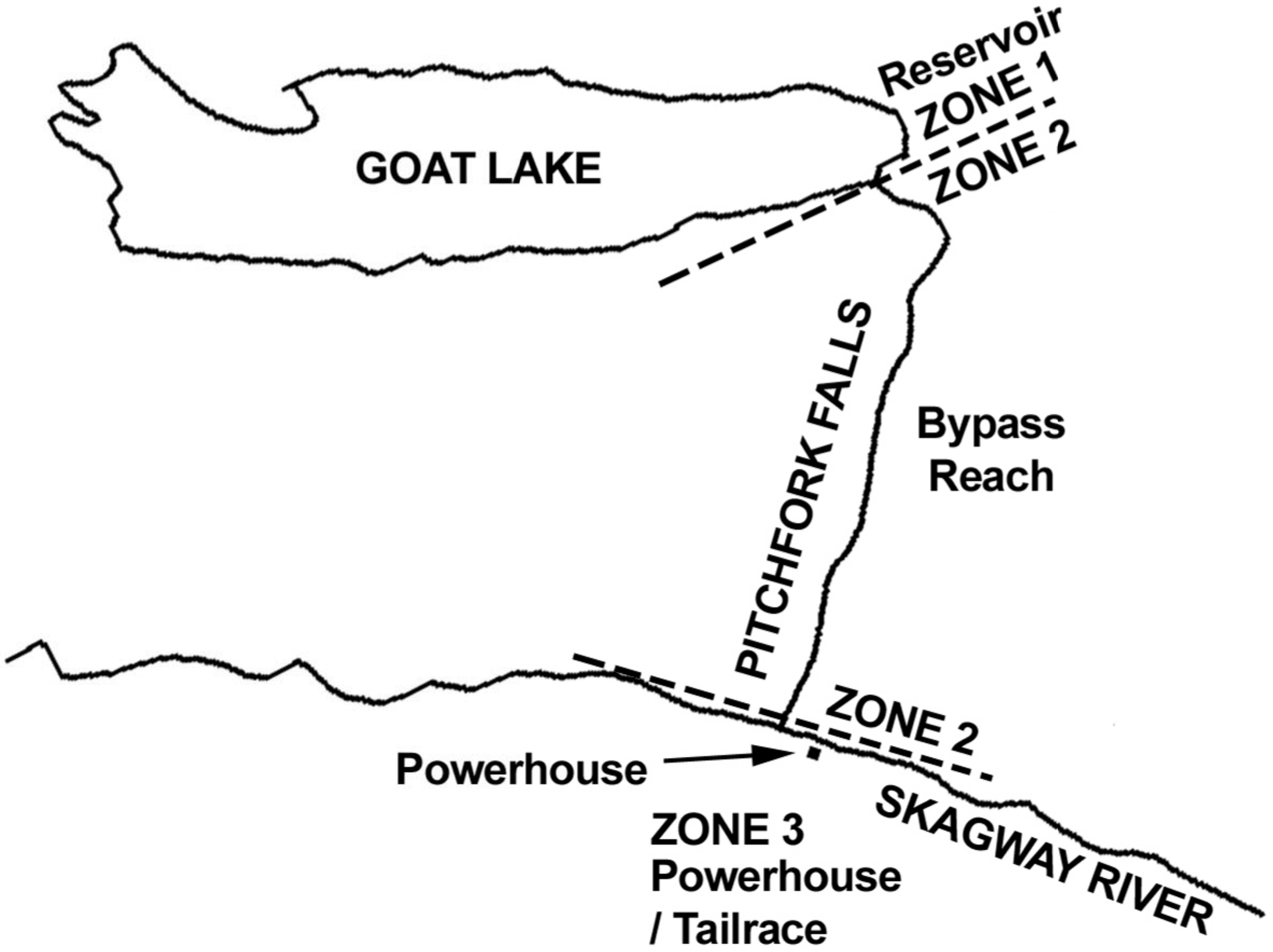
AP&T-4 Typographical error corrected in the Developmental Resources section of the FEA.

AP&T-5 In the DEA and FEA economic analyses, we used a current cost approach (as explained in Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027, July 13, 1995) that does not predict future economic trends over time. Our FEA economic analysis (see *Developmental Analysis* section) now shows positive net annual benefits under the mid-load scenario, because we included "capacity benefits". Our DEA did not analyze "capacity benefits" because they were not included in the project application.

NOTE: Atachments 1, 2, and 3 of AP&T's April 4, 1996, letter has been filed with the Commission and is available upon request.

APPENDIX D

ZONE OF EFFECT


GOAT LAKE
Reservoir
ZONE 1
ZONE 2
PITCHFORK FALLS
Bypass
Reach
ZONE 2
Powerhouse
ZONE 3
Powerhouse
/ Tailrace
SKAGWAY RIVER

Matrix of Alternative Standards Template:

(Please duplicate this table for each Zone of Effect)

Facility Name: _Goat Lake Hydro_____ **Zone of Effect: _1 of 3 (Reservoir)____**

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		X			
B	Water Quality	X				
C	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection	X				
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources	X				

Applicants must complete a Standards Matrix for each designated zone of effect; shaded cells indicate no such standard is available for that criterion.

Matrix of Alternative Standards Template:

(Please duplicate this table for each Zone of Effect)

Facility Name: Goat Lake Hydro **Zone of Effect: 2 of 3 (Bypass Reach)**

Criterion		*Alternative Standards Applied*				
		1	*2*	*3*	*4*	*Plus*
A-2	**Ecological Flow Regimes**		X			
B-2	**Water Quality**	X				
C-2	**Upstream Fish Passage**	X				
D-2	**Downstream Fish Passage**	X				
E-2	**Watershed and Shoreline Protection**	X				
F-2	**Threatened and Endangered Species Protection**	X				
G-2	**Cultural and Historic Resources Protection**	X				
H-2	**Recreational Resources**	X				

Applicants must complete a Standards Matrix for each designated zone of effect; shaded cells indicate no such standard is available for that criterion.

Matrix of Alternative Standards Template:

(Please duplicate this table for each Zone of Effect)

Facility Name: Goat Lake Hydro **Zone of Effect: 3 of 3 (Powerhouse)**

Criterion		*Alternative Standards Applied*				
		1	*2*	*3*	*4*	*Plus*
A-3	Ecological Flow Regimes		X			
B-3	Water Quality		X			
C-3	Upstream Fish Passage	X				
D-3	Downstream Fish Passage	X				
E-3	Watershed and Shoreline Protection	X				
F-3	Threatened and Endangered Species Protection	X				
G-3	Cultural and Historic Resources Protection	X				
H-3	Recreational Resources	X				

Applicants must complete a Standards Matrix for each designated zone of effect; shaded cells indicate no such standard is available for that criterion.

APPENDIX E

PHOTOS OF PROJECT AND ZONES OF EFFECT

GOAT LAKE HYDROELECTRIC PROJECT

GOAT LAKE IN JUNE, SHOWING EXPOSED BANKS AFTER WINTER DRAWDOWN;
VIEW IS TOWARD PROJECT HEADWORKS AT MIDDLE-LEFT IN NOTCH

GOAT LAKE FACING OPPOSITE END FROM TOP PHOTO

GOAT LAKE HYDROELECTRIC PROJECT

GOAT LAKE AFTER WINTER DRAWDOWN; PHOTO SHOWS SILTY BANK NEAR INLET STREAM

LAKE OUTLET FLOWS THROUGH SHALLOW POND BEFORE CASCADING DOWN TO RIVER; PUMPBACK HOUSE AND VALVE HOUSE ARE VISIBLE IN UPPER MIDDLE OF PHOTO.

