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First Draft

A PRESCRIPTIVE FERC ENVIRONMENTAL ASSESSMENT PROCESS:
A CASE STUDY AND RECOMMENDATIONS FROM
THE TERROR LAKE PROJECT

by

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DRAFT

Performed Under Cooperative Agreement with
U.S. Department of Energy,
Alaska Power Authority,
Alaska Department of Fish and Game,
Alaska Department of Natural Resources, and
Region 7, U.S. Fish and Wildlife Service

Western Energy and Land Use Team
Division of Biological Services
Research and Development
Fish and Wildlife Service
U.S. Department of the Interior
Washington, DC 20240

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CONTENTS

	<u>Page</u>
FOREWORD.....	//
PREFACE.....	//
INTRODUCTION	//
BACKGROUND TO THE TERROR LAKE PROJECT.....	//
A HISTORY OF THE PROJECT.....	//
A SUMMARY OF STRATEGIES.....	//
RECOMMENDATIONS.....	//
GLOSSARY OF ACRONYMS.....	//
REFERENCES.....	//
APPENDIX A.....	//

INTRODUCTION

Over the past several years the Cooperative Instream Flow Service Group¹ has prepared case studies which detail efforts to protect instream uses of water in four States. These instream uses refer to the water as it flows in a stream for navigation, recreation, aesthetics water quality maintenance, and fish and wildlife habitat. The earlier case studies have concentrated on State programs for protecting instream uses of water (See, for example, Sweetman 1980).

Unlike those reports, this paper is an account of the process that evolved during acquisition of the license to operate the Terror Lake hydro-electric power project under the auspices of the Federal Energy Regulatory Commission (FERC). The Commission is responsible for granting these licenses under the Federal Power Act (16 U.S.C. 792 et. seq.). This act provides, in part, that FERC may condition a license to protect the public interest. The public interest in these cases has come to include instream values.

¹Western Energy and Land Use Team, Division of Biological Services, Research and Development, Fish and Wildlife Service, U.S. Department of the Interior.

The Terror River is located on Kodiak Island in Alaska. The river is within the Kodiak National Wildlife Refuge; it supports excellent runs of several species of Pacific Salmon which are both commercially important and a prime source of nutrition for the Kodiak brown bear. The River is also a prime resource for generating electric power. As with any FERC license, there were many issues involved in the Terror Lake Project other than instream uses of water. For example, one major concern in the negotiations was the impact of land disturbance and management practices on brown bear habitat--i.e., protection of the brown bear. Maintenance of the bears' habitat is the main purpose of the Kodiak National Wildlife Refuge. But, like many other projects, resolving the instream flow issue was of major importance in the issuance of the FERC license.

This paper discusses both the fish and wildlife questions, but concentrates on instream uses and how protection of these uses was decided. In this focus the paper details the FERC process, gives a history of the Terror Lake Project, and, ultimately, makes recommendations for improved management of controversies within the context of FERC licensing procedures.

Many individuals were involved in the negotiations which resulted in the issuance of the license at Terror Lake. The success of the process actually depended on them. Their skill and dedication ensured a fruitfully negotiated settlement of the disputes which are inherent in any proceeding as complex as an FERC license. By explaining the experiences of the administrators and scientists who negotiated the terms which were finally included in the license.

we are able to suggest prescriptions for future projects. These prescriptions are intended as a general guide to those involved in other FERC license applications.

TERROR LAKE HYDRO-ELECTRIC PROJECT: A BRIEF OVERVIEW

1964

The Kodiak Electric Association (KEA) obtained a permit from the Federal Power Commission (FPC) to investigate the project.

1967

KEA completed application for FPC license, however, no financing was forthcoming. During this year, the Fish and Wildlife Service (FWS) did field work and obtained some stream flow data.

1974

As economic potential appeared more favorable, KEA filed for a license; FPC granted the permit in 1976.

1977

In late 1977, State of Alaska funds were provided to KEA to perform studies under the terms of the 1964 FPC permit. KEA's consultant contacted the FWS regional office in Anchorage and Alaska Department of Fish and Game (ADF&G) for preparation of a study to determine effects of the project.

1978

In April of 1978 the FWS provided copies of a plan of study to ADF&G and the National Marine Fisheries Service (NMFS) for comment. In late 1978 the FWS was requested to review and comment on materials provided by KEA's consultant--to be used in preparation of exhibits supporting their application for an FERC license.

1979

KEA filed an application for a license on January 29, 1979. FERC did not accept the application on the basis that certain exhibits were incomplete and inadequate--especially Exhibit S, the portion of the application which describes project impacts on fish and wildlife resources (Robinson 1983). FERC's letter to KEA of April 16, 1979, outlined the deficiencies of the exhibits and requested additional information.

In February of 1979 the FWS Alaska Regional Director sent a letter to KEA informing them that the proposed project was incompatible with the management

objectives of the Kodiak National Wildlife Refuge. The Kodiak National Wildlife Refuge had been established in 1941 to preserve the Kodiak brown bear and its habitat. The Compatibility Assessment Report (CAR), which described the extent of incompatibility, was released May 31, 1979.

With the double crisis of not having adequate environmental and engineering data for a complete FERC filing and an incompatibility determination from the FWS, KEA requested that FWS provide permits for it to enter the Refuge for the necessary studies during the summer of 1979. The request was denied by FWS on the basis of project's incompatibility. The denial was made on June 1, 1979.

On June 11, 1979, KEA's attorneys filed a notice of appeal on the unfavorable decisions with the Director of the FWS under FWS regulations (50 CFR 29.22). The appeal asked for reversal of the compatibility decision and an opportunity to gather the environmental information necessary to support the project's feasibility.

On June 14, 1979, the FWS Division of Refuge Management in Washington, D.C. recommended to the Director that he uphold the incompatibility finding.

Regardless, on June 21, 1979, the Director instructed the Alaska Regional Director to respond to KEA's appeal and issue the necessary permits to allow studies to support the appeal. This was necessary for KEA to develop the technical data to complete a filing with FERC.

The permits to enter upon the Refuge to obtain data for KEA's engineering feasibility studies were issued by the FWS, with special conditions to protect the Refuge, on July 3, 1979; the term was to run from July 3, 1979 until September 30, 1979.

The Secretary of the Interior filed a petition to intervene in the Terror Lake FERC proceedings on July 10, 1979. The petition to intervene was based on Department of the Interior responsibilities for administration of the Refuge; protection of historical and recreational resources; and certain mandates under the Fish and Wildlife Coordination Act; Federal Land Policy Management Act; and the Alaska Native Claims Act (Robinson 1983).

On July 12, 1979, FERC requested agency comments on KEA's application for a license.

An amendment to the FWS permits was issued by the FWS on July 3rd that allowed KEA to begin biological studies on July 23, 1979. This was to allow KEA to gather additional data for its appeal and for feasibility studies.

In part because FWS activities (i.e., management of the Refuge and intervention on the license application appeared to be in conflict, FERC staff held a meeting in the City of Kodiak on August 13, 1979, to discuss the proposed project and agency responsibilities. It was at this meeting that FWS's dual responsibility was first explained: one division of FWS acted as Refuge manager, with regulatory authority and another division was a cooperating agency in reviewing environmental assessments for the project.

FWS comments on KEA's license application, requested by FERC on July 12, 1979, were forwarded to FERC staff by the Secretary's Office on September 12, 1979; in this letter the Secretary of the Interior detailed the dual responsibility regarding fish and wildlife and habitat impacts on and off Refuge lands.

On November 12, 1979, KEA provided supplemental information to FERC. On the basis of the inadequacy of the environmental information presented in this supplemental filing, FERC required additional environmental studies to obtain more site specific data for inclusion in the EIS.

1980

In December of 1979, FERC announced a scoping meeting to be held in Washington, DC on January 22, 1980. Attached to the meeting notice was FERC's Notice of Intent to draft the EIS for the Terror Lake Project.

On January 22, 1980 FERC held a meeting in Washington, DC to determine the scope of issues to be addressed in the EIS. The Department of the Interior, Office of the Solicitor, made a request to FERC to be a cooperating agency in the preparation of the EIS. At this meeting the FWS assisted FERC and KEA in identifying existing deficiencies in the fish and wildlife data base for the Terror Lake license application.

At a January 23, 1980, meeting between the FWS and KEA in the FWS Regional Director's office regarding the project, FWS staff identified environmental

studies and mitigation measures that were believed necessary to minimize impacts on bears, and which needed to be included in the EIS. The FWS was advised by KEA's lawyers that KEA believed the Federal Power Act gave FERC the authority to license the project within the Refuge even over the objections of the Interior Department.

On February 13, 1980, a working session in Alaska between KEA and the FWS identified data gaps and additional environmental studies that were needed.

On February 14, 1980, a conference call involving FWS personnel in Washington, DC and in Alaska was made regarding the latter's inability to reconcile the seemingly contradictory roles of cooperation agency under FERC licensing procedures, and refuge manager.

FERC granted intervention to the State of Alaska in the Terror Lake project on March 21, 1980.

On April 28, 1980, the Interior Department provided comments to FERC relative to FWS cooperating agency status, and the development and preparation of an EIS. Interior advised FERC that an EIS was premature based on the inadequacies of the Environmental Exhibits in the license application and identified additional studies that were needed. Regardless, FERC allowed the EIS preparation to continue.

FERC gave notice to all parties on April 30, 1980, of additional needed studies and solicited comments as to the completeness of the list. Deadline

for comments was May 20, 1980. Studies identified were bear, goat, raptors, intragravel water temperature studies, instream flows and fish.

The service met with KEA and other interested parties on May 28, 1980, to discuss the final plan of study.

The spring, summer and fall of 1980 were dedicated to KEA's conducting the studies, which were contracted to Artic Environmental Information and Data Center (AEIDC). The studies were all completed, except those on fisheries, in the fall of 1980. Those studies had the full cooperation and some assistance by the FWS. FERC requested comments on these studies by the end of February 1981. Results of the fisheries studies became available in February 1980, and the final report from the Instream Flow study was published in March 1980.

The Alaska National Interest Lands Conservation Act [16 U.S.C. 3101,-3233 (1980)] was signed into law on December 2, 1980. This Act was believed by the Department of the Interior to resolve the issue of which agency, Interior or FERC, had authority to decide the Terror Lake Project siting question. Section 1325 of the Act states that the permissibility of such development shall be determined by the Secretary of the Interior on a case-by-case basis under existing law. This issue was a major question in the negotiations over the project (Azzaro 1983).

1981

On January 19, 1981, the FWS Regional Director submitted a proposed mitigation scheme for Terror Lake to the Director for review. Comments from the Washington office of FWS were hand carried to Alaska the weekend of January 31, 1981. The mitigation proposal was sent by the FWS Regional Director to KEA indicating that the items identified had the effect of making the proposed project compatible [50 CFR 29.29-7(c)]. The mitigation proposal included completion of special studies on land and water habitat.

On February 2, 1981, in a conversation with FERC staff, FWS and the other Cooperators, learned that all relevant studies had to be completed and commented on by March 1, 1981, as the release date for the Draft Environmental Impact Statement (DEIS) was the end of March.

Results of the Habitat Evaluation Procedures (HEP), and Instream Flow Incremental Methodology (IFIM) were published in March and April 1981, respectively.

On March 17, 1981, the Sierra Club National Wildlife Federation and Audubon Society filed a petition to intervene in the project. The petition was granted _____.

An agreement between FWS, KEA, and other parties was signed on June 16, 1981, and submitted to FERC on July 28, 1981. On September 9, 1981, KEA filed an Executed Offer of Settlement with FERC (dated June 16, 1981). The agreement

made formal the completion of a final EIS and allowed issuance of a license. A final EIS had been completed in early summer 1981.

FERC issued a license for the project on October 5, 1981 (17 FERC 61,026).

1982

The license to operate the project was transferred to the Alaska Power Authority (APA) from KEA on May 12, 1982.

BACKGROUND TO THE TERROR LAKE PROJECT

Many of the unusual circumstances surrounding the Terror Lake case may be unique to Alaska. For example, the large-scale change in land ownership, and the proposed project on a National Refuge Wildlife. However, the question that arises is what can be learned from the Terror Lake experience which may be applicable to other projects which must be licensed by the Federal Energy Regulatory Commission? While the Terror Lake case is unique, the tactics, strategies and negotiations that accompanied the licensing of the project are applicable to many other situations.

The Terror Lake case is not an ideal project. In fact, the project was marked by controversy and complexity which frequently caused emotions to run high. Terror Lake was chosen as the example for this paper precisely because, in spite of the complexity and controversy, an agreement was negotiated which, while not the most desirable to any one participant, satisfied all the parties. The significance of this fact cannot be overemphasized. Each FERC license application is unique; each has a special character which makes conflict an ever-present ingredient. The fact that Terror Lake was not ideal gives hope for success to other project negotiations. The conflicts over many license

applications are resolved in lawsuits, but Terror Lake was resolved through compromise.

The history of this project fits the definition of a successful negotiation; an agreement where all parties both give and receive concessions (White, Valdez, and White, 1980). In the Terror Lake case, there were no absolute winners or losers, instead, through good faith bargaining, the parties reached an agreement that avoided costly and time-consuming FERC administrative hearings which would have produced both winners and losers.

The FERC hearings process closely resembles litigation. As in litigation, all interested parties present their case, complete with formal testimony on facts and opinions, to the FERC which acts as the representative of the public interest. As a result of the hearings, facts presented at the hearings are considered by the Commission which decides whether or not to grant the license. A decision to grant the license may include any conditions that FERC deems appropriate. As a result the license can have the effect of imposing conditions which none of the parties desire. Losers may pursue the issues in court, which increases uncertainty. The best way to avoid this uncertainty, and to maintain control of the proposed projects' destiny, is to conduct good faith negotiations which lead to agreements based on consensus.²

²For a discussion of consensus in environmental negotiation see Harter 1982, Lee 1982, and White et al. 1980.

A HISTORY OF THE PROJECT

EARLY EFFORTS AND DESCRIPTION

Like so many of the projects that are currently being proposed for hydroelectric power generation, the Terror Lake was first studied many years ago. The project area has been evaluated as far back as the 1930's. Significant proposals for development were made during the 1950's and 1960's (Kemppe 1982).

Kodiak Electric Association, a small rural electric cooperative serving the northern section of Kodiak Island, obtained a permit from the Federal Power Commission to investigate the possibilities for a hydroelectric project which would raise the natural level of Terror Lake. KEA completed its first studies in 1967, and filed an application for a FPC license. Because of a lack of financing and the loss of a major potential market through the closure of the U.S. Navy base at Kodiak, the license application was withdrawn (Anonymous A; Wilson 1979; Robinson 1983).

Since 1973, a significant rise in the cost of diesel fuel, which KEA had depended on to power its generators, rekindled interest in the project. In 1974, KEA filed for an application for a preliminary permit from the FPC. KEA proposed to place a dam at the outlet of Terror Lake raising the level of the lake 143 feet and increasing the lake surface an additional 480 acres. KEA proposed to develop a power tunnel 26,300 feet in length and 9 feet in diameter from the Terror Lake reservoir to a powerhouse located in the Kizhuyak River Basin. As the map (Fig. 1) displays, the project would also consist of dams and diversion works on Shotgun, Falls, and Rolling Rock Creeks in the Kizhuyak River Basin to divert water into the powerhouse. The Refuge boundary follows the divide between the Terror and Kizhuyak watersheds.

The proposal called for the powerhouse to be located on the western side of the Kizhuyak Valley approximately 3 miles upstream from the mouth of the Kizhuyak River. The powerhouse would include two 10,000 kilowatt generators, with the possibility of adding a third 10,000 kilowatt generator at a later date.³ The power would be transported through an 18 mile long, 69 kilovolt transmission line that would extend from the powerhouse to KEA's planned substation on the U.S. Coast Guard Reservation near Kodiak. The route for the transmission line was selected so that it would provide dependable service even in the worst winter storm conditions (Wilson 1979).

³As of this writing, the Alaska Power Authority has proposed building this third turbine.

