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FINAL
ENVIRONMENTAL ASSESSMENT
Kerr Project, FERC Nos. 5 & 2776--Montana
January 31, 1985

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Prepared by Staff
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TABLE OF CONTENTS

	<u>Page</u>
I. APPLICATIONS	1
II. NEED FOR POWER	1
III. PROPOSED PROJECT AND ALTERNATIVES	5
A. Existing Project	5
B. License Proposals	8
1. Issuance of License to MPC (Project No. 5)	8
2. Issuance of License to the Tribes (Project No. 2776)	8
C. Alternatives	9
1. Denial of New Power License and Issuance of Nonpower License	9
2. Denial of License Applications	10
3. Federal Takeover	10
4. Issuance of an Annual License	11
5. Operational Alternatives	11
6. Issuance of a Joint License	11
IV. ENVIRONMENTAL ANALYSIS	12
A. Proposed Project	12
1. General Description of the Locale	12
2. Geology and Soils	12
3. Water Resources	15
4. Fishery Resources	21
5. Vegetation	25
6. Wildlife Resources	26
7. Visual Resources	28
8. Cultural Resources	28
9. Recreation and Other Land Uses	29
10. Socioeconomic Values	30
B. Nonpower License	31
C. Annual License	32
D. Joint License	32
V. COMPARISON OF ALTERNATIVES	33
VI. SUMMARY OF UNAVOIDABLE ADVERSE IMPACTS	33
VII. NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT	34
VIII. CONSULTATION AND COORDINATION	34
IX. LITERATURE CITED	35

	<u>Page</u>
X. LIST OF PREPARERS	37
XI. APPENDICES	
Appendix A--Montana Power Company Resource Requirements for the High Demand and Base Case Scenarios	A-1
Appendix B--Letters of Comment on the Draft Environmental Assessment	B-1

LIST OF FIGURES

<u>Title</u>	<u>Page</u>
Figure 1. Location of the Kerr Project and major features of the surrounding areas.	2
Figure 2. Location of principal features of the Kerr Project.	6
Figure 3. Map of Flathead Lake.	13
Figure 4. Location of rivers and creeks in the vicinity of the Kerr Project.	16
Figure 5. Annual lake levels of Flathead Lake in 1930, prior to construction of Kerr Dam and in 1949, after construction of Kerr Dam.	17
Figure 6. Pre- and post-impoundment average annual flows for the Lower Flathead River recorded directly below Kerr Dam (RM 74.7) at the USGS gauge station established in 1907.	19
Figure 7. Representative monthly discharges from Kerr Dam for water year 1982 recorded directly below the facility.	20

LIST OF TABLES

<u>Title</u>	<u>Page</u>
Table 1. The common and scientific names and distribution of fish species found in Flathead Lake and in the lower Flathead River.	22

ENVIRONMENTAL ASSESSMENT
KERR PROJECT, FERC NOS. 5 AND 2776--MONTANA

I. APPLICATIONS

Montana Power Company (MPC) filed an application on June 1, 1976 (supplemented on May 1, June 29, and July 23, 1979, and March 11, 1980), for a new license for its major constructed Kerr Project No. 5. The project is located on the Flathead River (river mile 72) and Flathead Lake, in Flathead and Lake Counties, near the Town of Polson, in northwest Montana (Figure 1). The present license expired on May 22, 1980; MPC has been operating under successive annual licenses since that time. A competing application for a new license for the Kerr Project was filed on July 2, 1976 (supplemented on June 11, 1979, and April 14, 1980), by the Confederated Salish and Kootenai Tribes of the Flathead Indian Reservation (Tribes), and is designated Project No. 2776. An evidentiary hearing concerning the competing applications commenced on July 11, 1984.

All project facilities and the southern half of the reservoir are on lands within the Flathead Indian Reservation, which are held in trust for the Tribes by the U.S. Government. Non-project transmission lines (the Kerr-Thompson Falls "A" and "B" and the Kerr-Rattlesnake "A" and "B" transmission lines) emanating from the Kerr Switchyard are located, in part, on tribal trust lands. The project is located downstream of the Bureau of Reclamation's (BR's) Hungry Horse Project (Figure 1).

II. NEED FOR POWER

The Bonneville Power Administration (BPA) is currently experiencing a surplus of resources. In 1981, when Idaho Falls Hydroelectric Project was being considered for acquisition by BPA (actually acquired in 1982), a near-term deficit was experienced. However, a significant surplus occurred in 1982 and there have been no acquisitions by BPA of generating resources since then. BPA's forecast of regional load growth has been reduced in each of the last two years.

MPC is a member of the Pacific Northwest Coordination Agreement (Agreement) and the Pacific Northwest Utilities Conference Committee (PNUCC). The Agreement, which depends upon Kerr for MPC's participation, gives MPC access to a power market for purchases and sales that would not be available if MPC did not own the Kerr Project. The Kerr generation amounts to approximately 0.6 percent of the total coordinated system generation of the Agreement. PNUCC's current Pacific Northwest regional forecast shows the region will have surplus energy resources until about 1994. Beyond 1995, significant deficits are estimated because no major assured resources are scheduled after 1994 to meet the anticipated growth in demand.