GOAT LAKE HYDROELECTRIC PROJECT

PUMPBACK HOUSE IS IN THE FOREGROUND AND VALVE HOUSE IS IN THE BACKGROUND; SMALLER PENSTOCK IS TO PUMP WATER BYPASSING THE LAKE FROM THE GLACIER BACK TO THE LAKE; LARGER PENSTOCK GOES TO VALVE HOUSE WHERE OPTIONALLY IT CAN BYPASS FLOW WHEN NEEDED INTO PITCHFORK FALLS STREAM

PHOTO SHOWS PUMPBACK HOUSE IN FOREGROUND UNDER SNOW

GOAT LAKE HYDROELECTRIC PROJECT

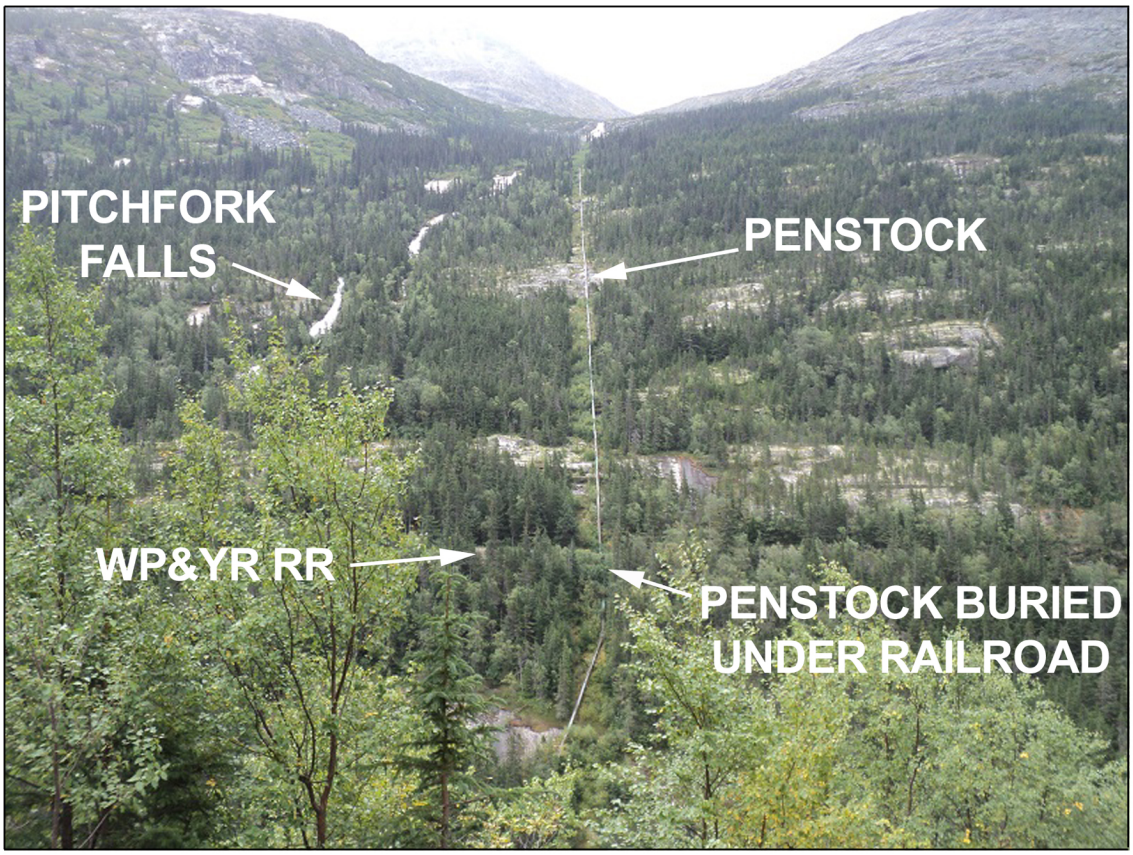
PHOTO OF VALVE HOUSE WHILE PROVIDING BYPASS FLOWS TO PITCHFORK FALLS STREAM

LOOKING UP TOWARD LAKE WITH VALVE HOUSE IN FOREGROUND BYPASSING FLOWS TO PITCHFORK FALLS STREAM; PUMPBACK HOUSE IN BACKGROUND AND GLACIER MORAINE AT UPPER RIGHT

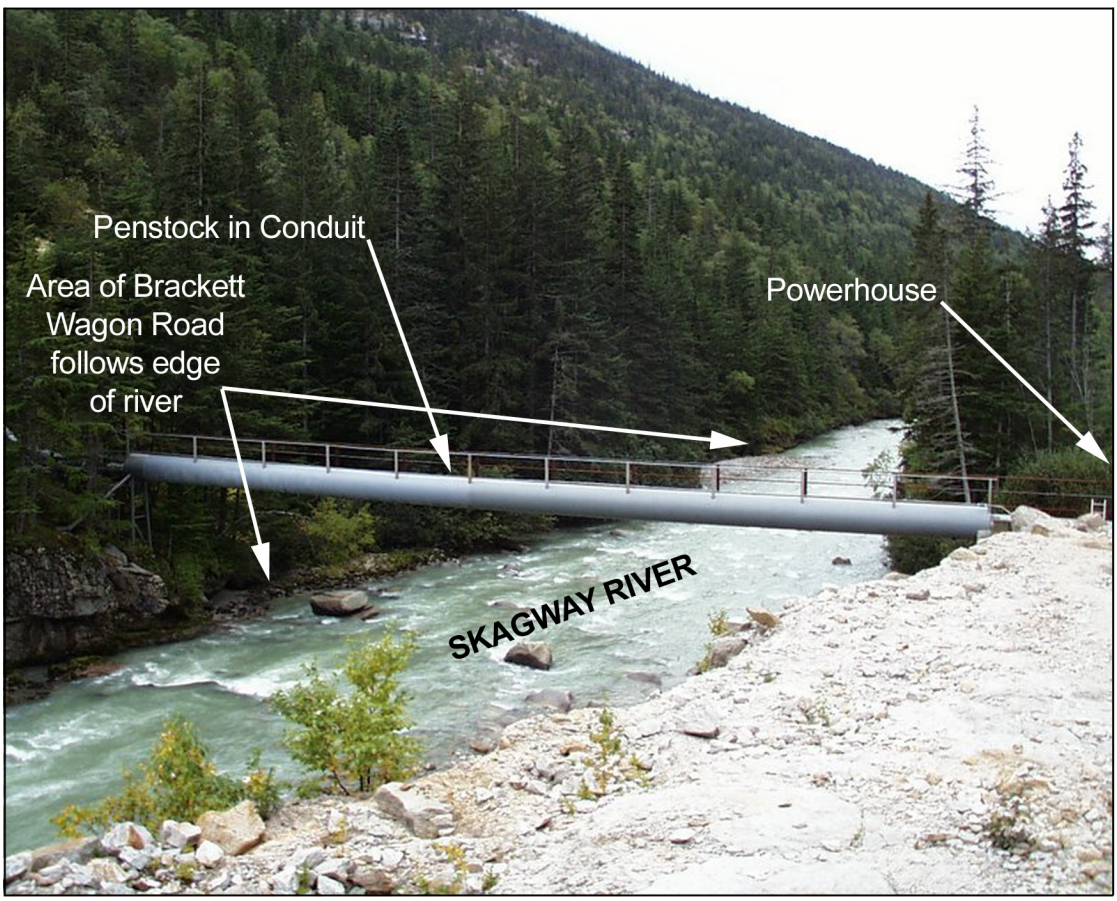
GOAT LAKE HYDROELECTRIC PROJECT

IN ADDITION TO PLANTING CONIFER SEEDLINGS ALONG THE PENSTOCK ROUTE, CAMOUFLAGE IS TRIED IN AN EFFORT TO REDUCE VISUAL IMPACTS OF PENSTOCK

ADDITIONAL VIEW OF CAMOUFLAGED PENSTOCK; KLONDIKE HIGHWAY IS VISIBLE AT THE VERY TOP OF THE PHOTO



The penstock is buried under the historic WP&YR RR to avoid impacting it and at the bottom of the picture the penstock is beginning to bridge over the Skagway River to avoid the historic Brackett Wagon Road. In the photo below the penstock is shown passing over the Brackett Wagon Road to the powerhouse.