Figure 1 here

The project would divert an estimated 76,000 acre-feet of water per year from the Terror River Basin through the tunnel and powerhouse and into the Kizhuyak River Basin. The diversions from the three tributaries of the Kizhuyak River would pass an additional 54,000 acre-feet of water per year into the tunnel and through the powerhouse. The net result of these diversions would be a 35 percent reduction in flows in the Terror River and an increase in flows in Kizhuyak River of 30 percent. Additional changes would be an increase in winter flows in the Terror River by 5 percent and in the Kizhuyak River by 300 percent.

LANDS-ISSUES

No real understanding of Terror Lake negotiation is possible without a background on the complex, fluid status of land administration and ownership on Kodiak Island. This complexity includes Federal Government, Indian, and private land ownership, land and wildlife management practices, and Federal statutes.

By far, the largest land administrator on Kodiak Island is the Federal Government. The vast majority of Federally administered lands on Kodiak Island are contained in the Kodiak National Wildlife Refuge. The Refuge was established by executive order, on August 14, 1941, by President Franklin D. Roosevelt to preserve the feeding and breeding ground of the giant Kodiak brown bear and other wildlife [Exec. Order No. 8857; and Public Land Order No. 1634 (1959)]. The Refuge boundaries encompass all of the Uganik Island;

and the majority of Kodiak Island, with the exception of a one-mile wide strip of land around the edge of the island and the lands of the Karluk Indian Reservation. The one-mile strip of land around Kodiak Island was made available for leasing and development under pertinent public land laws.

The result of development on the mile-wide strip was conflict between the bears and cattle grazers. In an effort to separate the Refuge from the cattle grazers, the boundaries of the Refuge were changed by executive order on May 9, 1958. The new order gave refuge status to the one-mile strip of land on the west side of the island, while the Shearwater and Kupreanof Peninsulas and other lands on the east side of the island (Fig. 2) were removed from the reserved status of the refuge and returned to the public domain (U.S. Fish and Wildlife Service 1979). The 1958 order reduced the Refuge from 1,900,000 acres to 1,815,000 acres. The refuge is administered by the U.S. Fish and Wildlife Service.

In 1964, Congress passed the Wilderness Act (16 USC 1131-1133; PL 88-577). The Act calls for the review of all areas in the United States that are at least 5 miles from the nearest road, railroad, telephone lines, etc., for possible designation as Wilderness Areas. The Kodiak National Wildlife Refuge was studied for possible inclusion into the Wilderness system. After a public hearing on the subject was held on Kodiak Island 97 percent of the Refuge was recommended by FWS in 19__ for designation as a wilderness. This proposal was held in abeyance due to Congress's passage of the Alaska Native Claims Settlement Act of 1971 (Morehouse 1982).

Insert Figure 2 here

The Alaska Native Claims Settlement Act (ANCSA) was passed by Congress to establish a permanent solution to the aboriginal land claims for all the Natives and Native groups of Alaska (PL 92-203). Key provisions of the Act detail the methods by which Native groups could select lands for appropriation from the public domain. The only lands exempted from these withdrawals were lands in the National Park System and those lands withdrawn or reserved for national defense purposes, other than Naval Petroleum Reserve Number 4. Each Native group was entitled to between 69,120 acres and 161,280 acres of land depending on the group's population. The Native groups, could each appropriate up to 69,120 acres of land from inside the National Wildlife Refuge System.

There are 11 recognized Native groups, organized into Village corporations under ANCSA, on Kodiak Island. The Native groups had three years from the date of enactment of ANCSA, December 18, 1971, to identify the lands that they had selected. At the time that KEA had filed its preliminary permit in 1974, the Native groups had chosen 300,000 acres inside the Refuge with the possibility of another 200,000 acres being selected (U.S. Fish and Wildlife Service, 1979).

Other legislation affecting land ownership on Kodiak Island includes the Alaska Statehood Act of 1959 [PL 85-508 (1958)] and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) [PL 96-487 (1980) 16 U.S.C. 31d]. The Alaska Statehood Act provides at Section 6:

(a) For the purposes of furthering the development of and expansion of communities, the State of Alaska is hereby granted and shall be entitled to select, within twenty-five years after the date of the admission of the State of Alaska into the Union, from lands within national forests in Alaska which are vacant and unappropriated at the time of their selection not to exceed four hundred thousand acres of land, and from the other public lands of the United States in Alaska which are vacant, unappropriated, and unreserved at the time of their selection not to exceed another four hundred thousand acres of land, all of which shall be adjacent to established communities or suitable for prospective community centers and recreational areas. Such lands shall be selected by the State of Alaska with the approval of the Secretary of Agriculture as to national forest lands and with the approval of the Secretary of the Interior as to other public lands: Provided, That nothing herein contained shall affect any valid existing claim, location, or entry under the laws of the United States, whether for homestead, mineral, right-of-way, or other purpose whatsoever, or shall affect the rights of any such owner, claimant, locator, or entryman to the full use and enjoyment of the land so occupied.

(b) The State of Alaska, in addition to any other grants made in this section, is hereby granted and shall be entitled to select, within twenty-five years after the admission of Alaska into the Union, not to exceed one hundred and two million five hundred and fifty thousand acres from the public lands of the United States in

Alaska which are vacant, unappropriated, and unreserved at the time of their selection: Provided, That nothing herein contained shall affect any valid existing claim, location, or entry under the laws of the United States, whether for homestead, mineral, right-of-way, or other purpose whatsoever, or shall affect the rights of any such owner, claimant, locator, or entryman to the full use and enjoyment of the lands so occupied: And provided further, That no selection hereunder shall be made in the area north and west of the line described in section 10 without approval of the President or his designated representative.

(c) Block 32, and the structures and improvements thereon, in the city of Juneau are granted to the State of Alaska for any or all of the following purposes or a combination thereof: A residence for the Governor, a State museum, or park and recreational use.

(d) Block 19, and the structures and improvements thereon, and the interests of the United States in blocks C and 7, and the structures and improvements thereon, in the city of Juneau, are hereby granted to the State of Alaska.

In 1959 this Act was amended to include the following (PL 86-173):

That the first sentence of section 6(h) of Public Law 85-508 (72 Stat. 339) is amended to read as follows: "Any lease, permit, license, or contract issued under the Mineral Leasing Act of

February 25, 1920 (41 Stat. 437; 30 U.S.C. 181 and the following), as amended, or under the Alaska Coal Leasing Act of October 20, 1914 (38 Stat. 741; 30 U.S.C. 432 and the following), as amended, shall have the effect of withdrawing the lands subject thereto from selection by the State of Alaska under this Act, unless an application to select such lands is filed with the Secretary of the Interior within a period of five years after the date of the admission of Alaska into the Union."

ANILCA was passed for the following purposes (Section 101):

(a) In order to preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife values, the units described in the following titles are hereby established.

(b) It is the intent of Congress in this Act to preserve unrivaled scenic and geological values associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value to the citizens of Alaska and the Nation, including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems; to protect the resources related to subsistence needs;

to protect and preserve historic and archeological sites, rivers, and lands, and to preserve wilderness resource values and related recreational opportunities including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and sub-arctic wildlands and on freeflowing rivers; and to maintain opportunities for scientific research and undisturbed ecosystems.

(c) It is further the intent and purpose of this Act consistent with management of fish and wildlife in accordance with recognized scientific principles and the purposes for which each conservation system unit is established, designated, or expanded by or pursuant to this Act, to provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so.

(d) This Act provides sufficient protection for the national interest in the scenic, natural, cultural and environmental values on the public lands in Alaska, and at the same time provides adequate opportunity for satisfaction of the economic and social needs of the State of Alaska and its people; accordingly, the designation and disposition of the public lands in Alaska pursuant to this Act are found to represent a proper balance between the reservation of national conservation system units and those public lands necessary and appropriate for more intensive use and disposition, and thus Congress believes that under the need for future legislation designating new conservation system units, new national conservation areas, or new national recreation areas, has been obviated thereby.

ANILCA provides for the designation and conservation of certain public lands in Alaska. The Act designates lands for National Parks, National Wildlife Refuges, National Forests, National Wild and Scenic Rivers, National Wilderness Reservation Systems, and for other purposes. The passage of ANILCA concluded a multi-year discussion on how much land, and for what purposes, would be withdrawn from the remaining public domain in Alaska. The amount of land reserved in National Wildlife Refuges was approximately 100,000,000 acres, or 156,000 square miles (Bayha 1982). The issues that surrounded the ANILCA legislative history had an impact on the Terror Lake project. For example, one provision of ANILCA is Section 1325 which pertains directly to Terror Lake. It provides that:

Nothing in this Act or the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd) shall be construed as necessarily prohibiting or mandating the construction of the Terror Lake Hydroelectric Project within the Kodiak National Wildlife Refuge. The permissibility of such development shall be determined by the Secretary on a case-by-case basis under existing law.

Section 1325 was added to ANILCA at the insistence of the Alaska Congressional Delegation (Horn 1982), which illustrates the level of concern over this project. ANILCA, along with other Federal land management activities and statutes--as well as private ownership patterns and native claims--had a direct impact on project decisions. The interpretation of pertinent statutes constituted the substance of much negotiation over project alternatives.

THE HISTORY: 1974-1978

Jurisdictional Questions

KEA's application for a preliminary permit from the Federal Power Commission (FPC) in the spring of 1974 touched off jurisdictional questions between the FPC and the U.S. Department of the Interior. The FPC maintained that under the Federal Power Act it had sole authority on whether or not to issue a preliminary permit for the study of a hydroelectric facility at Terror Lake (Martin 1982). The Bureau of Land Management (BLM) and FWS submitted comments on the preliminary permit application to the Department Secretariate.

BLM's comments centered around the lands issue brought up by ANCSA. BLM pointed out that the proposed project was within the lands withdrawn by ANCSA and that the Village of Port Lyons (located north of the mouth of the Terror River) had yet to make its land selections. Because of this, BLM recommended that the preliminary permit be withheld until the lands issue stabilized (Martin 1982).

FWS's comments were directed to the fact that Terror Lake was within the boundaries of the Kodiak National Wildlife Refuge. As such, the FWS stated that the Refuge would be impacted by the proposed project and KEA would need a special use permit from FWS (Martin 1982).

The Department of the Interior (DOI) then forwarded comments to FPC on September 11, 1974. The comments stated that:

...[W]e have completed our review of this permit application, especially as it relates to the various legislative mandates placed on this Department by the Congress. Of particular concern regarding the action in question is the potential for a conflict with the program now underway in Interior to carry out the objectives of the Alaska Native Claims Settlement Act (ANCSA), and we submit the following information for your consideration and use in processing this permit application.

Under Article 4 of the Constitution of the United States, the ultimate authority for the disposition of the property of the United States rests with the Congress. Pertinent sections of ANCSA, Section 11(a)(1) and 11(a)(2), 43 USC 1610(1)(1) and (a)(2), respectively, provides for the withdrawal of public lands in Alaska from all forms of appropriation... Further, Section 22(i), 43 USC 1621(i), provides that all of these public lands except those in the National Forest System shall be under the administration of the Secretary of the Interior and this Act limits the authority to make contracts and grant leases, permits, rights-of-way, or easements on these lands to the Secretary of the Interior in accordance with applicable laws and regulations... Section 26 of ANCSA (65 Stat. 683) also states that the provisions of this Act shall apply when there is any conflict between it and any other Federal laws applicable to Alaska...

In summary, this Department has concluded, in light of the above citations, that only the Secretary of the Interior has jurisdiction to issue permits or licenses for the use of any public lands, except Forest Service lands, in Alaska withdrawn pursuant to Sections 11(1)(1) and (2) of ANCSA. The authority of the Federal Power Commission to issue permits or licenses for proposals on those public lands in Alaska has been withdrawn by this Congress.

Accordingly, the Department of the Interior not only opposes the issuance of a preliminary permit for this proposal but must also question the authority under which the Commission could take any position on this application.

Further complicating the jurisdictional question between the Department of Interior and the Federal Power Commission was Section 4(e) of the Federal Power Act. This Section states that the Commission was authorized and empowered to:

(e) To issue licenses to citizens of the United States, or to any association of such citizens, or to any corporation organized under the laws of the United States or any State thereof, or to any State or municipality for the purpose of constructing, operating, and maintaining dams, water conduits, reservoirs, power houses, transmission lines, or other project works necessary or convenient for the development and improvement of navigation and for the development, transmission, and utilization of power across, along, from or

in any of the streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States, or upon any part of the public lands and reservations of the United States (including the Territories), or for the purpose of utilizing the surplus water or water power from any Government dam, except as herein provided: Provided, That licenses shall be issued within any reservation only after a finding by the Commission that the license will not interfere or be inconsistent with the purpose for which such reservation was created or acquired, and shall be subject to and contain such conditions as the Secretary of the department under whose supervision such reservation falls shall deem necessary for the adequate protection and utilization of such reservation [footnote deleted]. Provided further, That no license affecting the navigable capacity of any navigable waters of the United States shall be issued until the plans of the dam or other structures affecting navigation have been approved by the Chief of Engineers and the Secretary of the Army [footnote deleted]. Whenever the contemplated improvement is, in the judgment of the Commission, desirable and justified in the public interest for the purpose of improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, a finding to that effect shall be made by the Commission and shall become a part of the records of the Commission: Provided further, That in case the Commission shall find that any Government dam may be advantageously used by the United States for public purposes in addition to navigation, no license therefor shall be

issued until two years after it shall have reported to Congress the facts and conditions relating thereto, except that this provision shall not apply to any Government dam constructed prior to June 10, 1920: And provided further, That upon the filing of any application for a license which has not been preceded by a preliminary permit under subsection (f) of this section, notice shall be given and published as required by the proviso of said subsection. [41 Stat. 1065-1066; 49 Stat. 840-841; 61 Stat 501; 16 U.S.C. 797(e)].

The FPC decided to rely on Section 4(f) of the Federal Power Act and issue the preliminary permit to KEA. Section 4(f) states that a preliminary permit can be granted to applicants for license to secure the data necessary for a license.

Financing the Preliminary Study

A meeting was held on November 17, 1974, in Washington, DC, between staff from the DOI and FPC concerning Terror Lake and another project. At this meeting, DOI staff expressed the opinion that FPC had ignored Interior Department comments on the project by issuing the preliminary permit. DOI's staff noted that the FPC permit did not address the Secretary's jurisdiction over the right of entry onto the Federal lands that was required for investigation of the project. The FPC agreed to inform KEA of its responsibilities to the DOI to describe KEA's rights under the preliminary permit. FPC also agreed to contact the BLM's Alaska State Director for a permit that would allow KEA to enter Federal lands prior to the conveyance of lands to the

Alaska Native Corporations. Shortly after the preliminary permit was issued on September 9, 1976, the lead agency status within the Department of the Interior shifted from BLM to FWS (Martin 1982).

Under the FERC permit, KEA began preparations to collect the data it needed to apply for a license. KEA hired engineering consulting firms to study the feasibility of the proposed project, and KEA contacted the FWS and the Alaska Department of Fish and Game (ADF&G) concerning the environmental studies required by the permit. KEA and its engineering consultant, Retherford Associates, proposed that FWS and ADF&G be funded by KEA to do the necessary environmental studies (Nease 1982). This was believed important in developing consensus on environmental data (Azzaro 1983).

The FWS agreed, by letter dated October 28, 1977, to submit a plan of study to KEA by November 18, 1977. As FWS personnel prepared a plan of study, KEA experienced a change in managers. The new manager for KEA was David Nease. FWS did not provide the plan of study to KEA by the November 18 deadline (Anonymous A); but KEA moved rapidly to pursue the available financing for engineering, environmental, and construction feasibility studies. In seeking funds for construction of the project, KEA approached the Alaska Power Authority (APA), the Rural Electric Associations (REA), and the Cooperative Finance Corporation (CFC).

With the completion of the Alaska Oil Pipeline, the State of Alaska began receiving large sums of money in the form of royalties for North slope oil. These funds far exceeded the State's normal operating budget, and the

Legislature began to address new issues. One of these issues was the production of hydroelectric power. The Legislature enacted a program aimed at funding hydroelectric facilities in the State. KEA applied to the State, through the APA, for funding of the studies required by the FPC permit (Anonymous B). KEA was granted the funds to perform the studies by the State in November 1977. The funds were to be repaid to the State only if the project proved not to be feasible. KEA's ability to raise funds for the studies from the State was fortunate since the normal funding source for rural electric cooperatives, the REA, does not lend money for preliminary permit studies (Kemppel 1982).

The fact that the State legislature made funds available for the study and construction of hydroelectric power facilities gives insight into the political interest inside Alaska directed toward natural resources policy: i.e., the Legislature hoped to develop hydroelectric power. Also, Governor Hammond's policies favored these developments, especially if it were feasible to build projects in the manner least damaging to the environment (Skoog 1982).

Fish and Wildlife Service Organization

By a letter of December 12, 1977, ADF&G provided FWS with comments on FWS's draft plan of study for the environmental assessment of the project. The plan of study had not yet been forwarded to KEA. Part of the reason for this is the fact that FWS was experiencing communication problems during this

time among its various regional entities.⁴ While Division of Ecological Services (ES) staff at the FWS Regional Office in Anchorage were informed about the proposed project, and were active in formulating the plan of study, the Refuge staff members on Kodiak Island were not aware of the project (Vivion 1982). As a consequence, when the Refuge staff on Kodiak found out about the proposed access, their early reaction was one of surprise and disapproval. Refuge staff members at the Regional Office in Anchorage were also negative toward the project.

The reluctance of the Refuges staff to accept the Terror Lake project resulted, in part, from the special mission of the Refuges Division. Refuges is, basically, a land management organization. Each refuge is managed for the specific purpose(s) for which it was established. The Executive Order which established Kodiak National Wildlife Refuge states that the purpose for the establishment of the refuge was to preserve the natural feeding and breeding ground of the giant Kodiak brown bear and other wildlife. The statutes which govern the management of wildlife refuges contain language on the activities which are permissible on wildlife refuges. These statutes (16 USC 668 et. seq.) state in part, that:

⁴During much of this time the Alaska headquarters of the FWS was officially an Area Office reporting to the Regional Director, Region 1, in Portland, Oregon; but because it operated semi-autonomously, and is now a Regional Office, it is referred to as a Regional Office throughout this paper.

(d) The Secretary is authorized, under such regulations as he may prescribe, to---

(1) permit the use of any area within the System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access whenever he determines that such uses are compatible with the major purposes for which such areas were established: Provided, That not to exceed 40 per centum at any one time of any area that has been, or hereafter may be acquired, reserved, or set apart as an inviolate sanctuary for migratory birds, under any law, proclamation, Executive Order, or public land order may be administered by the Secretary as an area within which the taking of migratory birds may be permitted under such regulations as he may prescribe; and

(2) permit the use of, or grant easements in, over, across, upon, through, or under any areas within the System for purposes such as, but, not necessarily, limited to powerlines, telephone lines, canals, ditches, pipelines, and roads, including the construction, operation, and maintenance thereof, whenever he determines that such uses are compatible with the purposes for which these areas are established.

The question of whether or not the project would be "compatible" with the purposes for which the Refuge was established was a central point in the negotiations over the Terror Lake project. Indeed, there was sentiment in the Refuges Division at the Regional Office that the project was not compatible and thus should not be approved (Morehouse 1982, Vivion 1982, Redfearn 1982). The Refuges' staff also believed that the project should not be considered for a license until Congress acted on the proposed wilderness designation. Finally, Refuge Division personnel were very concerned that the Terror Lake project would set a precedent for similar developments on other Refuges. There were two reasons for the concern over precedent. First, was the fact that Terror Lake would be the first major hydroelectric dam built on an existing wildlife refuge; second, was the fear that the "Energy Crisis mentality" would lead to more projects being built on refuges (Morehouse 1982).

A major problem with initial FWS involvement in the Terror Lake Project was internal confusion as to which division had the lead role in assessing the project (Morehouse 1982). Lands administered by Refuges Division would be directly impacted by the project and the Regional Office, through Division of Refuges, had responsibility under statutes and regulations to manage for protection of the refuge. At the same time, ES had the responsibility to review and assess FERC projects under the authority of the Fish and Wildlife Coordination Act (16 USC 662 et. seq.). At Section 662, the Act states:

(a) Consultations between agencies

Except as hereafter stated in subsection (h) of this section, whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development.

An important point is that the Coordination Act requires agencies to consult with FWS, but it does not require the agencies to adopt FWS's recommendations [Lake Erie Alliance v. Corps of Engineers, 18 E.R.C. 1050 (1983)].

Since the statutes and regulations with which ES is concerned are aimed at project impact analysis and consultation, ES's perspective regarding project analysis is different than Refuges. For the Terror Lake project, Refuges believed that since the National Wildlife Refuge System Administration Act

contains compatibility language, KEA had to receive FWS approval in order to build the project. ES viewed the FWS involvement in the project as a matter of making assessments and recommendations. These deliberations inside FWS created frustration for KEA. Depending on which Division KEA asked for information and assistance it received different, and often conflicting, answers (Kemppel 1982). As time passed, KEA continued to perform the feasibility studies required by the FPC Preliminary Permit, but without the requested advice of the FWS. On November 1, 1978, KEA's consultant, Retherford Associates, requested that the FWS review their Environmental Report and provide comments on project effects, potential enhancement, and mitigation measures (Anonymous B).

During much of this period, the FWS Alaska headquarters was undergoing major changes as it shifted officially from an Area Office supervised from the Portland, Oregon Regional Office to a full-fledged Regional Office. This change meant new leadership in the person of a Regional Director. As 1978 drew to a close the new Regional Office awaited the appointment of its first Regional Director. It was in December 1978, that Refugees made clear through informal conversations with top Regional staff its opinion that the project was incompatible with the purposes for which the Refuge had been established.

THE HISTORY: 1979

Winter

With the creation of the Department of Energy in 1977, the licensing functions of the Federal energy establishment underwent reorganization. The Federal Power Commission was dissolved and in its place--with jurisdiction over licensing hydroelectric projects--was the Federal Energy Regulatory Commission (FERC). This new commission inherited responsibilities under the Federal Power Act, plus new statutes and amendments governing a range of hydro projects. For the Terror Lake project, FERC stands in the shoes of the FPC.

In early 1979, KEA filed for a license with the Federal Energy Regulatory Commission without including comments from FWS as required by FERC regulations (_____). The decision was made for two basic reasons: First, KEA was concerned with inflation. The longer the project was delayed the higher the project cost. If the project was delayed long enough the favorable benefit-cost ratio would be threatened (Nease 1982). Second, KEA decided to apply for a license so that it could determine what information FERC would require (Kemppel 1982). In essence, KEA's application for license was an attempt to keep the process moving in order to save time and money.

FWS reacted to KEA's license application by internally formulating strategy for responding to the proposed project. The strategy was expressed in a memorandum from the Field Supervisor for the Western Alaska Ecological Services (WAES) office in Anchorage to the Regional Director in response to

KEA's request for comments. In the memorandum, dated _____, it was recommended that:

...the following course of action should be taken to best document and support the final Service position on this proposed project.

1. WAES will take the lead in coordinating and formulating responses to be made by the Service in accordance with our Federal Power Act responsibilities.
2. WAES will prepare a letter to the Kodiak Electric Association, with a copy to Robert W. Retherford and Associates, informing them that the Terror Lake Hydroelectric project is in apparent conflict with the purpose for which the Refuge was established. The letter will state that we are studying the apparent conflict to determine its extent and that we will provide them with more specific information as it becomes available.
3. Refuges will study and document the extent of the conflict that the project would have with the purpose for which the Refuge was established.
4. Following completion of the Refuge study and documentation, WAES will prepare a letter to Retherford and Associates to more specifically represent the extent of the conflict between the

proposed project and the function of the Refuge. This letter will not represent a final position of the Service on the project.

5. Following the receipt of a request for our comments upon the license application to the Federal Energy Regulatory Commission, or any associated EIS, the Service will respond based upon Refuges previous findings (Bowker 1982).

The FWS did send KEA a letter, on February 16, 1979, detailing its plans to explain the incompatibility between the project and the Refuge. The letter further states that KEA should do a "comprehensive analysis" of alternative methods of meeting Kodiak's electrical needs including conservation measures, alternative energy sources, and hydroelectric sites not on refuge lands (Sowl 1979).

The position of Regional Director was filled during this time by Keith M. Schreiner. Schreiner decided to follow the strategy recommended by WAES, and, on March 21, appointed a six member team to assess the compatibility and impacts of the project. Schreiner's initial reaction to the project may be characterized as unfavorable due to the possibility that the project would set a precedent for development on other refuges (Schreiner 1982).

At about the same time, KEA retained the services of Art Kennedy as a political lobbyist and consultant on Government agency behavior. Kennedy's advice was not to fight the Government but rather to ascertain ways to work

with the Government to get needed tasks accomplished (Kennedy 1982). Schreiner and Kennedy had been acquainted before their respective moves to Alaska. In personal contacts and knowledge of operating procedures, therefore, Kennedy helped KEA by effectively analyzing political aspects of the project and the involved agencies. As FWS undertook its compatibility studies, Kennedy assessed potential FWS positions on the project, and he determined what he believed were the best options then available to KEA.

A Summary of Early 1979

By April 1979 most of the individuals who would play key roles in this conflict resolution process were on the scene in Alaska. These included Keith Schreiner (FWS Regional Director), Dave Nease (General Manager of KEA), Roger Kemppel (KEA, General Council), and Art Kennedy (consultant to KEA). These people, along with the later arrival of Keith Bayha as Assistant Regional Director for Environment of FWS, FWS field office staff, Anchorage Solicitor's Office (DOI), ADF&G, and FERC personnel, were responsible for the successful conclusion of the negotiations.

Schreiner decided to follow the very conservative course suggested by WAES because he did not believe that the project would be built. Simply put, the precedent of building a hydro project on a refuge was too great a step. While the FWS took this conservative approach, Dave Nease built a base of political power. In this more political process, Kennedy had connections and a perspective from his earlier work on Congressman Donald Young's staff. As a result, for each change in the project, Kennedy was well placed to understand

both FWS behavior and the reaction of agencies and interest groups based in Washington, DC. Kennedy's contacts gave KEA the means to bring issues both to the Congressional delegation and to the State Legislature, which KEA did almost immediately. Consequently, even at the outset of this licensing negotiation there was a nexus of four facts: hydropower development was an important issue in Alaska; the Legislature was ready to spend "oil surplus" funds; Congressman Young was a proponent; and the FWS was ready to stand fast against setting a bad precedent. Hydropower's attraction for Alaska was that it allowed the State to export exhaustable fossil fuels while developing clean, renewable, and efficient industries and power sources at home. For FWS, the Refuge was seen as a dwindling, delicate resource in need of protection.

Spring/Summer

Because KEA was aware of the favorable disposition of the Legislature and Alaska Congressional delegation, they decided to push for approval of the Terror Lake project even though they had received the incompatibility statement from FWS. At this point, it was Kennedy's advice to proceed with the FERC license instead of seeking Fish and Wildlife Service approval for construction on the refuge. One reason for this emphasis was confusion in KEA about the position of FWS. Much of this confusion was well founded, because--at least until Schreiner was appointed--both ES and Refuges were separately working out their respective roles. Refuges had carried most of the responsibility to this point, but Schreiner decided to emphasize the role of ES (Schreiner 1982). This raised some turf battles to the surface within the Fish and Wildlife Service and caused some bruised feelings in Refuges (Schreiner 1982).

But the "advocate system" of management was believed to work well to bring issues to the decision-maker, and to clarify competing facts (Schreiner 1982).⁵ In addition, the Terror Lake project was seen as the first of many similar battles that FWS would face. Consequently, Schreiner used the struggles within his staff to establish the procedures for future projects. After FWS Regional Office personnel worked through this decision-making process, ES was given the lead within FWS. But in the meantime, there were many confusing signals to KEA. In short, the need to build standard operating procedures within the FWS Regional Office accounts for some early miscommunication.

Instream Uses Addressed

As these decisions were taken at FWS, KEA had approached FERC with informal results of the preliminary studies. For the first time, KEA had addressed instream flow considerations. Their recommendations were based on the Tenant method.⁶ The FERC staff was skeptical of the recommendations and

⁵An advocate system of management usually refers to a management style which relies on competition among subordinates to raise salient issues and options to the decision-maker.

⁶The Tenant Method is a "rule of thumb" technique based on a percentage of average monthly flows. The method, developed by Donald Tenant of FWS in Montana, is sometimes referred to as the Montana Method. Recommendations from the Tenant Method usually are expressed in two figures--for high and low flow times of the year. The reliability of these recommendations depends upon consistency between the study streams and those where the method was developed; an adequate period of flow records; and on the expert opinion of the analyst. The analysts' recommendations must be based on an intimate knowledge of both the study stream and the original Montana streams for which the percentage generalization was made. Given these prerequisites, the recommendations can be calculated in the office based on historical flow records. Because the Tenant Method relies on the rule of thumb approach, it is impossible to predict--based on this technique--the impact on habitat or population of any incremental change in flows. For a discussion, see Stalnaker and Arnette (1976).

asked KEA for further work based on additional instream flow considerations (Robinson 1982). Because not all the terrestrial impact issues had surfaced, the instream flow questions looked like the major stumbling block to this project. According to Mark Robinson (1982)⁷, FERC staff believed this was significant because it was the first license for a hydroelectric project that was held up for consideration of instream uses of water. The instream use issues revolved around anadromous fish passage and minimum flow needs for salmon spawning and egg incubation. That is, the question was the scheduling (timing) and volume of water to be released from the project into the Terror and Kizhuyak Rivers.

FERC's dilemma

FERC staff was caught in the middle. There was strong interest in resolving the conflict from the Carter administration due to the energy crisis, the push toward nonfossil fuels and the need to cut red tape. The staff's main interest and operating goal was to keep the project moving; if at all possible FERC staff hoped to avoid hearings (Robinson 1982). In fact, the staff at the Commission expected major difficulties from the project. They wanted to demonstrate progress on the project, but at the same time ensure adequate consideration of public interest values in the environment.

⁷J. Mark Robinson is an aquatic ecologist at FERC.

The compatibility issue

At this stage, the parties faced two hurdles, either of which might have proven sufficient to stop the project. First, the instream flow question had to be addressed; and, second, the land use question--expressed in the compatibility issue--had to be resolved. While FERC staff wrestled with the instream flow studies, KEA moved to overcome what they believed was the inevitable ruling that the project was incompatible with the refuge. KEA's point was simple: how do you know its incompatible if you haven't done the studies? The informal answer from the Regional Refuge staff was that FWS would do a compatibility study and KEA would not have to go onto the Refuge (Morehouse 1982). The Regional Office of FWS issued an incompatibility finding on June 1, 1979. This ruling was accompanied by a long report which detailed the reasons why the project was incompatible with the refuge (Sowl 1979).

Through Kennedy and his connections, KEA appealed to the Director of the Fish and Wildlife Service, Lynn Greenwalt. Director Greenwalt wired Schreiner to issue the special use permit so KEA could do the studies. Concurrently, KEA needed a permit from the State of Alaska to cross State lands in order to get to the Federal lands. At first, the State responded negatively, but the State legislative delegation from Kodiak supported KEA and as the FWS position softened the State agreed (Nease 1982). Director Greenwalt took no action on the ruling of incompatibility (Morehouse 1982). Instead, he stated that KEA should be allowed to do their studies in order to make a case on the appeal of the incompatibility ruling (Schreiner 1982 and Morehouse 1982).

FERC staff as mediator

While FWS was compiling the compatibility report, KEA received a request, dated April 16, 1979, from FERC staff for supplemental information. In this context the staff was exercising both its required investigating and public interest functions, as well as performing a mediator role. In this dual capacity, FERC requested several kinds of information: 1) population estimates of wildlife species based on census, project area, and area affected by project; 2) estimates of quantity and quality of wildlife habitat to be lost and degree of species dependency; 3) information on the capability of the adjacent habitat to accommodate displaced existing wildlife both with and without implementation of the habitat improvement measures; 4) any pertinent information on shock hazards to birds and preventive measures; and 5) discuss impacts on the Mt. Glotoff natural area.