GOAT LAKE HYDROELECTRIC PROJECT

PITCHFORK FALLS, STILL FROZEN FROM WINTER, IS MAINTAINED BY BYPASSED FLOW WHEN THE LAKE IS NOT SPILLING DURING THE TOURISM SEASON

VIEW OF THE PENSTOCK CROSSING THE SKAGWAY RIVER TO THE POWERHOUSE

APPENDIX F

ADEC SECTION 401 CERTIFICATION FOR WATER QUALITY & ADNR WATER USE PERMITTING

DIVISION OF MINING, LAND AND WATER
WATER RESOURCES SECTION
www.dnr.state.ak.us/mlw/water/index.htm

Alaska Department of NATURAL RESOURCES

Anchorage Office 550 West 7th Ave, Suite 1020 Anchorage, AK 99501-3562 (907) 269-8600 Fax: (907) 269-8947	Juneau Office PO Box 111020 400 Willoughby Avenue Juneau, AK 99811-1020 (907) 465-3400 Fax: (907) 586-2954	Fairbanks Office 3700 Airport Way Fairbanks, AK 99709-4699 (907) 451-2790 Fax: (907) 451-2703	***For ADNR Use Only*** ***Date/Time Stamp***
TWUP / ADL / LAS # LAS 22488	***For ADNR Use Only*** ***Receipt Type WR***		

REQUEST FOR EXTENSION OF PERMIT OR AUTHORIZATION

Check box that applies:

☑ Construction of water withdrawal, conveyance, and use structures authorized under the above-numbered Permit to Appropriate Water, of which I am the lawful holder, is not complete and/or beneficial use of water is not fully established. Note: Permit holder must show diligent effort toward development of the authorized beneficial use.

☐ The project for which water use was authorized under the above-numbered Temporary Water Use Authorization is not complete.

CURRENT WATER USE

Amount(s) of Water Use	Type(s) of Water Use	Water Use Period(s)
Acre Feet = 9,398	Hydro	Jan. 1 - Dec. 31, 2012
Avg. cfs. = 12.98	"	"

If structures are different from those listed on your Permit to Appropriate Water or Temporary Water Use Authorization, then attach sketch or plans of structures for withdrawing, conveying, and using water.

Description of Structures Already Completed
Description of Structures to Be Installed

Reason Work Has Not Been Completed
Estimated Date of Completion

The information you provide on, or submit in connection with, this form is made a part of the state public water records and becomes public information under AS 40.25.110 and 40.25.120. Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.

SIGNATURE

I hereby apply for an extension of time to complete construction of the structures and/or establish full beneficial use of water.

Alan D Martin — Signature

1-15-13 — Date

Fees required by regulation 11 AAC 05.010(a)(8)

Permit to Appropriate Water

- **$50** for one single-family residence or duplex, or for water use associated with one single-family residence or duplex
- **$200** for activities related to oil and gas and associated substances
- **Fee varies** for activities related to locatable minerals, unless the application is filed under 11 AAC 05.010(a)(9)(E)(i) or (9)(F)(i) - *contact Water Resources Section for pre-application meeting*
- **Fee varies** for hydroelectric power generation - *contact Water Resources Section for pre-application meeting*
- **Fee varies** for water removal out of a hydrologic unit under AS 46.15.035 or 46.15.037 - *contact Water Resources Section for pre-application meeting*
- **$100** for 5,000 GPD or less for a use not listed above
- **$200** for greater than 5,000 GPD for a use not listed above

Temporary Water Use Authorization

- **$100** for all uses of water from up to five water sources

Make checks payable to "Department of Natural Resources."

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DIVISION OF MINING, LAND AND WATER
WATER RESOURCES SECTION
www.dnr.state.ak.us/mlw/water/index.htm

Alaska Department of NATURAL RESOURCES

Anchorage Office 550 West 7th Ave, Suite 1020 Anchorage, AK 99501-3562 (907) 269-8600 Fax: (907) 269-8947	Juneau Office PO Box 111020 400 Willoughby Avenue Juneau, AK 99811-1020 (907) 465-3400 Fax: (907) 586-2954	Fairbanks Office 3700 Airport Way Fairbanks, AK 99709-4699 (907) 451-2790 Fax: (907) 451-2703	***For ADNR Use Only*** ***Date/Time Stamp***
TWUP / ADL / LAS # LAS 19193	***For ADNR Use Only*** ***Receipt Type WR***		

REQUEST FOR EXTENSION OF PERMIT OR AUTHORIZATION

Check box that applies:

☑ Construction of water withdrawal, conveyance, and use structures authorized under the above-numbered Permit to Appropriate Water, of which I am the lawful holder, is not complete and/or beneficial use of water is not fully established. Note: Permit holder must show diligent effort toward development of the authorized beneficial use.

☐ The project for which water use was authorized under the above-numbered Temporary Water Use Authorization is not complete.

CURRENT WATER USE

Amount(s) of Water Use	Type(s) of Water Use	Water Use Period(s)
Acre Feet = 9,398	Hydro	Jan. 1 - Dec. 31, 2012
Avg. cfs = 12.98	"	"

If structures are different from those listed on your Permit to Appropriate Water or Temporary Water Use Authorization, then attach sketch or plans of structures for withdrawing, conveying, and using water.

Description of Structures Already Completed
Description of Structures to Be Installed

Reason Work Has Not Been Completed
Estimated Date of Completion

The information you provide on, or submit in connection with, this form is made a part of the state public water records and becomes public information under AS 40.25.110 and 40.25.120. Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.

SIGNATURE

I hereby apply for an extension of time to complete construction of the structures and/or establish full beneficial use of water.

Glen D. Martin — Signature

1-15-13 — Date

Fees required by regulation 11 AAC 05.010(a)(8)

Permit to Appropriate Water

- **$50** for one single-family residence or duplex, or for water use associated with one single-family residence or duplex
- **$200** for activities related to oil and gas and associated substances
- **Fee varies** for activities related to locatable minerals, unless the application is filed under 11 AAC 05.010(a)(9)(E)(i) or (9)(F)(i) - *contact Water Resources Section for pre-application meeting*
- **Fee varies** for hydroelectric power generation - *contact Water Resources Section for pre-application meeting*
- **Fee varies** for water removal out of a hydrologic unit under AS 46.15.035 or 46.15.037 - *contact Water Resources Section for pre-application meeting*
- **$100** for 5,000 GPD or less for a use not listed above
- **$200** for greater than 5,000 GPD for a use not listed above

Temporary Water Use Authorization

- **$100** for all uses of water from up to five water sources

Make checks payable to "Department of Natural Resources."

DATE	1/18/2013	CHECK NUMBER	CHK127532

INVOICE NUMBER	INVOICE DATE	DESCRIPTION	GROSS AMOUNT	DISCOUNT	NET AMOUNT
01139193	1/15/2013	Vchr: VO184789	$200.00	$0.00	$200.00

PRINT BATCH	VENDOR CODE	PAY TO NAME	NET TOTAL
2,615	ALAS79	ALASKA, STATE OF, DNR	$200.00

DOCUMENT HAS A COLORED BACKGROUND. SECURITY FEATURES LISTED ON BACK.

VOID VOID VOID

Alaska Power & Telephone Co
P O Box 3222
Port Townsend, WA 98368
(360)385-1733 (800)982-0136

COBANK
Rural America's Cooperative Bank
Transaction Services
Provided by Wachovia Bank, N.A.
Greenville SC

CHK127532
67-1
532

DATE 1/18/2013

Check void after 90 days

PAY Two hundred and 00 / 100 Dollars Only **********

TO THE ORDER OF
ALASKA, STATE OF, DNR
P.O. BOX 111020
JUNEAU, AK 99811-1020

AMOUNT	$200.00

⑈127532⑈ ⑆053200191⑆ 20799004537 57⑈

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STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND & WATER

PERMIT
TO
APPROPRIATE WATER

LAS 22488

The State of Alaska under AS 46.15, The Alaska Water Use Act, and the regulations adopted under it, grants to:

Goat Lake Hydro, Inc.
P.O. Box 3222
Port Townsend, Washington 98368

the right to develop the following use of water:

Source: Goat Lake — Priority Date: April 5, 1999
Quantity: 1530 acre-feet per year — Storage: 1530 acre-feet
Maximum Withdrawal Rate: 32 cubic-feet per second
Use: hydroelectric power generation — From: January 1 through December 31

This permit allows the appropriation of an amount of water in addition to that authorized under LAS 19193, by the operation of the reservoir between elevations 2925 and 2885 feet above mean sea level (a drawdown of 10 feet additional to that authorized under LAS 19193, which will allow a total drawdown of 40 feet). Along with LAS 19193 this permit authorizes the total appropriation of 24,656 acre-feet per year.