FERC staff also requested supplementary fishery information: 1) cost and benefits of fishery mitigation including a hatchery; 2) who would build such a hatchery; 3) detailed description of the existing fishery; and 4) the effects of flow diversions. KEA refiled their application on May 21, 1979, and included some of the information that was requested. In consultation with FERC staff, it was agreed that KEA's new contractor, the Arctic Environment Information and Data Center (AEIDC) would prepare a complete report by September 30, 1979.⁸

⁸KEA had made an earlier request that FWS conduct the studies. On the advice of the Office of the Solicitor, the Regional Director declined. FWS Regional staff recommended KEA hire experts to conduct studies including the Instream Flow Incremental Methodology (IFIM) and Habitat Evaluation Procedures (HEP). When AEIDC was hired to do the studies, their experts chose to employ an IFIM analysis but not HEP (Bayha 1983).

FERC staff was trying to get agencies to actively cooperate in reviewing the project; trying to both keep the project moving and to get necessary information from KEA and their consultants (principally AEIDC) (Crouse 1982). On July 10, 1979, the Department of the Interior formally filed as an intervenor in the project. All this led up to two important meetings in August on Kodiak Island. The dates were Tuesday, August 14, and Friday, August 17. The first meeting was more public. At this first meeting the Fish and Wildlife Service representatives maintained the position that there would be no project (FERC 1979). That is, since FWS had judged the project to be incompatible, the Service was cooperating with the KEA by letting them onto the Refuge for the purpose of their appeal. At that first meeting, Robinson suggested use of the Instream Flow Incremental Methodology⁹ to analyze the impact of diversions. In the discussions which followed (FERC 1979), Nease of KEA and Wilson of AEIDC agreed to do instream flow studies using the Incremental Methodology. It was understood at that time that the new instream flow studies would hold up completion of the field studies for one more year, in essence putting off the license application (FERC 1979). Even after these meetings the Fish and Wildlife Service Regional Office staff opposed the project and believed it would be judged by the Director to be incompatible with the Refuge (Morehouse 1982).

⁹This method was developed by the FWS's Cooperative Instream Flow Service Group based on the earlier work done by a number of researchers. It involves the use of computer technology to simulate the effects on habitat of unmeasured flows. Based on the measurement of at least three actual flow levels the method allows prediction of habitat values for other unmeasured flows. This technique is an aid to negotiation because the analyst can explain the impact of altered flows on fish habitat (See Bovee, 1982).

Fall 1979

This controversy caught the FERC staff in the middle. FERC staff established a goal to get all sides together and put enough pressure on everybody so that the adequate studies would be done (Azzaro 1982). The idea was to force all sides to talk to each other and to keep some degree of progress. This meant there were two different kinds of pressures for resolution of the conflicts: First, KEA used political pressure to keep things moving; and second, FERC staff used the uncertain outcome of the hearings to get appropriate studies conducted and the parties communicating. Richard Azzaro¹⁰ reports FERC staff felt that the project was close to requiring a full-scale administrative hearing. If this had happened FWS stood to loose a great deal, perhaps not receiving any mitigation, while KEA could loose time and money with construction delayed 2 to 3 years. In a period of rapidly increasing cost due to inflation, the passage of time would probably have increased the cost of the project beyond reason if KEA insisted on a hearing (Azzaro 1982). Thus, it was crucial to emphasize the possibility that either side could lose in litigation; to stress the uncertainty of a long, expensive, legal battle (Azzaro 1983). Apparently FERC staff made these uncertainties clear to all parties and "jawboned" to hold the negotiations together. Especially useful in this regard was the experience on the "Storm King" project where the proceedings dragged on for 19 years (Azzaro 1983). As in other cases, the threat of litigation-type proceedings is often sufficient to force a negotiation (White et al. 1980). Azzaro and others were actively explaining the

¹⁰Richard Azzaro is Staff Counsel at FERC.

possibilities, so that by moving toward consensus and compromise, all parties were served. FERC staff demonstrated that negotiations could work, KEA saw progress and avoided uncertainty, and FWS maintained leverage without unacceptable losses.

As noted above, one of the major sticking-points at early meetings was the conflict between the Interior (represented by FWS) and FERC staff over who had the right to issue permits. Both sides had statutory grounds for claiming the lead role. Interior believed that it would have the final say because of the Refuge, while FERC staff argued that its authority took precedence. KEA was frustrated by this interagency squabble because they saw themselves trying to be reasonable, to get everything together. The tension at these meetings was increased, however, because KEA sometimes brought local political support. Through the vehicle of their constituency KEA, for the first time, touched on the issue of Port Lyons. The issue of the rights and treatment of this village became very important later on since the Port Lyons community almost forced the project into formal hearings after agreements had been reached.¹¹

The Key to Instream Uses

The key to protection of instream uses was not, initially, the Fish and Wildlife Service's main concern--the Service had an overriding concern for the bears on the Refuge. Rather, FERC staff interest in this question and the

¹¹A Port Lyons community physician brought up the question of the project's impact on the community. Also at issue was the delivery of electrical power to Port Lyons.

increased evidence of potential damage to the fishery kept instream flows a primary concern for all parties. As a consequence of this, FERC and FWS worked to reconcile the methodological differences.

KEA understood FERC staff concern and agreed to do studies on instream flows for fish, as well as habitat studies for bears. It was FERC staff, not the Fish and Wildlife Service, which really pushed to use the IFIM (Robinson 1982). After Mark Robinson discussed with FWS staff the appropriate methodology to use in a hydropower project, he decided that a technology was available which would resolve these questions. Based on this decision, FERC staff and KEA had agreed at the August meeting to conduct an IFIM study. But FERC staff suggested that AEIDC issue their original report for comments on November 1979. This report reiterated the earlier recommendations based on the Tenant Method (See footnote 6).

AEIDC's report also said that there were further needs for studies including: (1) instream flow studies using the IFIM; (2) the river sediment study which was to be done by the consulting engineers, Simons and Li Inc.; and (3) terrestrial habitat studies for bears.

The key to the success of the IFIM in helping solve instream flow questions lies in the fact that after the August meeting all the parties were kept informed about what to expect from the methodology they had agreed to use. Nease had accepted the instream flow approach, but his attorney was very concerned about using the methodology because it was a Fish and Wildlife Service product, and because data would be analyzed through Fish and Wildlife

Service computers (Kemppel 1982).¹². To overcome this, AEIDC staff were diligent in keeping all the parties informed about study design, expected progress, and results. Individuals such as F. W. Trihey of AEIDC, and later Keith Bayha of FWS were vital in explaining the method. This was very important because with this knowledge Nease and others became advocates for the methodology. Keeping all the parties informed was no mean feat. Trouble arose because of the variety of issues which were involved and several different FWS staffers who were responsible for the project (Trihey 1982; Baldrige 1982). All this was conducted in a climate where State agencies and the legislature showed a keen interest in the project.

Terrestrial Habitat Evaluation Procedures

The same political environment which affected the instream flow studies also conditioned the progress of the terrestrial habitat studies. For example, ADF&G was interested, but not actively involved, in the instream flow program (Arminski 1982). ADF&G was more interested in AEIDC's proposed bear studies. AEIDC had hired Dick Hensel, a former manager of the Kodiak National Wildlife Refuge, to conduct these terrestrial investigations. Hensel proposed to do a traditional biological inventory (number of bears, denning sites, and bear movement corridors).

¹²Actually, research and development of the IFIM was a multidisciplinary, interagency effort. The software packages and training on IFIM are available to any interested party.

Among the agencies which commented on the AEIDC report and plans, FWS was the one recommending more extensive multiyear studies. The FWS methodology applicable to this portion of project biological studies was habitat based, the Habitat Evaluation Procedures (HEP).¹³ HEP can be used to document the quality and quantity of available habitat for selected wildlife species. It can also be used to assess the impacts of proposed land use changes and evaluate the values of alternative mitigation measures. FERC paid close attention to Fish and Wildlife's recommendations in most respects, but insisted that the studies could be done in one field season (Crouse 1982). The request for multiyear studies fueled KEA's opinion that they were just being delayed (Nease 1982). Even though KEA lobbied against any additional studies on the basis of delay, FERC staff ruled that KEA had to do the one year studies.

While FERC staff can insist that certain information is necessary for the Commission to make an informal judgement, the Commission cannot force an applicant to use a particular methodology, such as HEP or IFIM. FERC staff can strongly recommend an approach or action that would help give a reasonable study design (Robinson 1982). Through such advocacy, they become more familiar with the facts and analyses needed to make the process work smoothly. FERC staff can then better use the review process to facilitate problem-solving.

KEA finally decided to proceed with new studies to avoid an expensive, time consuming hearing (Nease 1982). At this time, KEA decided to bring environmental groups into the bargaining to reduce the chances of later being

¹³Habitat Evaluation Procedures (HEP) are a technique for quantifying suitable habitat and assessing the value of mitigations measures.

attacked from parties outside the formal negotiations. This proved to be politically astute because delays due to late intervention from environmentalists, or others, were recognized as a threat to increase costs to the extent of making the project economically infeasible (Kennedy 1982; Nease 1982).

A Summary of 1979

A review of 1979 demonstrates that the three dominant perceptions which characterized the beginning of the year carried over to the end. Fearing delay, KEA agreed to studies which seemed to remove most of the technical sticking points. FERC staff was concerned that such an environmentally sensitive case might not receive the best determination in the hearing process; a result based on consensus was believed to be the best alternative (Azzaro 1983). Because of this, FERC staff worked more than statutes require to ensure communications and to mediate the conflict. FWS held to their stance of Refuge nondegradation; they feared both the precedent of building on the Refuge and the political backlash from refusing to compromise. While the FWS did not want to negotiate over this project, compromise was necessary to avoid decisions in which FWS had taken no part.

In addition to political pressure for FWS to negotiate, more subtle reasons involved the pending Alaska D-2 lands bill. FWS apparently feared that if the Service actively came out against Terror Lake, it might lose the lands bill or at least portions of the lands bill to development interests who would be able to argue that Terror Lake was an example of bad results from

locking up land in refuges and parks. Many sources speculated that this was the main reason Director Greenwalt made no decision on project compatibility with the Refuge. This threat of adverse legislation, plus pressure from Alaska Senators and Congressional staff restricted the FWS options. As for all parties, a false step meant either loss of important values or a law suit by environmental groups in which everyone might lose.

The final major event of 1979 was the first formal report on the study by AEIDC. This study was submitted to FERC and then put out for comments to all the various agencies on January 11, 1980. The AEIDC report served as background for a January 22, 1980 meeting in Washington, DC. The meeting was to impress upon the key agencies the need to provide necessary information to FERC's staff to try to resolve the compatibility issue (Crouse 1982). Basically, FERC staff felt that they could not go ahead with the EIS until additional information was gathered during the next field season (Crouse 1982). This was consistent with decisions reached the previous August, and is a good example of FERC staff determination to maintain the integrity of the process (Azzaro 1983).

THE HISTORY: 1980

Because the January meeting was a reiteration of agreements already reached, many parties felt that it had little use other than keeping open communications and reinforcing agreements. KEA did file a new scope of work to gather the information FERC staff had requested, and the January meeting in

Washington led to technical scoping sessions in Anchorage on February 13 and 14, 1980. These sessions were to formally establish the studies which needed to be done and agree on what methods were to be used to conduct the studies (Robinson 1982).

Negotiation Strategies

KEA was anxious that project success might be jeopardized by delays and the results of further studies (Kempel 1980). Perhaps because of this concern over possible delay, KEA asked the State of Alaska to officially intervene into the case, which it did on February 11, 1980 (Nease 1982). KEA's primary emphasis was to bring all groups potentially affected by the project together to cut a deal. KEA wanted to actively involve the Governor, Attorney General's office, ADF&G, Alaska Power Authority (APA), and the Department of Natural Resources (DNR) in order to protect itself on the question of mitigation (Kennedy 1982). Without DNR's involvement, KEA had little to offer in the way of money or access to mitigation lands. By involving DNR, the Association was able to raise the question, "Can we use State lands?" KEA thus attempted to use the Legislature's interest in, and favorable political climate toward, hydro-power to obtain an affirmative response to that question from DNR.

APA was important to this project because of proposed legislation which would have APA take over building projects of this type, instead of just funding them. There was a good deal of uncertainty during this period over which agency might eventually gain control of such projects. This uncertainty was concurrent with interagency discussions about the conduct of the studies and political pressure from Washington.

It was decided in February at the technical meetings that FERC would hold up the EIS until January 1981 so that all the instream flow studies could be done (Robinson 1982). FERC staff believed that the terrestrial studies could be satisfactorily completed during this time. However, FWS staff were greatly concerned over potential terrestrial effects.

As the technical details were determined, KEA attempted to dissect the negotiations in order to achieve an accurate understanding and to predict future events. KEA focused on determining the primary drive behind each interest and group. In his analysis, Kennedy asked the questions: Why are the agencies doing this? What are their problems? The result of this review allowed KEA to isolate and understand each piece of the problem and deal with the appropriate individuals rather than try to solve the whole problem at once (Kennedy 1982). This prevented an interest group from becoming involved in issues in which it should not be involved.

KEA was also learning to use the deadline technique (Kennedy 1982; Kemppel 1982; Nease 1982). To keep things moving, they tried to ask for work products and agency reviews by specific dates. As the KEA staff began to manage the time frames of the process they also included more groups. Correspondence from KEA in 1980 shows them making a special effort to talk to the environmentalists in Alaska, wanting them to be a part of the agreement. KEA seemed to realize that avoiding litigation meant private interests had to be satisfied as well as public agencies (Azzaro 1983). As a result, the environmentalists in Alaska were much less adamant in their opposition to the project than were the environmentalists in Washington, DC. That difference in advocacy became a problem for environmental groups.

Political Balance

By late 1980, project negotiations had become serious. The key turning point, according to Nease (1982), was the election of Ronald Reagan and subsequent increases in political pressures on the FWS. The issues of passage of the D-2 lands bill in December 1980, an increasing interest in the giant Susitna River hydro development project were also subtly involved. For the first time, FWS personnel believed they might lose. KEA came to the same conclusion: KEA might win outright (Kemppel 1982). A delegation from KEA went to Washington to talk to the new Assistant Secretary of Interior, who forwarded them to Bill Horn, Deputy Under Secretary of the Interior. Horn made the point that while the President and Secretary Watt were generally in favor of the project, they needed to have an Alaskan solution. An Alaska solution was also promoted by the high quality data, professional integrity of the analysts, and openness of the process (Azzaro 1983). The message was to comply with the laws and to negotiate an agreement (Horn 1982).

Shortly after these events, environmental groups officially applied to intervene in the process. Their March 17, 1981 intervention application was designed to provide strong support for FWS positions (Hesson 1982). FERC also received Congressional inquiries and citizen input asking that the Commission push the project forward. In another development of the new administration, the Deputy Under Secretary, Bill Horn, began communicating directly with the FWS Regional Director in Alaska instead of through channels.

These developments increased the importance of viable negotiations for all parties. KEA could not achieve an outright political victory and FWS could not afford to be reticent, although the environmentalists' petition was an impressive point in the FWS favor. Each party seemed to sense that a political balance had been struck and the main objective at FERC was to keep the parties talking (Azzaro 1982). In this goal, FERC was joined by Kennedy of KEA who worked to perform the same role. Kennedy and Azzaro performed uncoordinated but symmetrical functions.

Terrestrial Impact Analyses

With interests of all involved groups coalescing came completion of data collection and analysis studies upon which settlement negotiations could be based. In November 1980, AEIDC published results of Hensel's additional bear studies. The AEIDC study identified primary and secondary impact zones of 45,630 and 125,310 acres, respectively. The primary impact zone was based on the ability of bears to see project features and activities within their normal home ranges and seasonal movements (Hensel 1982). The secondary impact zone was based on disturbances and habitat losses causing displacement of bears from the primary impact zone and resultant overutilization of habitats and intraspecie strife. The AEIDC study was more concerned with numbers of bears and what the bears were doing, than with quantification of habitat or habitat suitability (Hensel 1982).

In early February of 1981 the FWS formally outlined to KEA appropriate mitigation measures they planned to recommend to FERC based on the completed AEIDC terrestrial studies. These measures included placing an additional

50,000 acres under FWS refuge administration to offset unavoidable adverse impacts from the project. Since AEIDC's observational approach proved difficult to use in quantifying impacts and assessing alternatives, FWS's 50,000 acre recommendation was based on the size of the primary impact zone identified by AEIDC. In response, KEA agreed to discuss mitigation lands, but in the range of 14,000 acres, the size of the area to be permanently impacted by inundation, roads, the transmission corridor, and other project facilities.

Application of HEP

Within ES, FWS realized the need to biologically justify recommendations for land acquisition. The 14,000 acres proposed by KEA equaled the primary impact area within refuge boundaries only and was thus believed to be insufficient to satisfy FWS responsibilities under the Fish and Wildlife Conservation Act (FWCA). Moreover, as KEA pointed out, no consideration had been given to the weighted value of possible replacement habitat.

FWS personnel recognized that AEIDC's traditional inventory analysis did not provide the necessary information for negotiation. Given the high probability that the FWS would be required to defend mitigation recommendations at an FERC hearing, a strong biological position attained by systematically quantifying required mitigation lands through the use of an established technique would be needed. While HEP had earlier been rejected by AEIDC and KEA, the FWS Regional office directed WAES to conduct an abbreviated HEP using the AEIDC studies and HSI values established by the DELPHI technique. In this way it was possible to quantify habitat values, project impacts, and thus, mitigation needs (Bayha 1982; Bowker 1982; Schreiner 1982).

By this time, the FWS was also looking forward to the immense Susitna Project. Perfecting methods such as IFIM and HEP on Terror Lake would be an invaluable experience and record for the future. A particular concern was the type of land mitigation conditions which would be necessary. A part of this concern was a faction within Refuges preference for a one to one trade of land with suitable habitat, a view shared by many within ADF&G (Stackhouse 1982). However, maintaining comparative habitat values was the major concern within ES. Although KEA had suggested negotiating for replacement lands after licensing and during project construction, FWS insisted that construction could not begin without a final agreement on mitigation lands.

Although HEP had been discussed as a potential analysis tool as early as April 1, 1980, there was now only a limited amount of time to complete the studies. Given the limited time and unique situation wherein there were several individuals with an in-depth knowledge of the specific study area and bear use, FWS felt that an abbreviated version of the standard HEP methodology should be employed to biologically justify mitigation recommendations. Application of the technique was intended to openly involve the concerned parties in the interest of achieving a mutually acceptable mitigation proposal and thus promote an Alaska solution rather than an FERC ruling.

The FWS' abbreviated HEP analysis would depend on Habitat Suitability Index (HSI) values derived from use of the Delphi process (Rappoport 1982). This decisionmaking process depends on reaching a consensus among experts on a given subject. The Terror Lake HEP analysis involved a group of five individuals who collectively had over 50 years of experience with Kodiak brown bears and/or the FWS Regue system. Only one member of the Delphi group was in the

FWS at the time, one was from the ADF&G, two were with AEIDC, and one was then with the National Park Service. These five "bear experts" quantified bear habitat together by assigning a suitability index value between 0.0 and 1.0 to designated impact zones and time periods within which project impacts were expected to be homogenous. Impact zones identified in the AEIDC report were the basis for the evaluation because they were the best information available (Bowker 1982; Rappoport 1982). The group also used this procedure to assign suitability index values to seven candidate mitigation tracts.

A later criticism of the HEP analysis was that it was incorrectly based on AEIDC's biological study areas, not distinct habitat zones which could be expected to be delineated in a more detailed application of HEP. While FWS personnel made extensive efforts to explain the HEP process to all concerned interest groups, many individuals outside of the FWS either did not understand the principles behind the approach or viewed the process as merely subjective. While they initially agreed with the procedures and principles behind the HEP analysis, some groups later disagreed with the conclusions yet never specified reasons for their disagreement (Rappoport 1982). In the process of assigning suitability values to distinct areas of bear habitat, group members were able to reach a consensus and indicated that the Delphi sessions went well (Rappoport 1982; Stackhouse 1982). Some members of the Delphi group, however, felt they had been subject to strain and pressure; they felt that it was a very subjective type of knowledge (Hensel 1982).

By this time, the FWS's Mitigation Policy had been published (46 FR 15:7644-7663, 1981). The Policy, which became the basis for the project mitigation goal set by WAES, was clear: no net loss of in-kind habitat value.

Designation criteria placed the Terror Lake project in Resource Category 2, "Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section."

Sticking Points

By this time political pressure was mounting to get the deal. All the parties began to work for the most reasonable deal possible. Keith Bayha¹⁴ had been on the scene for several months actively participating in the HEP negotiations. He was gaining a good reputation for being sincere and straight forward. Even individuals who disagree with the outcome of the agreement believe that Bayha's integrity is beyond question (Yould 1982). As a result of the political balance and the trust relationships which had begun to develop--based on personalities like Nease and Bayha--progress was made toward a reasonable deal. There were still a few "sticking points", however, which arose in discussions of the methodologies.

Bargaining with the Result of H.E.P.

Only FWS wanted to use the HEP analysis. Conflict developed between Hensel's proposed land trade (15,000 acres) and the HEP results which showed a

¹⁴Associate Regional Director, Environment, Alaska Regional Office, FWS.

need for 69,000 acres in the same area (Rappaport 1982)¹⁵. As mentioned earlier, there has been a problem on Kodiak for many years involving conflict between cattle ranchers and the bears. Generally, bears do not pay much attention to fences, and ranchers have a tendency to shoot the wandering bears once they cross into cattle grazing lands. The Shearwater Peninsula, which was suggested by Hensel for mitigation, was one of the areas that looked like it might be developed for cattle ranching. The ADF&G, in particular, desired to avoid this due to the inevitable loss of a number of bears. The argument over the lands shifted among several alternative mitigation measures, including Hensel's 15,000 acres. Caught in the middle was the Alaska Department of Natural Resources, which had tentatively submitted the lands under ANSCA and would be the land manager. The problem was further confused because of land disposal plans for the area and involvement of existing Borough and native corporation lands.

In effect, it was KEA that facilitated the negotiations between the environmentalists, FWS, and ADF&G, on the one hand, and DNR on the other. KEA was prepared to mitigate losses with state lands on which DNR wanted to have development options open. ADF&G wanted to reduce or eliminate grazing on the Shearwater Peninsula. FWS wanted full compensation for Refuge losses before judging the project to be compatible (Bayha 1983). KEA bargained to keep these agencies talking, trying to reach a solution to the mitigation lands issue which would allow the project to proceed (Kemppel 1982; Nease 1982).

¹⁵Analyzing the variation in habitat values and mitigation potentials of seven alternative mitigation lands originally considered, as few as 31,000 and many as 314,000 acres were believed necessary to fully compensate for project losses (Rappaport 1983).

Bargaining with the Results of I.F.I.M

In comparison, the instream flow question now seemed very simple. The state-of-the-art methodology for the studies had been agreed to early, and IFIM had been carefully conducted. Aside from the allegations that costs for IFIM were higher than required, the studies were well managed. All interested persons were kept informed, and, in general, the IFIM technology was well understood. Moreover, the methodology is specifically designed to aid negotiations so that results are in a format conducive to bargaining.

The issue with the instream flow studies was the exact flow regime requested. Even though the parties argued over the value of various flows, the bargaining was relatively easy because all the parties had a good idea of what the changes in the flows meant. Because there were no questions as to the methodology itself. By discussing the value of incremental changes in flow an early agreement was reached on the projects operating regime (See Table 2).

Land

With the methodology issues surrounding IFIM settled, the lands issue and the HEP analysis became the major points of contention. The environmental groups wanted as much land as possible, and as a result they sought to make the strongest possible case. This was intended to bolster FWS as well as assure a favorable agreement. These tactics, however, occasionally were over extended (Schreiner 1982). One way to keep a coordinated approach was for FWS

Insert Table 2 here

to occasionally pull back in the meetings to show that the environmentalists had gone too far (Schreiner 1982). For their part, the environmental groups felt that the only reason that FWS had any backbone, given the new administration, was because those groups took a firm stand on the project (Hesson 1982, Cline 1982). One problem experienced by all parties in dealing with the environmental groups was that there did not seem to be an identifiable leader; while at times the environmental groups seemed to have neither a single spokesman nor a consistent view. This confused their positions (Nease 1982, Kennedy 1982). In the end, however, the environmental groups did bend the negotiations somewhat towards their viewpoints. For example, the bear trust fund and alternative studies were two things that probably would not have been in the agreements without the environmentalists (Wineberg 1982).

In the bargaining over land, ADF&G was most concerned about the potential for grazing on mitigation lands. Ultimately, much of the agreement on land use rested on KEA's success in having the Borough government zone the lands on the Shearwater Peninsula for nongrazing (Nease 1982). This satisfied ADF&G that the compromise would help mitigate the impacts of the project (Arminski 1982; Skoog 1982). Because of this, ADF&G helped to mediate the issue. At this juncture, much of the mediation was accomplished by Bayha (FWS) and Sterling Eide (ADF&G) who extrapolated Habitat Suitability for different alternatives based on the results of the Delphi group (Bayha 1983).

In taking this middle ground, ADF&G wanted to see as much land as possible protected from grazing without stirring up a political fuss. DNR had a much different viewpoint. As the agency which controlled the land that would be

used for mitigation, their goal was to minimize the amount of land that would be tied up in an inflexible administrative structure (Haynes 1982). There are a number of reasons for DNR's interest in Shearwater. First, the area is only truly suitable for wildlife, and one of DNR's spokesman had stated that DNR probably would have automatically classified it as wildlife habitat anyway. Second, the Borough had already made some land selections on the Shearwater. DNR wanted to protect the Borough. Third, the State was disposing of land in the area and wished to continue with this land disposal program. Fourth, minerals are a big political issue in Alaska and DNR wanted to be able to develop significant deposits of minerals on the peninsula if such deposits were discovered (Haynes 1982). Finally, agriculture was an important issue. On Kodiak this means cattle ranches. On the positive side, however, there were no existing grazing permits on the Shearwater at the time. Ultimately, the Borough agreed to restrict grazing on the lands in order to give KEA a bargaining chip.

A key point for all the agencies was to hold the negotiations in the State and work out a deal that was an "Alaskan solution." They strongly believed that if the negotiations were removed to Washington they would lose control (Bayha 1982, Haynes 1982). This consideration was also a motivation for FERC staff. In this respect, time was the biggest issue to both KEA and the FERC staff. The longer it took for an agreement the greater the danger the agencies would lose control.

THE AGREEMENT: 1981

Finally, the lands question was resolved, in part, by accepting a counter proposal from KEA for 28,000 acres at Kaluta Bay which is contiguous to the Refuge. The State agreed to manage the land under the same guidelines as the wildlife refuge. Also, agreed upon was that at least 50% of the lands on the Shearwater Peninsula was to be regarded as natural wildlife habitat and so classified by the State. In the lands agreement, DNR did succeed in retaining their lands disposal program on the Shearwater Peninsula. This disposal was to be for 200 five-acre parcels for recreational purposes. Once these parcels had been disposed of, there would be no further lands disposals on the Peninsula.

This agreement was reached after Bayha diplomatically worked out specific points with each of the parties. When asked to interpret offers he often employed the HEP formulas to help explain the results (Bayha 1982). HEP became an important tool for evaluating each mitigation proposal. In this way, the negotiations over land use were eventually successful as the parties struggled to reach agreement in formal meetings.

The agreement which was finally reached on June 16, 1981 represents the fruits of these negotiations. The agreement was accepted by FERC without the need for formal hearings. It covered the construction and operation of the project, instream flow issues, land mitigation, monitoring and follow-up studies and fisheries mitigation (Agreement of June 16, 1981). FERC issued the license on October 5, 1981 (see Appendix A).

A SUMMARY OF STRATEGIES

FERC

FERC was motivated in these negotiations by two considerations. First, the Commission staff was responding to the need to achieve a smooth process with an outcome which was supportive of energy development. Second, the Commission itself was cognizant of its charge to act as arbitrator of the public interest in these meetings. From this dual perspective the negotiations had to be fair, minimize rancour, mitigate and protect against environmental damage, and result in some kind of project. From experience, the FERC staff working on this project knew that issues might have resulted in a difficult litigation. Further, the FERC staff believed a more equitable solution could be had through negotiations than through litigation (Azzaro 1983).

To achieve these purposes, the FERC staff followed two strategies. On the one hand, they took advantage of every opportunity to keep the parties talking. For this reason, and because of the rules which governed the process, they had to head off any parties which tried to circumvent the negotiations; political and ideological end runs were discouraged. On the other hand, the Commission saw to it that both procedural and substantive issues were dealt with properly. For this reason Commission staff insisted on the fullest

possible studies in the environmental assessment process and encouraged the parties to agree to robust technical assessments that produced information suitable for decisionmaking. This served to assure that competent data analysis helped build consensus. At the same time it helped resolve specific technical issues which would have made any litigation easier.

KEA

The Association was motivated, of course, by the need for the project and the fact that, as time elapsed, cost could escalate to make the project infeasible. KEA pursued three major strategies in the negotiations. First, the Association employed a specialist in institutional affairs who used contacts to maintain political pressure in favor of the project. KEA took every opportunity to make end runs around what they believed were unreasonable road-blocks. The contribution of this strategy, however, was not to bring a quick victory. Rather, the benefit of the end runs came because each involved a combination of credible tactics. For example, political pressures to get past some hurdles resulted in the effective use of deadlines and coalition building among State agencies.

Second, KEA pursued discussion instead of open confrontation. which was made easier by FERC staff's urging. Within this approach, KEA was able to analyze problems, and determine where separate or interconnected discussion could be fruitful. The KEA leadership used their political skills to assess the motives and strategy of others. From this knowledge, they promoted the use of "back channels" to build trust relationships. This was particularly important in working with the FWS.

Third, KEA pursued the project and its negotiations with dogged determination. KEA, through Nease, Nease's staff, Kemppel, and Kennedy, were relentless in pursuing an agreement without resorting to the FERC hearings process. Without this dedication the project could have been tied up in litigation for years.

FWS

The original motivation of the FWS arose from two sources. The first of these was law and precedent. Refuges are sacrosanct, with statute and policy giving FWS strong management control over activities on any refuge. The Service believed it had the last word on this project, and the precedent of building the project could have long term effects. The second motivation was ideological. From this perspective it is simply wrong to disturb wilderness habitat.

As far as strategies are concerned, FWS in Alaska was placed in a position where it had to compromise on these original motivations. FWS personnel were forced to balance their desire to reject the project outright with the practical need for effective analysis of the project.

The FWS turned to the strategy of insuring that as much data as possible would be collected on the effects of the project. FWS understood the need for the project, and after it became apparent that the project would probably be built, FWS once again pushed for habitat based (state-of-the-art) assessment methods which would clearly document habitat losses which could be expected from the project. This effort was successful in the case of the IFIM largely

due to FERC's early suggestion that the method be used and the early agreement to use it. The use of HEP was strongly advocated much later in the process. Because of this, HEP was viewed as being dictated by FWS after AEIDC had already conducted an extensive analysis of the effect on bears.

The FWS's strategy in employing state-of-the-art habitat methods involved two concerns. One, the FWS had the need to mitigate the effects of the project so that it could be considered compatible with Refuge purposes. The FWS believed that with habitat based methods it could quantitatively and accurately assess the affects of the project and suggest mitigation for those affects with adequate acreage. Two, the FWS wanted to set the precedent for using habitat based models for assessing the impacts of hydroelectric projects in Alaska. FWS understood that only with such techniques was it possible to quantify changes in habitat due to various project alternatives. These methods--when used properly--provide more information and strengthen FWS bargaining skills.

Environmental Groups

The motivation which seems to best characterize the environmental groups is, of course, the need to preserve pristine areas. This was manifested in terms of supporting and encouraging the FWS. The environmental groups felt that FWS would "fold" on some important issues. They worked informally to keep FWS aware of environmental groups expectations. Formally, they insisted on a high level of protection for the environment.

Because of this, the groups generally took stronger positions than FWS in working toward mitigation plans. This effort was muted somewhat by the groups' relatively late start in the process and by their seeming inability to speak with one voice. Even so, KEA worked hard to include the groups in the discussions, and meet the universal desire to achieve an "Alaska solution."

While the strident tone of the environmental groups may have been frustrating to many parties, the tactic did allow the groups to act as a foil for FWS. The Service was in a position to take advantage of any gains but at the same time not be responsible for more extreme trial balloons. Moreover, the groups served a monitoring function. By looking in on the process from outside the agencies, the groups were able to call into question potential agreements which might have resulted in litigation, further conflict, or inadequate protection.