The location of this water source:

Goat Lake, located within the Northwest ¼ of the Southeast ¼ of Section 15, Township 27 South, Range 60 East, Copper River Meridian.

The location to which this water right is appurtenant:

The Goat Lake powerhouse site, located in ADNR R/W ADL 106049 within the Northwest ¼ of the Northeast ¼ of Section 16, Township 27 South, Range 60 East, Copper River Meridian. Said location is within the Sakgway Recording District, First Judicial District of the State of Alaska.

Changes in the natural state of water are to be made in the manner and only for the purposes stated in this permit. This permit is subject to the pertinent statutory provisions in AS 46.15, Administrative Regulations in 11 AAC 93, and the following conditions:

PERMIT
TO
APPROPRIATE WATER

LAS 22488

The holder of this permit shall:

Follow acceptable engineering standards in exercising the privilege granted by this permit.

Except for claims or losses arising from negligence of the State, defend and indemnify the State against and hold it harmless from any and all claims, demands, legal actions, loss, liability and expense for injury to or death of persons and damages to or loss of property arising out of or connected with the exercise of this Permit to Appropriate Water.

Comply with all applicable laws, regulations and conditions.

Notify the Division of Mining, Land & Water, Department of Natural Resources of any change of address of the grantee or transfer of any real property identified in this document.

Respond to any request for additional information during the duration of this permit, per AS 46.15.100 AND AS 46.15.175. Failure to respond may result in the termination of this permit.

Maintain legal access to this water source for the benefit of the land to which this water right is appurtenant.

Pay an annual administrative service fee that will be assessed by the Department of Natural Resources upon this appropriation of water, Per 11 AAC 05.010 (a) (8) (m).

Establish a water measuring and recording system acceptable to the Division and maintain a water use log reflecting daily variations of water use for purposes of this permit. This log shall be submitted to the Division on a yearly basis or when otherwise requested.

Establish a reservoir elevation recording system, through the full operational range of reservoir elevations under this authorization and LAS 19193, that is acceptable to the Division and maintain a log reflecting daily reservoir elevations. This log shall be submitted to the Division on a monthly basis or when otherwise requested.

Maintain during twelve daylight hours each day, in Pitchfork Falls, as measured above the railroad tracks, the following continuous minimum flow:

13 cubic feet per second from May 15 through September 30

Follow all applicable statutes, regulations, and plan requirements of the Alaska Coastal Management Program (ACMP). This permit is subject to the ACMP consistency determination AK AK9904-16JJ.

PERMIT
TO
APPROPRIATE WATER

LAS 22488

This permit shall expire on: 31 October 2007

This Permit to Appropriate Water is issued by the authority of AS 46.15.080 and 11 AAC 93.120 on: 9 April 2003.

Approved by: John D Dunker

John Dunker
Water Resource Manager
Division of Mining, Land & Water

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STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND & WATER

PERMIT
TO
APPROPRIATE WATER

LAS 19193 - Amended (1)

The State of Alaska under AS 46.15, The Alaska Water Use Act, and the regulations adopted under it, grants to:

Goat Lake Hydro, Inc.
P.O. Box 3222
Port Townsend, Washington 99368

the right to develop the following use of water:

Source: Goat Lake	Priority Date: August 18, 1994
Quantity: 23,126 acre-feet per year	Storage: 5541.43 acre-feet
Maximum Withdrawal Rate: 32 cubic feet per second	
Use: hydroelectric power generation	From: January 1 through December 31

The location of this water source:

Goat Lake within the Northwest ¼ of the Southeast ¼ of Section 15, Township 27 South, Range 60 East, Copper River Meridian.

The location to which this water right is appurtenant:

The Goat Lake Hydro Project powerhouse site located in ADNR R/W ADL 106049 within the Northwest ¼ of the Northeast ¼ of Section 16, Township 27 South, Range 60 East, Copper River Meridian. Said location is within the Skagway Recording District, First Judicial District of the State of Alaska.

Changes in the natural state of water are to be made in the manner and only for the purposes stated in this permit. This permit is subject to the pertinent statutory provisions in AS 46.15, Administrative Regulations in 11 AAC 93, and the following conditions:

PERMIT
TO
APPROPRIATE WATER

LAS 19193 – Amended (1)

The holder of this permit shall:

Follow acceptable engineering standards in exercising the privilege granted by this permit.

Except for claims or losses arising from negligence of the State, defend and indemnify the State against and hold it harmless from any and all claims, demands, legal actions, loss, liability and expense for injury to or death of persons and damages to or loss of property arising out of or connected with the exercise of this Permit to Appropriate Water.

Comply with all applicable laws, regulations and conditions.

Notify the Division of Mining, Land & Water, Department of Natural Resources of any change of address of the grantee or transfer of any real property identified in this document.

Respond to any request for additional information during the duration of this permit, per AS 46.15.100 AND AS 46.15.175. Failure to respond may result in the termination of this permit.

Maintain legal access to this water source for the benefit of the land to which this water right is appurtenant.

Follow all applicable statutes, regulations, and plan requirements of the Alaska Coastal Management Program (ACMP). This permit is subject to the ACMP consistency determination AK9510-03J dated November 27, 1995.

Establish a water use measuring and recording system acceptable to the Division and maintain a water use log reflecting daily variations of water use for purposes of this permit. This log shall be submitted to the Division on a yearly basis or when otherwise requested.

Establish a reservoir elevation recording system through the full operational range of reservoir elevations under this authorization and LAS 22488 that is acceptable to the Division, and maintain a log reflecting daily reservoir elevations. This log shall be submitted to the Division on a monthly basis or when otherwise requested.

Maintain during twelve daylight hours each day, in Pitchfork Falls, as measured above the railroad tracks, the following continuous minimum flow:

13 cubic feet per second from May 15 through September 30

Pay an annual administrative service fee that will be assessed by the Department of Natural Resources upon this appropriation of water, Per 11 AAC 05.010 (a) (8) (m).

PERMIT
TO
APPROPRIATE WATER

LAS 19193 – Amended (1)

This permit shall expire on: 31 October 2007.

This Permit to Appropriate Water is issued by the authority of AS 46.15.080 and 11 AAC 93.120 on: 8 April 2003.

Approved by: _____

John Dunker
Water Resource Manager
Division of Mining, Land & Water

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STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WASTEWATER DISCHARGE AUTHORIZATION PROGRAM

SEAN PARNELL, GOVERNOR
555 Cordova, 3rd floor
Anchorage, Alaska 99501-2617
PHONE: (907) 334-2288
FAX: (907) 334-2415
http://www.dec.state.ak.us

January 30, 2012

Mr. Glen D. Martin, Project Manager
Alaska Power & Telephone Co.
PO Box 3222
Port Townsend, WA 98368

Subject: Goat Lake Hydroelectric Project, FERC No.11077

Dear Mr. Martin:

The Alaska Department of Environmental Conservation (DEC) understands that Alaska Power & Telephone Co. has a hydroelectric project on Prince of Wales Island in Southeast Alaska named the Goat Lake Hydroelectric Project, FERC No. 11077. DEC is the state agency that would address water quality impacts from hydroelectric projects. However, since approximately 1999 DEC has waived 401 certification of FERC hydroelectric projects. For any FERC permitting renewal of your project DEC would waive 401 certification of your project.

If you have any questions please contact William Ashton at 907-269-6283 or William.Ashton@alaska.gov.