Alaska State Agencies

Department of Fish and Game

ADF&G was primarily concerned with the fishery resources and Kodiak brown bears. The Department supported the project while vigorously pressing for mitigation measures. In this sense, ADF&G was a buffer between FWS and DNR. ADF&G believed that, as a State agency, they could lobby DNR for concessions more successfully than the FWS. ADF&G actively supported FWS efforts at instream flow mitigation and was pleased at the lands settlement. In particular, ADF&G was pleased in the zoning of the Shearwater Peninsula for

wildlife and no cattle grazing. As noted above, it is the interaction of agencies, such as ADF&G, DNR, and FWS, with one another which makes the negotiation process work.

Department of Natural Resources

The motivation for DNR came from two sources. First, DNR believed Kodiak needed the project and desired to comply with the legislature's initiative to promote hydro-power. Second, DNR resisted limitations on management options over the lands that it administered.

DNR employed strategies supporting KEA's efforts to have Terror Lake approved while limiting the amount of DNR administered State lands that would be used for mitigation. DNR also wished to limit the number and effect of restrictions on the mitigation lands. Further, DNR refused to drop its land disposal program on the Shearwater Peninsula. DNR seems to have been working toward precedent for future negotiations.

Alaska Power Authority

The role of APA can be characterized as "interested observer". APA was evolving from a funding agency to a construction and management agency. The legislature was in the process of passing the statutes necessary to complete this transformation. APA anticipated responsibility for constructing projects similar to Terror Lake.

APA's motivation in the negotiations was to limit the amount of concessions that KEA had to make, while providing support for the project. At the base of APA's strategy was establishing the precedent of limiting the number of concessions and amount of mitigation necessary to have projects approved in Alaska. Despite this interest, APA was not actively involved. The fact that APA observed this process is important because APA now administers the Terror Lake Project.

RECOMMENDATIONS

Technology Guidelines

The relative level of controversy which surrounded the use of the HEP and IFIM technologies points out two crucial facts in these negotiations. First, it is essential that, in choosing technologies decision-makers are kept informed regarding the study plan, costs, and the form which the recommendations will take. It is important for decision-makers to understand the assumptions underlying these methodologies, the reasons for choosing a particular technique, and the way the results are planned to be used.

In the Terror Lake case the basic outlines of the IFIM technology were agreed to early and understood by all parties, while the HEP technology came later in the negotiations thus limiting such mutual understanding. As a result, negotiations over the recommendations arising from the IFIM were fairly straight forward while the negotiations involving HEP were more rancorous and raised issues which would have been better addressed in early bargaining.

Second, the technology chosen should be appropriate to the problem at hand. KEA, for example, first proposed using the Tenant Method for resolving instream flow questions. Suggesting this technique was a good opening gambit, but the method is not suited to this type of decision. The suggestion of the IFIM by the FERC staff was a fortunate development because this method gave all the parties the opportunity to weigh trade-offs. Because FERC licensing processes are marked by bargaining it is vital for all parties to be able to assess the impacts of incremental changes in project operations. The Tenant Method is a useful tool where no negotiation is involved, but other tools which provide an assessment of alternatives are more useful in negotiated decisions.

Institutional Analysis¹⁶

Institutional analysis can be divided into two processes: understanding agency perceptions and evaluating policies. Agency perceptions refers to the way agencies view the process of negotiation. Policy evaluation refers to facilitating decisionmaking--choosing a course of action and helping others reach decisions.

¹⁶Institutional analyses is the identification description and evaluation of legal and political actions and opportunities in a way that allows decision-makers to choose from among competing strategies. For the decisionmaker, institutional analysis is the art of making correct choices. For the advisor and analyst it is "policy analyss"--the art of describing and evaluating courses of action.

Agency Perceptions

Understanding agency perceptions is a two-edged sword in bargaining. First, an agency needs to carefully assess its own mandates, positions, and relative influence. It is dangerous not to have an accurate understanding of one's own policies, resources, and skills. It is also dangerous to have a misperception about one's own influence. In the Terror Lake Project the FWS actually placed too much reliance on the sanctity of its Refuge--an overestimation of influence. It must, however, be recognized that the Refuge Division operates under strict mandates to preserve the Refuge. This required a tough negotiating stance on the Terror Lake project until a good mitigation plan was worked out. Of course, a strong opening move--such as the incompatibility report--is important in setting the boundaries of the bargaining; but too much reliance on such a tactic may mislead or cause decision-makers to over-react.

Second, agencies need to assess the position, influence, and resources of other parties in a negotiation in order to predict behavior. KEA was particularly skillful at this in the Terror Lake Project license negotiations. An essential consideration for any FERC license applicant is the development of this skill. Moreover, all the parties in such a complex undertaking need to be able to assess the background and strategies of their adversaries.

Policy Evaluation

KEA hired a consultant who was adept at policy evaluation. For an agency or utility which anticipated proposing or responding to such licenses it seems

evident that either a political consultant or an established in-house capability would be beneficial. The licensing or permitting agency may also benefit from such a capability. In this case FERC staff proved to be adept at this type of institutional problem scoping.

In the Terror Lake case there was an obvious difference in performance between KEA, which had the ability to do institutional analysis (i.e., understand agency perceptions and conduct policy evaluation), and the cooperating agencies. The difference was manifested in a more wholistic view of the problem and a more coordinated response--including the ability to attack distinct issues in a way especially suited to the particular agency being addressed. Even when KEA made errors, their skill at institutional analysis allowed for adjustments, fine tuning and coordination of strategy.

There are a number of techniques available to agencies to help them perform these institutional analyses. In addition, many consultants offer such services, including the several environmental mediation/negotiation centers throughout the country. These centers are usually located at Universities. In addition there are structured processes which agency personnel may learn to use.¹⁷ The literature on public administrations and conflict resolution is an excellent guide to these approaches.¹⁸ The key point is that

¹⁷For example, the Cooperative Instream Flow Service Group offers training in a Legal and Institutional Affairs model. Use of this technique has been reported by Lamb (1980); and Olive (1981a), (1981b), and (1983).

¹⁸See for example: Journal of Conflict Resolution; Resolve; and The Environmental Professional.

this analysis should be conducted by each party as soon as possible in the license application process.

Agreements

Even after this long history of negotiation, there is still misunderstanding as to what the actual agreements mean. Many seem to believe, particularly environmentalists, that more was agreed to than has been written in the license. There is little official record of any of the meetings. Meetings were frequent; goals were set; deadlines were established. There were many intermediate agreements for which there is no record other than the personal notations of a few individuals. Lack of such a record points out the need to establish at least informal notation of interim and "detail" agreements. It is also necessary, in such proceedings, to recheck points of agreement to ensure that all parties are truly in concurrence. By rechecking in this way potential problems are identified before barriers to implementation are encountered.

Another factor which has surfaced as a problem in several similar negotiations is monitoring of agreements.¹⁹ Once an agreement is reached problems in implementation can be avoided or reduced if the parties have established a monitoring procedure as part of the settlement. Such a monitoring plan should include elements such as: (1) what is to be monitored, the purpose, and the

¹⁹See for example: Nelson, et al. (1976).

format for operations; (2) who will conduct the monitoring activities, and when, and to whom, findings are to be reported; (3) who will pay for these activities; (4) who will review and has authority to take action on the monitor's data and recommendations; and (5) who will be responsible for funding and meeting deadlines for remedial action. These elements are missing from many negotiated settlements.

Factors such as monitoring of settlement provisions and informal notation of interim agreements may seem unimportant and may even cause some rough spots during the bargaining. But ignoring these factors may cause severe problems after the fact.

Referee/Mediator

In the Terror Lake Project license proceedings two parties took up facilitator roles. KEA worked hard to keep the discussions moving, and FERC staff tried to manage the decision process. KEA, however, cannot be thought of as a referee or mediator, the utility was one of the adversaries. FERC staff managed the referee's role fairly well. This success derived from the ultimate arbitrator role the Commission must play which made the FERC staff legitimate in this role.

²⁰Work loads seem to fluctuate for the FERC staff so that at some times a great deal of time can be invested in a given project, while at others, staff must concentrate on covering only the essential elements of many projects.

Under some circumstances FERC management of such a decision process may not succeed--for example, when the parties distrust FERC staff (due to pending litigation, or a history of controversy); the adversaries are more polarized; or FERC staff faces too large a case load to devote time to mediation.²⁰ Under these circumstance it might be beneficial to employ a formal mediator from outside the immediate dispute.

Such a mediator should not be thought of as a decider-of-fact or as decision-maker. That role must be reserved for the FERC. Rather the mediator facilitates decisions in difficult situations. The mediator can help coordinate actions, funnel communications, monitor provisions of interim agreements, and suggest alternatives. The mediator is non-partisan. In fact, mediation most often fails when one or another of the parties thinks the mediator as favoring one position or outcome.²¹

Based on these facts, it is obvious that a mediator cannot be imposed on a negotiation, even by FERC. Where there is concern to keep FERC divorced from a settlement process, however, a mediator might be valuable to all sides. In this case, FERC staff would be a party to the settlement but not the referee of the decision process.

²¹For background see: Harter, P. J. 1982.

Standard Operating Procedures

One question common to license applicants and cooperating agencies alike is what constitutes a typical licensing process. Based on little or no experience utilities and agencies are bound to misinterpret or ignore important events. Mere procedural compliance is clearly not sufficient. Even worse, utilities which have experience with other licensing Commissions may misinterpret FERC rules or staff intentions. It would be valuable, therefore, for FERC to publish a description of a typical project within each regulatory category. While not binding, applicants would know what to expect, and future applicants could learn from the experience of others.

Cooperating agencies would be well advised to take a similar approach. They should let the applicants know in advance what is typically expected. There would be many exceptions to the typical case, but a point of reference for applicants would ease tensions.

Most important, however, the agencies should have standard operating procedures which govern their response to applications. However, because such procedures often take on a life of their own, an agency should remain flexible in response to unique circumstances. The FWS Mitigation Plan is an excellent example of such a procedure--it is an invaluable guide and benchmark for negotiation. In addition, it helps the applicant assess the state-of-the-art in the appropriate management science, and lets them know what an agency expects.

Agency Contingency Plans

Land management agencies are especially susceptible to problems in negotiations when they have no contingency plans. A contingency plan means that managers and decision-makers have taken the time to describe alternative futures and to design responses to each foreseen circumstance. The results of this planning can be summarized and disseminated to potential applicants, or they can be used entirely in-house. The idea is that, with these plans, agencies will be prepared for responding to applications, natural changes, and changes in statutory mandate. Other agencies should also have contingency plans, but the dual problem of trust responsibility for land management and short response time for comments from cooperating agencies means contingency plans are essential.

The success of such a plan, however, is dependent on diligent, realistic planning. The effort must discount the wishes and desires of the planners and concentrate on real options for any set of circumstances. Realism in contingency planning is of paramount importance.

Contingency plans can help overcome any number of problems. For example, in the Terror Lake Project the issue of Federal Reserved Rights was not formally addressed.²² This oversight could still prove to be a shortcoming in the future (Garner 1982). A good contingency plan would certainly have flagged

²²For a discussion of Federal reserved rights see: Ranquist, 1975.

this as a problem, and would suggest courses of remedial action. In addition, the FWS, with adequate planning, would have been in a better position to predict the outcome of its incompatibility report. Issues such as the FWS Director's likely response to such a report; the applicant's probable reaction; and important data needs for a compatibility assessment are useful topics for such plans.

Another area where contingency planning might help is in providing cooperating agencies with a chance to select appropriate contact persons for a range of problems. This would allow the agency to coordinate its responses, schedule activities, selectively use negotiation strategies, and avoid miscommunications with applicants and other cooperators.

Local Decisions

The shared perception of all parties in the Terror Lake Project that an "Alaska Decision" is better than an outside decision was an obvious benefit to the process. FERC staff should continue to encourage such a perception. There are occasions--as was the case in Terror Lake--when some agency will believe it necessary to appeal to a higher authority. These attempts are sometimes useful in that they promote more serious bargaining, but letting the decision process "get out of control" only reduces the certainty that can be achieved at the bargaining table. The key to encouraging local decision is the FERC staff.

Training

Several of those interviewed for this study indicated that the whole process would have been improved if individual personnel had been trained in negotiation techniques. This does not mean employees should be trained in how to win. Rather, the training should focus on what to expect, how to plan and conduct negotiations--how to achieve an agreement.

Personalities

As must be apparent from the history and the discussion of these recommendations, individual personalities are an important ingredient in negotiations. A number of publications address this issue, but a few general rules can be gleaned from the Terror Lake Project (See White et al. 1980).

First, it is important to employ negotiators or spokesmen who have a broad world view and are also familiar with the project. Second, negotiations are helped when the primary personnel are dedicated, forthright, hard working and honest--the individual negotiators in this case are good examples. The honesty displayed by all the people in this case does not mean agreement in philosophy or ideology. Indeed, there were sharp differences among the parties, but all need to be dedicated to problem-solving. Third, negotiators should be skilled at interpersonal relations. It is important to have the ability and willingness to communicate effectively. Individuals should also be skilled in responding to criticism and advice. In short, negotiators should be problem solvers.

Tactics

Certain individuals such as Bayha, Crouse, and Nease were clearly influential in the success of the Terror Lake negotiations. To the extent that the behavior of these men--and others--can serve as a model, future negotiators will be well served. The combination of circumstance and personalities in the Terror Lake Project meant a positive fundamental shift from the normal course of business. There are a wide range of tactics available for agencies to legitimately use in these sessions. Among the possible tactics several were used successfully in the Terror Lake Projects. First, KEA and others were very positive in the use of deadlines. The literature on negotiation reports, and observation of this case supports, the basic rule that deadlines tend to spur progress. Agencies in the Terror Lake case were able to effectively impose deadlines which kept the bargaining moving at a good pace. Setting deadlines is a matter of both skill and opportunity. The tactic requires a good sense of timing and skill at managing complex issues.

Second, KEA employed the tactic of insisting on meeting with persons who were authorized to actually make decisions. Although this did not always work, this tactic encouraged decision-making by promoting the seriousness of the problem.

Third, agencies led by KEA worked to divide the overall problem into several smaller, more manageable, issues. This allowed staged discussion of discrete elements of the problem. There are two advantages to this tactic:

(1) separate issues can be better understood and analyzed; (2) initial agreement on minor issues can build a reservoir of good will, and a desire to successfully conclude the negotiation.

Fourth, agencies such as FWS and environmentalists used a tactic of switching from "good guy" negotiator to "bad guy" negotiator. This works when a negotiator is able to say, "If I agree to that point, my superior (or other negotiator) will insist on changes, or take me off the project." This tactic was used in the closing weeks of the Terror Lake Project as the parties sought to squeeze out the last concessions. This approach is often necessary to represent the true facts of a superior/subordinate relationship. KEA tried to avoid this tactic by having the ultimate decision-makers as part of the discussions. At times the "good guy/bad guy" tactic may be contrived. At all times, however, care must be taken not to destroy the trust relationships which are an essential part of any settlement. A negative use of this tactic could scuttle the negotiation.

Fifth, one tactic to be avoided is negotiation by mail--this approach is often too threatening and it does not provide the immediate feedback necessary for effective planning. In short, it is not personal enough. Still, it is essential to also have formal communications to confirm agreements. It is even important to keep informal (but agreed to) notes of meetings so that points can be later rechecked. Negotiations by mail, however, are most often doomed to failure.

Sixth, a required negotiation tactic is for each party to determine bottom line positions. In the Terror Lake Project the agencies had a difficult time in making this determination. This was partly because some agencies had neither planned a negotiation strategy nor established a bottom line. Naturally, this made bargaining with the agencies frustrating because inadequate planning made them unsure and confused in their responses and proposals.

Seventh, it is important for an agency, or coalition of agencies, to choose a spokesperson. A single focus for bargaining solves many problems.

GLOSSARY OF ACRONYMS

ADF&G - Alaska Department of Fish and Game
AEIDC - Arctic Environment Information and Data Center
ANCSA - Alaska Native Claims Settlement Act
ANILCA - Alaska National Interest Land Conservation Act
APA - Alaska Power Authority
BLM - U.S. Bureau of Land Management
CAR - Computability Assessment Report
CFC - Cooperative Finance Corporation
DEIS - Draft Environmental Impact Statement
DNR - Alaska Department of Natural Resources
DOI - U.S. Department of the Interior
EIS - Environmental Impact Statement
ES - Division of Ecological Services, Alaska Regional Office, FWS
FERC - Federal Energy Regulatory Commission
FERC Staff - Civil employees of the FERC
FPC - Federal Power Commission
FRED - Fisheries Resources Enhancement Division
FWS - U.S. Fish and Wildlife Services
FWCA - Fish and Wildlife Coordination Act
HEP - Habitat Evaluation Procedures

HSI - Habitat Suitability Index

IFIM - Instream Flow Incremental Methodology

NMFS - U.S. National Marine Fisheries Service

KEA - Kodiak Electric Association

REA - Rural Electric Association

Refuge - Kodiak National Wildlife Refuge

Refuges - Division of Refuges, Alaska, Regional Office, FWS

WAES - Western Alaska Ecological Services, an ES field station of the
Alaska Regional Office of FWS

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APPENDIX A

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UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION

Joint Commission: C. M. Butler III, Chairman;
Georgia and Sheldon, J. David Hughes,
and A. G. Gonsa.

Joint Electric Association, Inc. 1 Project No. 2743

ORDER ISSUING MAJOR LICENSE AND ATTACHING JOINT OFFER OF SETTLEMENT

(Issued October 5, 1981)

Kotlik Electric Association, Inc. (KEA) filed on January 21, 1979 an application for major license for its proposed Terror Lake project No. 2743. The project would be located approximately 5 miles southwest of the City of Kotlik, Alaska on the Terror Lake River and their tributaries. The project would occupy lands within the Kotlik National Wildlife Refuge administered by the U. S. Fish and Wildlife Service of the Department of the Interior (Interior). Lands within the U.S. Forest Service near Kotlik, and lands administered by the Bureau of Land Management.

Public notice of the filing of the application was given, and the application was circulated for review and comment. Interventions were granted to the State of Alaska, Interior, Sierra Club, National Wildlife Federation, and the Audubon Society. Dr. Richard Lemick applied for intervention, but on August 26, 1981 filed a motion to withdraw his intervention. 1/ On March 20, 1981, the staff issued a Draft Environmental Impact Statement (DEIS). 2/ After reviewing comments on the DEIS and further analysis, the staff issued a Final Environmental Impact Statement (FEIS) on August 6, 1981. Several agencies and groups filed significant comments on the application and the DEIS. Their concerns and the concerns of the intervenors are discussed below.

1/ Dr. Lemick's petition to intervene in this proceeding will be considered with respect to 10 C.F.R. §1.11(d).

2/ The Corps of Engineers, Interior, and the Rural Electrification Administration were cooperating agencies in the preparation of the Environmental Impact Statement.

-2-

JOINT OFFER OF SETTLEMENT

By letter dated July 20, 1981 KEA transmitted to the Commission an "Agreement Among Kotlik Electric Association, Inc., the Department of the Interior, the State of Alaska, the Sierra Club, the National Audubon Society, and the National Wildlife Federation Relative to Terror Lake Project" 3/ (Agreement) dated June 16, 1981. KEA advised that this document would be formally transmitted to the Commission in connection with an "Offer of Settlement" and requested that the Agreement be considered as a supplement to the Exhibit 5 filed in this proceeding on January 21, 1981.

On September 9, 1981, KEA filed with the Commission an executed "Offer of Settlement" (Settlement). The Settlement was signed by authorized representatives of KEA, Interior, State of Alaska, Sierra Club, Audubon Society and the National Wildlife Federation. The Offer of Settlement recites that the parties withdrew any objections to issuance of a license conforming to Exhibit No. 1 of the Offer of Settlement. Exhibit No. 1 of the Offer of Settlement is the Agreement of June 16, 1981.

The Offer of Settlement appears reasonable and in the public interest in carrying out the provisions of the Federal Power Act, and Exhibit No. 1 of the Settlement is approved by ordering paragraph (b) and made a part of this license through the Exhibit 5 and special license Articles 36 and 43. 4/

3/ The Agreement bore the designation "EXHIBIT NO. 1" and had the following "Attachments" and Exhibits:

- Attachment 1 "COOPERATIVE MANAGEMENT AGREEMENT BETWEEN THE STATE OF ALASKA, DEPARTMENT OF INTERIOR, RESOURCES AND OF FISH AND GAME AND THE UNITED STATES FISH AND WILDLIFE SERVICE"
- Exhibit A A map showing the Kotlik Bay Unit and Shearwater Unit).
- Exhibit B (Alaska Department of Fish and Game Regulation 5AAC 01.375 TAKING OF GAME IN DEFENSE OF LIFE OR PROPERTY)
- Exhibit C (Criteria for grazing)

ATTACHMENT 11 (INCREASED STORAGE AT TERROR LAKE)
ATTACHMENT 111 (Stipulations Recommended for Inclusion in the FERC License for the Terror Lake Hydroelectric Project)

4/ All parties to this proceeding, with the exception of FERC staff, have executed the Settlement. It appears that notice to executing parties of the date comments on the Settlement are due would serve no useful purpose. Accordingly, as requested by KEA, the notice required by §1.10 of the Commission's Rules of Practice and Procedure is waived.

PROJECT DESIGN AND OPERATION

The Terror Lake Project would consist of: (1) a 156-foot high, rockfill dam with an asphaltic-concrete face constructed across the natural outlet of Terror Lake; (2) Terror Lake Reservoir with a surface area of 850 acres; (3) a 10-foot diameter, 26,000-foot long power tunnel extending from an intake at Terror Lake Reservoir to an outlet portal on the west slope of the Kizhuyak River; (4) a 3,400-foot long penstock from the tunnel outlet portal to the powerhouse; (5) a 5-foot high, earthen dike at the outlet of a small lake below the Mount Grotto Glacier diverting flows from the Uganik River drainage through a channel into the upper Terror River; (6) a 40-foot high, rockfill dam across Shotgun Creek diverting flows through a channel into Falls Creek; (7) a 20-foot high, concrete gravity dam across Falls Creek diverting flows into an 8-foot diameter shaft and 10-foot diameter branch tunnel leading to the power tunnel; (8) a 20-foot high, concrete gravity dam across Rolling Rock Creek diverting flows into a branch tunnel leading to the power tunnel; (9) a powerhouse, located along the Kizhuyak River at elevation 115 feet, 5/ containing two 10-MW generating units with space for a third unit; (10) a 17.3-mile long, 110 kV transmission line from a powerhouse switchyard to a KEA substation north of the Kodiak Airport; and (11) access facilities including a jetty near the head of Kizhuyak Bay and a 17-mile long access road from the jetty to Terror Lake. A more detailed project description is contained in ordering paragraph (B).

Terror Lake Reservoir would have a total usable storage capacity of 78,000 acre-feet between water surface elevations of 1,250 feet and 1,381 feet. Runoff from snow melt would refill the reservoir during the summer months. During the winter months, when prevailing freezing temperatures limit runoff, the reservoir would be drawn down to meet power requirements. At the project diversion dams, all flows except the peak flows of the highest floods would be diverted. When the combined flows entering the power tunnel from the diversion dams are less than the flow required for generation, the flow would be supplemented by water from Terror Lake Reservoir. When the combined flows are greater than the flow required for generation, the excess would flow back through the power tunnel to be stored in Terror Lake Reservoir. A minimum flow would be released from the reservoir into the Terror River as detailed in Article 41 to preserve and enhance downstream fish habitat.

5/ All elevations refer to mean sea level datum.

The project would be operated so as to generate maximum energy for the combined KEA - U. S. Coast Guard system. The powerhouse would be automated, with remote control and supervision at the KEA control center in Kodiak. KEA has estimated that firm capacity would be 15 MW. The estimated average annual generation of the project is 119,000 MWh. 6/

SAFETY AND ADEQUACY

The proposed rockfill dam is designed to withstand maximum credible earthquake loadings with only minor deformations. The project spillway will have a capacity of 20,000 cfs at reservoir elevation 1189 feet which is adequate to pass the probable maximum flood. The proposed 110 kV transmission line will have sufficient capacity to transmit the ultimate generating capacity of the project. All project structures will be safe and adequate upon compliance with the conditions of this license, and if constructed in accordance with sound engineering practices.

The construction of the transmission line on high terrain may pose aviation hazards. Coast Guard operations at Kodiak generate considerable overflights. Consequently any potential aviation hazards created by the transmission line should be addressed by the licensee. Accordingly, Article 41 requires the licensee to, among other things, consult with the Commanding Officer of the U.S. Coast Guard Support Center in Kodiak and the Federal Aviation Administration, to study potential adverse impacts the transmission line may have upon aircraft safety and, if necessary, recommend appropriate action to eliminate or minimize hazardous conditions.

ECONOMIC FEASIBILITY

The December 1981 on-line estimated cost of the project is \$159,160,000. The cost of the proposed project compared to various alternative sources of energy is described in the FEIS. Alternative sources included other hydroelectric developments, diesel, and wind turbines. The proposed project is economically feasible. When compared to the alternatives the project has a benefit-cost ratio of 1.44 in the first year of operation and a 50-year benefit-cost ratio of 1.07.

6/ The project with its annual generation of 119,000 MWh will utilize a renewable resource that will save the equivalent of approximately 256,000 barrels of oil per year.

RECREATION

KEA's Recreation Plan, (Exhibit R) proposes the development of a small picnic and camping area at a site adjacent to a construction jetty at the head of Kizhuyak Bay. Access to the proposed area would be via boat or float-plane. KEA estimates that the total costs for constructing the recreational facilities would be about \$50,000 at the completion date scheduled for 1984.

The Settlement recommends that recreational facilities should not be a requirement of the license, in order to minimize brown bear-human conflicts and to avoid other adverse impacts to the Kodiak brown bear.

The nearest population center to the proposed recreation area is the community of Port Lions, population 225, located 9 miles to the north. Due to the inaccessibility and limited recreational demands within the project area, and in view of Federal and State agencies' concern to minimize brown bear-human conflicts and to avoid impact to the brown bear and its habitat, recreational development at the project is not being required at this time. Therefore, the Exhibit R is not being approved. Future recreational needs of the project area could be provided for by license Article 17.

FISH AND WILDLIFE RESOURCES

Of the 4,100 acres of land to be included in the project boundary, approximately 1,870 acres of land and 200 water surface acres would be located within the Kodiak National Wildlife Refuge. About 1,000 acres of wildlife habitat inundated by the reservoir and affected by other project structures would be lost for the life of the project.

The presence of the construction work force and the intense level of construction activity would disturb the normal activities of the brown bear in the project vicinity. Bear movement patterns through Kizhuyak-Witchout Valley into the adjacent drainages would be substantially disrupted. Fewer bears would den in the lower Kizhuyak River and Terror River Valleys. Bear feeding in the lower Kizhuyak River Valley would also be affected and in sub-alpine and alpine feeding areas west and north of Terror Lake, bear feeding would be impacted. Bears would be attracted to garbage generated by the construction work camp and its sanitary landfill, and could become dependent upon this artificial and temporary source of food. Whether bears are attracted to the camp or not, the frequency of bear-human confrontation would increase through activities associated with the project's development.

Increased intra-specific competition in wildlife species would result, particularly when mountain goats and bear displaced by construction activities move into ranges already sustaining populations at or near carrying capacity.

The present mountain goat range in the upper Kizhuyak River drainage would be adversely affected during the construction phase, primarily by the construction of the access road and diversion structures. Noise caused by helicopters and fixed-wing aircraft would disturb wildlife; mountain goats, which are particularly sensitive to noise during the kidding season, could be adversely affected.

Mitigative measures proposed by KEA and measures included in the Settlement are designed to mitigate adverse effects of the project's construction, operation and maintenance.

In addition to the provisions of the Settlement, Article 42 is included in this license to require KEA to provide a monitoring program for wildlife resources.

The major environmental effects of the project's operation on the fishery resources would be associated with: (1) temperature changes in the Kizhuyak and Terror rivers due to releases from the Terror Lake Reservoir; and (2) flow reduction in the Terror River and increased flows in the Kizhuyak River.

The Exhibit S, which was filed on January 23, 1979, as part of the license application and as supplemented by a Settlement Agreement filed on July 20, 1981, contains specific measures to conserve and enhance fish and wildlife resources affected by the project. Therefore, the Exhibit S as supplemented is approved.

Provisions of the Settlement and license Articles 40 and 41, which include measures to mitigate and monitor the effects on the fishery resources, would minimize adverse effects of the project's operation.

INSTREAM FLOWS

Following initiation of operation of the project, the annual discharge of the Terror River (as measured near the mouth) would decrease approximately 35 percent during an average water year. Approximately 90 percent of the discharge from Terror Lake would be diverted through the powerhouse into the Kizhuyak River at river mile 3.5, increasing the total annual discharge, as measured at the Kizhuyak Gage, by approximately 61 percent.

The water temperature of the lower Kizhuyak River would increase by up to 4°F in the winter during periods of power generation.

The Settlement and Article 43 of this license provide for a year-round minimum flow release into the Terror River to protect fishery resources. This flow would be measured at the Terror River stream gage in the lower river.

CULTURAL RESOURCES

Archeological site 49-KOD-190, a property eligible for the National Register of Historic Places, has been inventoried within the project impact area. This site would not be directly impacted by project construction or operation, but could be affected by acts of vandalism committed by construction workers, recreationalists, and other individuals attracted to the vicinity because of construction and operation of the project. KEA has proposed a plan to monitor and protect site 49-KOD-190 during construction and operation of the project. The plan has been reviewed and we conclude that it is adequate for this purpose. Article 45 is included in this license to require implementation of the plan to avoid adverse impacts to site 49-KOD-190.

Certain locations within the project impact areas also have potential for buried archeological resources, most importantly the vicinity of the proposed construction camp, jetty, and recreation area. Article 46 is included herein to protect potential archeological resources that may be affected during construction and development of project works.

MT. GLOTTOF RESEARCH NATURAL AREA

An 88,000-acre portion of the Kodiak National Wildlife Refuge was designated in 1975 by the Director of the U.S. Fish and Wildlife Service (FWS) as the Mt. Glottof Research Natural Area. The management goals of the FWS for the natural area are to maintain the area in as near a natural ecological condition as possible and to protect it against activities that directly or indirectly modify natural ecological processes or alter the type of features being preserved.

The proposed Mt. Glottof diversion facilities, including a small impoundment, if constructed, may encroach upon the Research Natural Area. The precise boundary of the natural area has not been delineated by a legal description. Therefore, this license contains Article 44, which requires KEA to consult with FWS regarding specific boundaries of the Mt. Glottof Research Natural Area. Construction of the diversion facilities is authorized only upon a finding by the Commission or its delegate that the diversion facilities would avoid encroachment into the Mt. Glottof Research Natural Area.

OTHER ASPECTS OF COMPREHENSIVE DEVELOPMENT

The powerplant will operate at 79.3% annual plant factor and will utilize over 90% of the available river flow. It may be feasible to enlarge the reservoir to provide up to 50,000 acre-feet of additional storage for future use in conjunction with an alternate form of electrical generation such as wind power. Article 36 requires KEA to study the feasibility of enlarging the Terror Lake Reservoir. The proposed project is not in conflict with any planned development and will be best adapted to the comprehensive development of the Terror and Kizhuyak River basins upon compliance with the terms and conditions of this license.

Upon review of the application for license, comments on the DEIS and application, the FEIS and Settlement we find that the license, as conditioned, will not interfere with or be inconsistent with the purpose for which the Kodiak National Wildlife Refuge or the U.S. Coast Guard Reservation were created.

ANNUAL CHARGES

For the purpose of reimbursing the United States for the cost of administration of Part I of the Federal Power Act, KEA is being assessed annual charges. The authorized installed capacity for this purpose is 26,700 horsepower. Additional charges are being assessed for the use and occupancy of Federal lands. 6/ These charges are provided for in Article 33.

7/ The acreage of Federal lands occupied by the project will be determined upon the filing of "as-built" Exhibit K drawings as required by Article 34.