Sincerely,

James Rypkema

James Rypkema, Section Manager
Storm Water and Wetlands

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WALTER J. HICKEL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

SOUTHEAST REGIONAL OFFICE
410 WILLOUGHBY AVE., SUITE 105
JUNEAU, AK 99801

PH: (907) 465-5350
FAX: (907) 465-5362

October 3, 1994

CERTIFIED MAIL #P-301 379 842
RETURN RECEIPT REQUESTED

Mr. Glenn Martin
Alaska Power & Telephone Co.
P.O. Box 222
Port Townsend, WA 98358

Re: GOAT LAKE HYDROELECTRIC PROJECT
FERC #11077 Near SKAGWAY, ALASKA

Dear Mr. Martin:

The Department of Environmental Conservation reviewed your request on September 6, 1994, for a waiver of the Water Quality Certification under Section 401 (a)(1) of the Federal Water Pollution Control Act.

This letter is notification to you that the 401 certification of the Goat Lake Hydroelectric project is waived.

Sincerely,

R Flinn

Ron Flinn
Program Manager

cc: Elizaveta Shadura, ADNR, Juneau
Susan Cantor, EPA, Anchorage
Lorraine Marshall, ADGC, Juneau
Lana Shea, ADF&G, Juneau
Joan Hughes, ADEC/SERO
Lois Cashell, FERC, Wash., D.C.
Dean Stromwell, Office of Hydro-power Licensing, Wash., D.C.
Steven Pennoyer, NMFS
Nevin Holmberg, USF&WS
Andy Pekovich, ADNR
ADEC/Juneau District Office
U.S. Forest Service, Juneau
Hector Perez, FERC, Wash., D.C.
(Fax #202-219-0125)

APPENDIX G

USFS SPECIAL USE PERMIT

USDA - Forest Service	a. Record No. (1-2)	b. Region (3-4)	c. Forest (5-6)
SPECIAL USE PERMIT LICENSED PROJECT	70	10	00
	d. District (7-8)	e. User No. (9-12)	f. Kind of Use (13-15)
Act of October 21, 1976 (P.L. 94-579) 36 CFR 251.50 et seq.	03	4300-01	611
	g. State (16-17)	h. County (18-20)	k. Card No. (21)
	02	000	1

Permission is hereby granted to Goat Lake Hydro, Inc. of P.O.Box 459 Skagway, AK 99840 , hereinafter called the Holder, for the non-exclusive use, subject to the conditions set out below, of the following described lands or improvements:

On the Juneau Ranger District, Chatham Area, Tongass National Forest, about 7 miles northeast of Skagway.

CRM T.27 S., R.60 E., sec.9, 10, 11, 14 and 16.

This authorization covers an area of no more than 270 acres and is issued for the Goat Lake Lake Hydroelectric Project licensed as Federal Energy Regulatory Commission #11077-001-AK The project includes the following facilities:

1. The outlets to the lake will be the constructed siphon pipe and the existing natural lake outlet;

2. a submerged wedgewire screened intake assembly positioned in Goat Lake at 2,706 feet mean sea level. The lake will not be drawn down below 2875' however as originally permitted and licensed;

3. a 30 inch diameter HDPE pipe attached to a vacuum pump assembly within a 8x20 foot siphon pump house;

4. a 8x40 foot pumpback station container, and a 8x20 foot valve station container placed adjacent to the cutoff wall;

5. a 8 foot high by 25 foot long concrete retaining wall with a 14 foot side spillway forming a 0.14-acre-foot storage catch basin located in a portion of the pond below the lake;

6. a 6,400 foot-long, 30 inch HDPE and 24" steel penstock extending from the vacuum house to the powerhouse;

7. a single level, 30 foot by 40 foot powerhouse containing one horizontal twin jet Pelton turbine unit with a generating capacity of 4 MW and a maximum hydraulic capacity of 32 cubic feet per second (cfs);

8. A power and telephone cable from the Powerhouse to the Vacuum Pumphouse, attached to the penstock.

9. A 16" HDPE pipe from the pumphouse to the lake for pumpback.

10. A burger tower and excavator (John Deere 490) will be left on site for future maintenance and repairs to water bars. The burger tower will be left in its current location.

The plans referred to in Clause 27 are on file with the US Forest Service, Juneau Ranger District. These plans have been approved for the FERC Operating License.

This permit is made subject to the following terms, provisions, and conditions.

1. Development plans; layout plans; construction, reconstruction, or alteration of improvements plans; or revision of layout or construction plans for this area must be approved in advance and in writing by the Forest Supervisor. Trees or shrubbery on the permitted area may be removed or destroyed only after the authorized officer has approved, and has marked or otherwise designated that which may be removed or destroyed. Timber cut or destroyed will be paid for by the holder as follows: Merchantable timber at appraised value and young growth timber below merchantable size at current damage appraisal value; provided, that the Forest Service reserves the right to dispose of the merchantable timber to others than the holder at no stumpage cost to the holder. Trees, shrubs, and other plants may be planted in such manner and in such places about the premises as may be approved by the authorized officer. Removal of hazards shall be done after securing approval from the authorized officer.

2. The holder shall maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer. For example, trash, debris, unusable machinery, etc., will be disposed of separately; other materials will be stacked, stored neatly, or within buildings. Disposal will be at an approved existing location, except as otherwise agreed to by the authorized officer.

3. This permit is subject to all valid claims and existing rights.

4. The holder, in exercising the privileges granted by this permit, shall comply with the regulations of the Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations that are applicable to the area or operations covered by this permit.

5. The holder shall take all reasonable precautions to prevent and suppress forest fires. No material shall be disposed of by burning in open fires during the closed season established by law or regulation without a written permit from the authorized officer or his authorized agent.

6. The holder shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this permit, and shall pay the United States for any damage resulting from negligence or from the violation of the terms of this permit or of any law or regulation applicable to the National Forests by the holder, or by any agents or employees of the holder acting within the scope of their agency or employment.

7. The holder shall fully repair all damage to National Forest roads and trails caused by the holder in the exercise of the privileges granted by this permit.

8. No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit that may arise herefrom unless it is made with a corporation for its general benefit.

9. Upon abandonment, termination, revocation, or cancellation of this permit, the holder shall remove within a reasonable time all structures and improvements except those owned by the United States, and shall restore the site, unless otherwise agreed upon in writing or in this permit. If the holder fails to remove all such structures or improvements within a reasonable period, they shall become the property of the United States, but that will not relieve the holder of liability for the cost of their removal and restoration of the site.

10. This permit is transferable in accordance with 36 CFR 251.59.

11. In case of change of address, the holder shall immediately notify the Forest Supervisor.

12. All or part of the use under this permit may be temporarily suspended by the Forest Service for breach of any condition contained herein. Continued use in violation of such suspension shall result in action toward cancellation of the permit. This permit may be terminated with the consent of the Federal Energy Regulatory Commission (FERC) upon breach of any conditions herein, or at the discretion of the Regional Forester or the Chief, Forest Service, for reasons in the public interest. This permit shall terminate if the holder does not have a current valid authorization under the Federal Power Act.

13. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest lands under this permit.

14. This permit is not exclusive. The Forest Service reserves the right to use or permit others to use any part of the permitted area for any purpose, provided such use does not interfere with the rights and privileges hereby authorized, or authorized under the Federal Power Act. The holder shall allow officers of the United States free and unrestricted access to the project lands and project works in the performance of their official duties.

15. All construction, reconstruction, substantial change, or alteration shall be submitted for approval by the authorized officer issuing this permit; the proposed action may commence only upon approval by said authorized officer of plans, specifications, and written construction stipulations; such construction stipulations shall become part of this permit during the term of the proposed action as long as deemed necessary by said authorized officer.

16. <u>Fees, Licensed project</u>

The holder shall pay annually, in advance, a sum determined by the Forest Service to be the fair market value of the use rights granted by this permit. As long as the holder makes payments, in accordance with Section 10(e) of the Federal Power Act, to the Federal Energy Regulatory Commission (FERC) for the use of this land in an amount determined to be the approximate fair market rental of the lands, the fee for this permit is waived in its entirety. In the event the Forest Service determines that payments to FERC are significantly less than fair market rental or if the holder discontinues such payments, the Forest Service reserves the right to establish an appropriate fee and appropriate conditions of payment. Any fees paid by the holder to FERC shall be credited toward the fee due from the holder for this permit.

17. Permit Term, Licensed Project

Unless sooner canceled or terminated by the authorized officer, in accordance with the provisions of the permit, the term of this permit shall be concurrent with Federal Energy Commission (FERC) license No. 11077-001; but the Forest Service may grant a new permit to occupy and use the same National Forest System land, provided that FERC grants a new license under the Federal Power Act. The new permit must comply with the laws and regulations governing the occupancy and use of National Forest System lands at that time.

18. Project Safety

The holder shall carry out all operations in a skillful manner, having due regard for the safety of employees and the public, and shall safeguard unsafe areas. The holder shall regularly inspect its facilities and provide further effective safety measures as needed for safety protection.

19. Water Pollution

The holder shall discharge no waste or byproduct if it contains any substances in concentrations that would result in violation of water quality standards set forth by the State; would impair present or future beneficial uses of water; would cause pollution, nuisance, or contamination; or would unreasonably degrade the quality of any waters. During the construction and operation of the project, the holder shall protect project water quality by using the existing Best Management Practices mutually agreed to by the Forest Service and the State.

20. Esthetics

The holder shall protect the scenic and esthetic values of the area under this permit during construction, operation, and maintenance of the project improvements.

21. Damage - High Hazard Clause

The holder is hereby made liable for all injury, loss, or damage, including but not limited to fire suppression costs, directly or indirectly resulting from or caused by the holder's use and occupancy of the area covered by the permit, regardless of whether the holder is negligent or otherwise at fault, provided that the maximum liability without fault shall not exceed $1,000,000 for any one occurrence, and provided further that the holder shall not be liable when such injury, loss, or damage results wholly, or in part, from a negligent act of the United States, or from an act of a third party not involving the facilities of the holder.

Determination of liability for injury, loss, or damage, including fire suppression costs, in excess of the specified maximum, shall be according to the laws governing ordinary negligence.

22. Risk and Hazards

Avalanches, rising waters, high winds, falling limbs or trees, and other hazards are natural phenomena in the forest that present risks to the holder's property that the holder hereby assumes. The holder is responsible for inspecting its site, right-of-way, and the immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, is responsible for removing such hazards.

23. Signs

The holder shall erect no signs or advertising devices on the area covered by this permit without prior approval of the Forest Service as to location, design, size, color, and message. The holder shall maintain or renew erected signs as necessary to neat and presentable standards.

24. Improvement Relocation

The Forest Service grants this permit with the express understanding that should future location of Government improvements or road rights-of-way require the relocation or adjustment of the holder's linear-type improvements (such as transmission lines, penstocks, pipelines, ditches, or roads), the holder shall accomplish such relocation at the holder's expense within 180 days following written request to relocate.

25. Pesticide-Use Restrictions

Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. The holder shall submit a request for approval of planned uses of pesticides. The report must cover annual planned use and be updated as required by the Forest Service. The holder shall provide information essential for review in the form specified. Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

The holder shall use on National Forest System lands only those materials registered by the U. S. Environmental Protection Agency for the specific purpose planned. The holder must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers.

26. Area Access

The holder agrees to permit the free and unrestricted access to and upon the premises at all times for all lawful and proper purposes not inconsistent with the intent of the permit or with the reasonable exercise and enjoyment by the holder of the privileges thereof.

27. Plans, Part of Authorization

The holder shall follow the following plans as approved for the FERC license.

Erosion and Revegetation Plan
Solid Waste and Waste Water Plan
Hazardous Substances Plan
Visual Resources Protection Plan
Wildlife Management Plan

The holder shall submit these plans for Forest Service approval 60 days before anticipated start of construction. Said plan shall be attached hereto and marked as Exhibits A-E respectively.

These plans have been approved for the FERC Operating License.

28. Nondiscrimination in Employment

In connection with the performance of work under this permit, including construction, maintenance, and operation of the facility, the holder shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age, or handicap in accordance with the Civil Rights Act of 1964, as amended.

29. Permit Amendment, Licensed Project

The Regional Forester may review the terms and conditions of this permit upon any modification of project facilities or after 30 years from the date of issuance. At such time, the Regional Forester may incorporate in the permit such new terms, conditions, and stipulations as existing or prospective conditions may warrant; provided, that such modification shall not unreasonably reduce the use herein authorized.

In Witness Whereof, the parties hereto have caused this permit to be duly executed on this 9 day of September 1998.

Permittee

by _____
ALAN SEE
President
Goat Lake Hydro Inc.

USDA - Forest Service

by _____
FOR BRADLEY POWELL
Forest Supervisor
Tongass National Forest

USDA - Forest Service

FS-2700-23 (4/97)
OMB No. 0596-0082

RECEIVED
OCT 13 2000
Juneau Ranger Dist.

AMENDMENT FOR SPECIAL-USE AUTHORIZATION

Contact ID/ Permit #	Type Site	Authority
GLH/ JUN430001	611	002
Issue Date	**Expir. Date**	**Region**
10/10/00	07/01/486 pwg	10
Forest	**District**	**State/County**
05	33	02/110

AMENDMENT NUMBER 1

This amendment is attached to and a part of the Licensed Project special use permit for the Goat Lake Hydroelectric Project issued to Goat Lake Hydro, Inc. on September 9, 1998 which is hereby amended as follows:

CHANGES:

Release date change in the bypass flow to Pitchfork Falls from May 1 to May 15, per FERC order Amending Article 105 dated April 13, 2000 (FERC Amendment # 028) of FERC License # 11077.

This Amendment is accepted subject to the conditions set forth herein.

Holder: Stan Selmer — Authorized Officer: Ted L. Stevens

Holder: President - Goat Lake Hydro — Title: Assistant Forest Supervisor

Date: Sept. 27, 2000 — Date: Oct. 10, 2000

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Public reporting burden for this collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. OMB # 0596-0082

USDA - Forest Service			FS-2700-23 (4/97) OMB No. 0596-0082
AMENDMENT FOR SPECIAL-USE AUTHORIZATION	Contact ID/ Permit # GLH/ JUN430001	Type Site 611	Authority 002
	Issue Date 01/04/01	Expir. Date 07/01/46	Region 10
	Forest 05	District 33	State/County 02/110

AMENDMENT NUMBER 2

This amendment is attached to and a part of the Licensed Project special use permit for the Goat Lake Hydroelectric Project issued to Goat Lake Hydro, Inc. on September 9, 1998 which is hereby amended as follows:

Add:

A 16' X 16' treated timber and wood helicopter landing pad located between 3-5 feet above the surface of rock rubble next to Goat Lake in the vicinity of the vacuum house. Anchors will be drilled into the bed rock to secure the pad to the ground.

There are no other Additions, Changes or Deletions.

Holder: Glen D. Martin — Authorized Officer: Fred J. Salerno

Title Holder: Compliance Manager — Title: Assistant Forest Supervisor

Date: 11/20/00 — Date: 01/04/01

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Public reporting burden for this collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. OMB # 0596-0082

Authorization ID: JUN430001
Contact ID: GLH
Use Code: 611

FS-2700-23 (4/97)
OMB 0596-0082

U.S. DEPARTMENT OF AGRICULTURE
Forest Service
AMENDMENT
FOR
SPECIAL USE AUTHORIZATION
AMENDMENT NUMBER: 3

This amendment is attached to and made a part of the special use authorization (identified above) issued to Goat Lake Hydro, Inc. on 09/09/1998 which is hereby amended as follows:

Article 105 of the license for the Goat Lake Hydroelectric Project, as amended by order issued April 13, 2000, is further amended as follows:

Article 105. During the construction and operation of the facilities authorized by this license, the licensee shall maintain during twelve daylight hours, in Pitchfork Falls, as measured above the railroad tracks, the following continuous minimum flows:

May 15 through September 30: 8.5 cubic feet per second (cfs)
October 1 through May 14: 0 cfs

The license may temporarily modify minimum flows if required by operating emergencies beyond the control of the licensee. The licensee may also modify minimum flows for short periods upon written consent of the Forest Service.