LICENSE TERM

The Terror Lake Project is a major unconstructed project. In accordance with our usual policy, this license will be issued for a term of 50 years, effective the first day of the month following issuance of the license.

The Commission Orders:

(A) A license is issued to Kodiak Electric Association, Inc. (Licensee) under Part I of the Federal Power Act (Act) for a period of 50 years, effective the first day of the month following issuance of this license, for the construction, operation and maintenance of the Terror Lake Project, FERC Project No. 2741, located on the Terror and Kizhuyak Rivers and their tributaries approximately 25 miles southwest of the City of Kodiak, Alaska. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The Terror Lake Project consists of:

(i) All lands constituting the project area and enclosed by the project boundary, to the extent of the Licensee's interests in those lands. The project area and the project boundary are generally described by the exhibits of the application for license as follows:

Exhibit	FERC Drawing No. 2741-	Titled
J	2	Project Facilities - General Arrangement
K-1	3	Project Area
K-2	4	"
K-3	5	"
K-4	6	"
K-5	7	"
K-6	8	"

(ii) Project works consisting of: (1) a 156-foot high, 2,100-foot long, rockfill dam with an asphaltic-concrete face constructed across the natural outlet of the existing Terror Lake; (2) a sidechannel spillway with a 600-foot long crest located on the north abutment of the dam; (3) Terror Lake Reservoir with a surface area of 850 acres and a storage capacity of 70,000 acre-feet at normal maximum water surface elevation of 1,383 feet; (4) a 10-foot diameter, 26,300 foot long power tunnel extending from an intake structure at elevation 1,240 feet located on the eastern shore of the reservoir to an outlet portal on the west slope of the Kizhuyak River at elevation 1,130 feet; (5) a 3,400-foot long, steel penstock varying in diameter from 96 to 56 inches, connecting the power tunnel to the powerhouse; (6) a 5-foot high, 80-foot long earthen dike at the outlet of a small natural lake below the Mount Glettof Glacier diverting flows from the Ugalik River drainage through a 15-foot wide, 600-foot long channel into the upper Terror River; (7) a 40-foot high, 300 foot long rockfill dam across Shotgun Creek diverting flows through a 620-foot long channel into the upper Falls Creek; (8) a 20-foot high, 400-foot long concrete gravity dam across Falls Creek diverting flows into an 8-foot diameter, 470-foot long shaft and thence into a 10-foot diameter, 1,200-foot long branch tunnel leading to the power tunnel; (9) a 20 foot high, 100-foot long concrete gravity dam across Rolling Rock Creek diverting flows into a branch tunnel leading to the power tunnel; (10) a powerhouse, located along the Kizhuyak River at elevation 115 feet containing two 10-MW generating units with space for a third unit; (11) a 1,500-foot long tailrace channel conveying flows from the powerhouse to the main stem of the Kizhuyak River; (12) a 13.8/130-kV switchyard located adjacent to the powerhouse; (13) a 17.3-mile long, 110-kV transmission line from the powerhouse switchyard to a substation within the U.S. Coast Guard Reservation north of the Kodiak Airport; (14) access facilities including a jetty near the head of Kizhuyak Bay and a 17-mile long access road from the jetty to Terror Lake; and (15) appurtenant facilities.

The location, nature and character of these project works is shown and described by the exhibits cited above and more specifically described by the following exhibits:

<u>Exhibit</u>	<u>FERC Drawing No. 2743-</u>	<u>Titled</u>
L-1	9	Terror Lake Dam - General Arrangement
L-2	10	Terror Lake Dam - Sections and Details
L-3	11	Terror Lake Dam - Spillway - Plan and Sections
L-4	12	Power Tunnel - Profile and Section
L-5	13	Power Tunnel - Intake Structure - General Arrangement
L-6	14	Shotgun Creek Diversion Works
L-7	15	Falls Creek Diversion Works
L-8	16	Rolling Rock Creek Diversion Works
L-9	17	Mount Clottof Glacier Diversion Works
L-10	18	Penatock-Profile and Details
L-11	19	Powerhouse - Site Plan
L-12	20	Powerhouse - General Arrangement - Plans
L-13	21	Powerhouse - General Arrangement - Sections

Exhibit M: Consisting of five pages of text entitled "General Description of the Mechanical and Electrical Equipment and Transmission Line" filed on July 11, 1980.

Exhibit S: Page 5 of the Exhibit S filed as part of the license application on January 23, 1979, and the following provisions of the Agreement filed on July 28, 1981, as a supplement to the Exhibit S: EXHIBIT NO. 1 Pages 4 and 5, Items 4.02 and 4.03; Attachment I - (Cooperative Management Agreement), - Exhibits A (MAP), B (ADEG Reg. 5 AAC 81.375 -- Taking Of Game In Defense Of Life or Property), and C (criteria for grazing); Attachment II - (Instream Flows, except Item 2 and Attachment II-A) and Attachment III - (SIPRATIONS Recommended for Inclusion in License).

(iii) All of the structures, fixtures, equipment, or facilities used or useful in the operation or maintenance of the project and located within the project boundary, all portable property that may be employed in connection with the project, located within or outside the project boundary, as approved by the Commission, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits J, K, L, M, and S designated and described in Ordering Paragraph (B) above are approved and made a part of this license.

(D) Exhibit No. 1 of The Joint Offer of Settlement, filed on September 9, 1981, arrived at between Licensee, Sierra Club, State of Alaska, U.S. Department of the Interior, National Wildlife Federation, and Audubon Society is, hereby approved. Provided, that the Commission's approval of this Settlement shall not constitute approval of or precedent regarding any principle or issue in this proceeding.

(E) This license is subject to Articles 1 through 32 set forth in FERC Form L-2 (Revised October 1975) entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States," which are attached to and made a part of this license. The license is also subject to the following special conditions set forth as additional articles:

Article 33. The Licensee shall pay the United States the following annual charge, effective as of the first day of the month following issuance of this license:

(a) for the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for such purpose is 26,700 horsepower;

(b) for the purpose of recompensing the United States for the use, occupancy and enjoyment of its lands an amount to be determined later.

Article 34. The Licensee, within 6 months following the date of commencement of operation of the project, shall file a revised Exhibit F and for approval, "as-built" Exhibits J, K, L, and M to show the project as finally constructed and located.

Article 35. The licensee shall commence construction of the project within 18 months from the effective date of the license and shall thereafter in good faith and with due diligence prosecute such construction and shall complete construction of the project works, within 66 months from the effective date of the license.

Article 36. Licensee shall study the feasibility of enlarging Terror Lake Reservoir by raising the dam in increments a maximum of 57 feet, corresponding to a normal maximum reservoir surface elevation of 1440 feet m.s.l. In determining the feasibility of raising the dam, the studies shall consider among other things the use of the increased storage to generate power to supplement or firm-up, wind generated electric power to meet future system power needs. If it is economically feasible to raise the dam, then within six months from the issuance date of the license the licensee shall file for approval revised Exhibit E and K drawings and area-capacity curves for the project designed to accommodate the new reservoir water surface elevation.

Article 37. The licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, 60 days prior to start of construction, one copy each of the contract drawings and specifications for pertinent features of the project such as water retention structures, powerhouse and water conveyance structures. The Director, Office of Electric Power Regulation may require changes in the plans and specifications to ensure a safe and adequate project.

Article 38. The licensee shall retain a Board of three or more qualified, independent, engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the Board members shall be submitted to the Director, Office of Electric Power Regulation, for approval. Among other things, the Board shall assess the geology, of the project site; the design, specifications and construction of the dikes, dams, spillways, powerhouse, electrical and mechanical equipment involved in water control and emergency power supply; the filling schedule for the reservoir; the construction inspection program; and construction procedures and progress. The licensee shall submit to the Commission copies of the Board's report on each meeting. The licensee shall submit a final report of the Board upon completion of the project. The final report shall contain a statement indicating the Board's satisfaction with the construction, safety, and adequacy of the project structures.

Article 39. The licensee shall review and approve the design and construction procedures for contractor-designed cofferdams and deep excavations prior to the start of construction. The licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy of the approved construction drawings and specifications, and a copy of the letter of approval.

Article 40. Licensee shall, in consultation with the Alaska Department of Fish and Game, the U. S. Fish and Wildlife Service, and National Marine Fisheries Service, monitor the size, species composition, and spawning distribution of anadromous salmonid runs in the Terror and Kizhuyak Rivers during the construction and initial 6-year operating period of the project. During the course of these studies, licensee shall file annual reports of its findings with the Commission, with copies to the above listed agencies. After the sixth year, the licensee shall, in consultation with the above listed agencies, and in conjunction with the results of the study conducted pursuant to Article 41, review the effects of project operations on the fishery resources, and file a report with the Commission containing recommendations for revisions of project structures or operations, if any, necessary to mitigate any adverse effects of the project's operation on the fishery resources.

Article 41. Licensee shall, in consultation with the Alaska Department of Fish and Game, the U. S. Fish and Wildlife Service, and the National Marine Fisheries Service develop a satisfactory study plan to determine the effects of the project's operation on (1) the surface and intragravel water temperatures of the Terror and Kizhuyak Rivers and (2) the thermal regime of Terror Lake. This plan shall include measures to allow for the modeling of the pre-and post-operational thermal characteristics of both the Terror and Kizhuyak Rivers, and Terror Lake.

The plan shall further provide for the monitoring of discharge in the Terror and Kizhuyak Rivers and continued monitoring of intragravel and stream water temperatures for a minimum of 6 years after the commencement of project operations. After the sixth year, the licensee shall, in consultation with the above listed agencies and in conjunction with the results of studies conducted pursuant to Article 40, review the measured effects of project operations on discharge and water temperature, and file a report with the Commission containing recommendations for revisions of project structures or operations, if any, necessary to mitigate adverse effects of the project's operation on the aquatic biota.

Within 3 months from the date of issuance of this license, the Licensee shall file with the Commission, the study plan and a reporting schedule. At the same time, copies of the plan shall be served upon the agencies consulted. The Commission reserves the right to require modifications to the proposed plan.

Article 42. Licensee shall, in cooperation with the U. S. Fish and Wildlife Service, the Alaska Department of Fish and Game, and the Alaska Department of Natural Resources, develop a study plan to assess the effects of construction and operation of the project on the wildlife resources of the project area. Licensee shall, within 6 months from the date of issuance of this license, file a copy of the study plan with the Commission. Subsequent reports prepared as components of the study plan shall be filed with the Commission in accordance with the schedule included in the plan.

Article 43. Licensee shall discharge from the Terror Lake Reservoir flows sufficient to ensure that the minimum stream flows near the mouth of the Terror River, as measured at the Terror River U. S. Geological Survey Gage No. 15295700, are not less than the following schedule of flows during reservoir filling, and thereafter during project operation:

<u>Period</u>	<u>Discharge (cfs)</u>
January - March	60
April	100
May - October	150
November 1-15	100
November 16-30	60
December	60

These flows may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods for fishery management purposes upon mutual agreement between the Licensee and the Alaska Department of Fish and Game.

Article 44. Licensee shall consult with the U. S. Fish and Wildlife Service (FWS) to determine the specific boundaries of the Mt. Glottof Research Natural Area in relation to the proposed Mt. Glottof diversion facility, and file a report on the results of the consultation with the Commission within two years from the date of issuance of this license.

Construction of the Mt. Glottof diversion facility as proposed in the license application shall not proceed until the Commission or its authorized delegate finds that the diversion works and impoundment would not encroach upon the research natural area.

Should a finding be made that the Mt. Glottof diversion facility would encroach upon the natural area, Licensee shall file an application to amend the license to delete the diversion facility from the project works.

Article 45. The Licensee shall, prior to the commencement of any construction at the project, and in cooperation with the Alaska State Historic Preservation Officer (SHPO), implement its proposed plan to monitor and protect archeological site 49-KOD-190. The plan consists of: (1) relocating the project access road away from the construction camp so that it does not pass near the site; (2) posting a notice in the construction camp to make personnel aware of legal penalties for vandalizing archeological sites, and to indicate that job dismissal would occur if an individual is involved in any violations of such laws at site 49-KOD-190; (3) restricting the project area to construction workers, other project personnel, and authorized visitors during construction of the project; (4) having a project watchman-maintenance employee periodically visit and visually inspect the site to prevent any unauthorized visitation and vandalism during operation of the project; (5) providing for immediate contact with the Commission and the SHPO concerning any vandalism of the site, and cooperation with the SHPO in any investigation of the incident; and (6) providing contingencies for salvage excavation if the site is vandalized, or threatened with vandalism, from events or activities associated with construction or operation of the project.

The Licensee shall make available funds in a reasonable amount to implement the plan during construction and operation of the project as required. If site 49-KOD-190 is vandalized, or threatened with vandalism, as a result of events and activities associated with the project, the Licensee shall consult with the SHPO to develop a mitigation plan for protection of the site, or the recovery of significant archeological data in

-17-

accordance with the Advisory Council on Historic Preservation's Guidelines for treatment of archeological properties. If the Licensee and the SHPO cannot agree on the amount of money to be expended on the protection of 49-KOD-190, or a data-recovery program at the site, the Commission reserves the right to require the Licensee to conduct, at its own expense, any such work found necessary.

Article 46. Should previously unrecorded archeological resources be discovered during the course of construction or development of any project works or other facilities at the project, the Licensee shall halt construction activity in the vicinity of the discoveries, consult with a qualified archeologist to determine the significance of the sites, and cooperate with the State Historic Preservation Officer (SHPO) to develop a mitigation plan for protection or recovery of significant archeological resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on archeological work related to such discoveries, the Commission reserves the right to require the Licensee to conduct, at Licensee's own expense, any such work found necessary.

Article 47. The Licensee, in consultation with the U.S. Fish and Wildlife Service, the Alaska Department of Fish and Game, and the U.S. Army Corps of Engineers, shall prepare and file with the Commission's Regional Engineer in San Francisco, California, and the Director, Office of Electric Power Regulation, within 6 months from the date of issuance of the license, a detailed plan to control soil erosion, dust, and slope stability, and to minimize the quantity of inorganic sediment or other potential water pollutants resulting from construction and operation of project facilities. This plan shall include an implementation schedule, maintenance program, and evidence of agency consultation. The Director, Office of Electric Power Regulation, may require changes in the plan to minimize erosion, dust, sedimentation, water pollution, or slope stability problems.

Article 48. The Licensee in consultation with the Commanding Officer of the U.S. Coast Guard Support Center in Kodiak and the appropriate office of the Federal Aviation Administration, shall complete a study of the location, design, construction and maintenance needs for the project transmission line facilities. The study shall address the need to prevent, or minimize to the extent possible, significant adverse impacts to the existing visual environment and aircraft safety requirements. Licensee, within six months from the date of issuance of this license, shall file a report on the results of that study, to include documentation of consultation and subsequent recommendations. The Commission reserves the right to require modification of those recommendations concerning visual resources and aircraft safety.

Article 49. (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 other 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 uses 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, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. 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 uses 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 modifications 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 and roads for which 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 certificates 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 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 the edge of the project reservoir at normal maximum 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 45 days before conveying any interest in project lands under this paragraph (d), the Licensee must file a letter to the Director, Office of Electric Power Regulation, 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 paragraphs (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 covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(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.

(F) This order is final unless an application for rehearing is filed within 10 days from the date of its issuance, as provided in section 311(a) of the Act. The filing of an application for rehearing does not operate as a stay of the effective day of this license or of any other date specified in this order, except as specifically ordered by the Commission. Failure of the licensee to file an application for rehearing shall constitute acceptance of this license. In acknowledgement of acceptance of this license, the license shall be signed for by the licensee and returned to the Commission within 60 days from the date of issuance of this order.

y the Commission.

S E A L)

Louis D. Cashell
Louis D. Cashell,
Acting Secretary.

IN TESTIMONY of its acknowledgment of acceptance of all of the terms and conditions of this Order, Kodiak Electric Association, Inc. this _____ day of _____, 19____, has caused its corporation name to be signed hereto by _____ its _____ President, and its corporate seal to be affixed hereto and attested by _____ its _____ Secretary, pursuant to a resolution of its Board of Directors duly adopted on the _____ day of _____, 19____, a certified copy of the record of which is attached hereto.

By _____
President

Attest:

Secretary

(Executed in quadruplicate)

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