Any time flows drop below the above-required minimum flow for more than two consecutive hours shall be considered a flow-deviation event. Such events shall be considered a reportable violation only if there is more than three such occurrences in any given month.

This Amendment is accepted subject to the conditions set forth herein, and to conditions n/a to n/a attached hereto and made a part of this Amendment.

(Holder Signature)

(Authorized Officer Signature)

Robert S. Grimm President GLH
(Name and Title)

for Dennis Bschor Regional Forester
(Name and Title)

Date: 5-25-2005

Date: 6/8/05

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archaeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service Public reporting burden for collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

APPENDIX H

GRAYLING STUDY RESULTS

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

OFFICE OF ENERGY PROJECTS

Project No. 11077-070--Alaska
Goat Lake Project
Alaska Power and Telephone Company

May 5, 2008

Mr. Robert S. Grimm
Alaska Power and Telephone Company
P.O. Box 459
Skagway, AK 99840

Subject: Fifth and final grayling survey report under article 409 and July 7, 2004 order

Dear Mr. Grimm:

This letter acknowledges our receipt of your fifth and final grayling survey report at the Goat Lake Project, filed with the Commission on December 12, 2007, as required by license article 409[1] and the July 7, 2004 Order Modifying and Approving Grayling Monitoring Plan Under Article 409.[2] Your filing fulfills the fifth and final annual filing requirement of the July 7, 2004 order.

If you have any questions concerning this matter, please contact Ms. Monica Maynard at (202) 502-6013.

Sincerely,

Monica A. Maynard
Fishery Biologist, Biological Resources Branch
Division of Hydropower Administration
and Compliance

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[1] The project license was amended to include article 409, by Order Amending License and Approving Revised As-Built Exhibits A, F, and G, issued February 7, 2003, 102 FERC ¶ 62,086.

[2] 108 FERC ¶ 62,014

cc: Mr. Glen D. Martin
Alaska Power and Telephone Company
P.O. Box 222
Port Townsend, AK 99840

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GOAT LAKE HYDRO, INC.
A subsidiary of Alaska Power & Telephone Company.
AP&T

December 12, 2007

Kimberly D. Bose
Office of Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Goat Lake Hydro Project
Project No. 11077-022
5th Year Results of 5 Year Grayling Monitoring Plan and Survey Summary

Dear Ms. Bose:

Yesterday we made an e-filing of the 5th year report in a five year grayling survey at Goat Lake for project No. 11077. In the first paragraph of the cover letter it erroneously states "*This is the fourth year of the five year monitoring*." Instead, it should read, "*This is the fifth year of the five year monitoring*."

We apologize for any confusion.

Respectfully Submitted,

Glen D. Martin

Glen D. Martin
Project Compliance Manager
360-385-1733 x122

PORT TOWNSEND: (800) 982-0136 • (360) 385-1733 • Fax: (360) 385-7538 • Post Office Box 222 • Port Townsend, WA 98368
SKAGWAY : (907) 983-2808 • Fax: (907) 983-3119 • Post Office Box 459 • Skagway, AK 99840

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GOAT LAKE HYDRO, INC.
A subsidiary of Alaska Power & Telephone Company.
AP&T

December 12, 2007

Kimberly D. Bose
Office of Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Goat Lake Hydro Project
Project No. 11077-022
5th Year Results of 5 Year Grayling Monitoring Plan and Survey Summary

Dear Ms. Bose:

This e-filing is to provide the results from the Goat Lake grayling monitoring that occurred this 5th summer for the Goat Lake Hydroelectric Project, No.11077. As a part of the license amendment of February 7, 2003, and license Article 409, we were to monitor the grayling for five years to make sure they continued to successfully access the inlet stream they spawn in. This is the fourth year of the five year monitoring. These results were submitted to the resource agencies on October 23, 2007 (cover letters enclosed). Only Alaska Department of Fish & Game (ADF&G) commented.

Enclosed is a report of this years findings and a summary of all five years. Also included is a copy of the e-mail from ADF&G commenting on the report.

Respectfully Submitted,

Glen D. Martin

Glen D. Martin
Project Compliance Manager
360-385-1733 x122

PORT TOWNSEND: (800) 982-0136 • (360) 385-1733 • Fax: (360) 385-7538 • Post Office Box 222 • Port Townsend, WA 98368
SKAGWAY : (907) 983-2808 • Fax: (907) 983-3119 • Post Office Box 459 • Skagway, AK 99840

GOAT LAKE HYDRO PROJECT
5-YEAR GRAYLING MONITORING PLAN

FIFTH YEAR REPORT (2007)

Attached are two charts, (1) lake elevation at time of fish observations; (2) "Inlet Stream" temperatures during the summer and early fall. A notation is provided for when fish were observed in the "Inlet Stream" on the lake elevation chart. Also attached are photos of the grayling in the lake. None were taken of the grayling observed in the "Inlet Stream." Field notes are below:

On June 18, 2007: Lake level -21 feet. Two temperature loggers were installed in the Goat Lake "Inlet Stream," one at the second large pool upstream from the lake and the other 50-feet from the rock cliff upstream. The Inlet Stream was still covered with snow with some open areas. The lake is still iced over. No fish were observed in the stream at that time. Weather conditions are windy and cold.

On August 3, 2007: Lake level -1.3 feet. The weather was partly cloudy with a south wind so there were no fish jumping in the lake. Ten grayling were found in the Inlet Stream that were between 4-8 inches in length. Bear scat is found along the stream bank. Photos are enclosed.

Inlet stream temperature was 39.5°F at the downstream gauge at the second large pool upstream from the lake.

On September 11, 2007: The temperature dataloggers were removed from the Inlet Stream.

No obstructions in the inlet stream noted during surveys. Water temperatures in the inlet stream were cooler the last two years than the first three years of the survey most likely due to cooler and grayer summers experienced in S.E. Alaska in 2006 and 2007.

August 3, 2007: Inlet Stream viewed from outlet end

August 3, 2007: Grayling in Inlet Stream

Analysis of Five Year Grayling Survey

Background

In 1994, ADF&G stocked Goat Lake with Arctic grayling the same year AP&T submitted their license application to FERC. This stocking endeavor, which was originally intended for three consecutive years, was limited to two consecutive years due to a lack of results after the first two years of stocking. In 1998, AP&T reported to ADF&G observations of grayling in the lake. In 2000, ADF&G requested that AP&T conduct a fish survey for population density and various life stages present in the population that would indicate their success. After the survey was conducted, ADF&G asked for a five year survey to determine if the lake drawdown that occurs each winter/spring would prevent the grayling from accessing the Inlet Stream which appeared to be the dominant spawning stream. This was to be accomplished by seeing if they were found in the Inlet Stream and to correlate that with water temperatures and lake elevation. The plan approved by the agencies and FERC stipulated the following:

- Monitoring of lake elevation is continuously recorded throughout a 24 hour period, 365 days per year.
- A temperature gauge will be installed in the inlet stream, above the normal lake elevation, each spring (May-June) after ice is off of the stream.
- Starting in late June, observations of grayling in the inlet stream, above high water (a full lake), will be made. Once one fish is observed in the inlet stream above high water, observations may cease as the purpose of the monitoring is to determine if they are making it to the inlet stream, or not.
- By October 1, each year of the 5-year monitoring program, a report of the lake elevation correlated with inlet stream temperature and fish observation will be made to USF&WS, USFS, DNR, and ADF&G for a 45 day review.
- By the end of each year, of the 5-year monitoring program, the results of the monitoring with agency comments and recommendations will be submitted to the Commission.
- If logistical problems, such as weather or scheduling, prevent the licensee from observing grayling in the inlet stream, the lake will be sampled for young-of-the-year the following spring.
- If fish are not observed on any given year despite field trips to conduct the survey, or if fish passage barriers are observed along with no observations of fish, the licensee shall file with the Commission a fish passage restoration plan developed in consultation with the agencies listed above.

5-Year Survey Result Summary

Since the summer of 2003, AP&T has conducted the graying presence/absence survey in the Inlet Stream. At the time of the beginning of surveys it was noted that the Inlet Stream delta was still changing and there was a concern that a barrier could be created. Each year grayling have been found in the inlet stream.

- First Year: July 30, 2003 – 23 fish in the stream; 8-15 inches; stream temperature 40.5˚F; lake level -7.5 feet
- Second Year: August 6, 2004 – 12 fish in the stream; 10-14 inches; stream temperature 41.8˚F; lake level -0.5 feet
- Third Year: August 12, 2005 – 14 fish in the stream; 5-15 inches; stream temperature 47.0˚F; lake level -0.37 feet
- Fourth Year: August 28, 2006 – 7 fish in the stream; 6-8 inches; stream temperature 39.05˚F; lake level +0.9 feet
- Fifth Year: August 3, 2007 – 10 fish in the stream; 4-8 inches; stream temperature 39.5˚F; lake level -1.3 feet

There appear to be no barriers for grayling to access the Inlet Stream, no matter what the lake drawdown is. This is likely due to lake water temperatures not being warm enough to trigger spawning until the lake has risen adequately during the spring thaw. The correlation between lake temperature, lake level, and grayling presence in the Inlet Stream indicates that the lake fills in relation to increased temperatures in a fairly consistent curve and if any barrier exists in the stream delta it is well below the lake levels achieved in time for spawning to take place.

Conclusions

Based on the survey results that grayling have been found in the Inlet Stream each year of the five years of surveying, AP&T concludes that lake drawdown's are not impacting the ability of fish to access the stream for spawning, and therefore the hydroelectric project is not impacting the sustainability of this stocked fish population. That said, according to water quality surveys conducted by the licensee prior to constructing the project, the lake was characterized as an Oligotrophic lake making survival difficult for grayling. In addition, according to ADF&G records the lake was stocked with Brook trout in the 1930's and Dolly varden in the 1950's, neither of which survived. That grayling are able to access the Inlet Stream is apparent, but what is not apparent is whether in the long term they can survive this lake, even without the hydroelectric project. Considering that there was a native fresh water shrimp in the lake prior to stocking the grayling and now there isn't, there food supply is probably very limited, although flies are seen on the lake surface during the summer.

CONSULTATION

- **12/10/07 E-Mail from ADF&G commenting on 5th year report**
- **10/23/07 Report sent to ADF&G for comment**
- **10/23/07 Report sent to USF&WS for comment**
- **10/23/07 Report sent to USFS for comment**
- **10/23/07 Report sent to DNR for comment**

Glen Martin

From: Ferguson, Jim M (DFG) [jim.ferguson@alaska.gov]
Sent: Monday, December 10, 2007 10:04 AM
To: glen.m@aptalaska.com
Subject: RE: Goat Lake Hydro - Final Grayling Monitoring Report

Thanks Glen.

I guess Rich was checking email, as he sent me a brief response, which I paraphrase here:

The report looks okay to me. If nothing else, grayling in Goat Lake has been a good stocking experiment. The cold water and lack of food in the lake appear to be the limiting factors. I don't think we want AP&T to take extraordinary measures to boost the grayling population. I haven't heard of a fly-in grayling sport fishery developing at Goat Lake as some had hoped.

So Rich doesn't have any concerns that need to be addressed.

I told him you were interested in a visit to Pullen Creek this spring. If timing works out, I'd like to go as well, if I can tag it on to some other inspection trips.

Cheers,

Jim

~~~~~~~~~~~~~~~~~~~~ ><{{{(°>

From: Glen Martin [mailto:glen.m@aptalaska.com]
Sent: Monday, December 10, 2007 6:27 AM
To: Ferguson, Jim M (DFG)
Subject: RE: Goat Lake Hydro - Final Grayling Monitoring Report

Jim,
I will be submitting the Grayling Report to FERC by the end of December.

Regarding Pullen Creek, I would like to arrange for Rich to meet with our Skagway staff to check out the creek, perhaps in the spring as it may have ice on it by now. I may want to be there also and it would be easier coming up in March or April rather than January.

Regarding Eagle River Hydro, we are actually calling it the Yukon River Hydrokinetic Project now. I hope to get our pilot license application off to FERC by the end of this month.

Yeah, the weather has been a little rough down here. Southwestern Washington is a real mess for lots of folks that have had there Holiday season ruined with no home to return to, etc. A real natural disaster. The newspaper articles have been discussing whether they have set themselves up for this by overdeveloping lowlands and clearcutting the headwater drainages. They had a 100 year flood about 11 years ago and now they had another, not good.

Just got up some lights and a tree yesterday so Christmas is here! Hope and your wife have a great Holiday Season also!

Regards,
~~~~~~~~~~~~~~~~~~~~

Sent: Wednesday, October 24, 2007 6:39 AM
To: Ferguson, Jim M (DFG)
Subject: Goat Lake Hydro - Final Grayling Monitoring Report

Jim,
Attached is the fifth and final year of the grayling monitoring that we have conducted at Goat Lake. A summary and analysis of all five years is also included in this report. This report is also being shared with DNR-Habitat, USF&WS, and the USFS under separate cover. Please provide any comments by early December.

Regards,

Glen

Glen D. Martin
Project Compliance Manager
AP&T
(360) 385-1733 x122

ALASKA POWER & TELEPHONE COMPANY
P.O. BOX 3222 • 193 OTTO STREET
PORT TOWNSEND, WA 98368
(360) 385-1733 • (800) 982-0136
FAX (360) 385-5177

October 23, 2007

Jim Ferguson
Hydro Coordinator
Alaska Department of Fish & Game
333 Raspberry Road
Anchorage, AK 99518

Re: Goat Lake Hydro Project
Project No. 11077-022
5th Year Results of 5 Year Grayling Monitoring Plan

Dear Mr. Ferguson:

Enclosed for your review is the fifth and final year of the five year grayling monitoring plan, for Goat Lake Hydro. Please provide any comments you may have by December 1, 2007.

Sincerely,

Glen D. Martin
Project Compliance Manager
360-385-1733 x122

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October 23, 2007

Richard Enriquez
U.S. Fish & Wildlife Service
S.E. Alaska Ecological Services
3000 Vintage Blvd., #201
Juneau, AK. 99801-7100

Re: Goat Lake Hydro Project
Project No. 11077-022
5th Year Results of 5 Year Grayling Monitoring Plan

Dear Mr. Enriquez:

Enclosed for your review is the fifth and final year of the five year grayling monitoring plan, for Goat Lake Hydro. Please provide any comments you may have by December 1, 2007.

Sincerely,

Glen D. Martin
Project Compliance Manager
360-385-1733 x122

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October 23, 2007

Pete Griffin
District Ranger
U.S. Forest Service
Juneau Ranger District
8465 Old Dairy Road
Juneau, AK 99801

Re: Goat Lake Hydro Project
Project No. 11077-022
5th Year Results of 5 Year Grayling Monitoring Plan

Dear Mr. Griffin:

Enclosed for your review is the fifth and final year of the five year grayling monitoring plan, for Goat Lake Hydro. Please provide any comments you may have by December 1, 2007.

Sincerely,

Glen D. Martin
Project Compliance Manager
360-385-1733 x122

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October 23, 2007

Sheila Cameron
Alaska Department of Natural Resources
Office of Habitat Management & Permitting
P.O. Box 240020
Douglas, AK 99824-0020

Re: Goat Lake Hydro Project
Project No. 11077-022
5th Year Results of 5 Year Grayling Monitoring Plan

Dear Ms. Cameron:

Enclosed for your review is the fifth and final year of the five year grayling monitoring plan, for Goat Lake Hydro. Please provide any comments you may have by December 1, 2007.

Sincerely,

Glen D. Martin
Project Compliance Manager
360-385-1733 x122