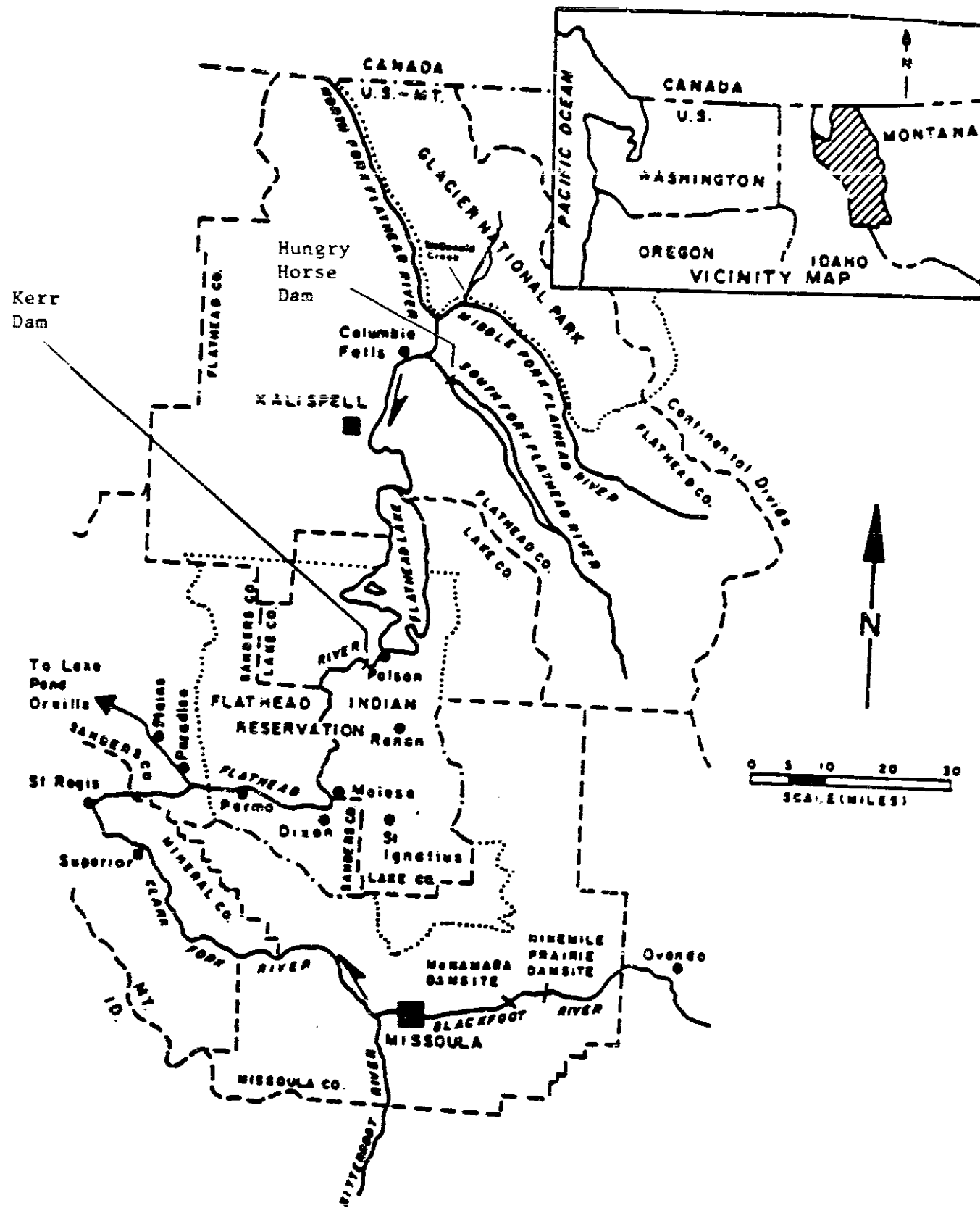


Figure 1. Location of the Kerr Project and major features of the surrounding area (Source: Corps of Engineers, 1979, as modified by Staff).

MPC owns and operates an integrated electric generation, transmission, and distribution system serving electricity to a large portion of the state of Montana. MPC's electric service area encompasses 97,540 square miles and 185 communities in the western two-thirds of Montana. MPC provides electricity to approximately 640,000 people in Montana, representing 81 percent of the population of the state. In addition, MPC provides a relatively small amount of power to the portions of the Yellowstone National Park that are in Wyoming. A block of power is set aside for the Flathead Irrigation and Power Project. Presently, MPC has approximately 1,315 MW of generating capacity, of which 39.5 percent is hydroelectric, 54.8 percent coal, and 5.7 percent gas and oil.

MPC had total sales of 7,224 gigawatt hours (GWH) in 1983. Approximately 78 percent, or 5,623 GWH was delivered to ultimate customers, while the remaining 22 percent (1,601 GWH) was delivered as sales for resale. The breakdown of MPC sales to ultimate customers during 1983 is approximately 30 percent residential customer sales, 68 percent commercial and industrial sales, and 2 percent various other sales. The breakdown of MPC sales for resale during 1983 is approximately 21 percent to non-associated electric utilities located in the Pacific Northwest, 22 percent to rural electric cooperatives, and 57 percent to various public authorities such as the Bureau of Indian Affairs, BPA, and the Western Area Power Administration. BPA, in turn, delivered 301 GWH (19 percent of MPC's 1983 sales for resale) to various utilities and municipalities in California. All of MPC's 1983 sales to California were opportunity sales that were made on a non-firm basis. With regard to future sales to California, BPA has stated that it will provide interruptible intertie access only, and no new wheeling will be provided that conflicts with already existing firm contracts. BPA presently has resources surplus to its existing loads and most Pacific Northwest utilities are in a similar surplus condition. Thus, there likely will be more demand for use of the Pacific Northwest-Pacific Southwest intertie than available intertie capacity.

MPC's system load typically has a winter peak (occurring generally in December or January), with a one-to-two hour peak during the evening hours. The typical summer peak occurs in early to mid-afternoon in July and August and is not of the magnitude nor as definite and short-lived as the winter peak.

The generating capability of the existing Kerr Project is 180 MW. The annual average net energy capability at Kerr over the 40-year period of record is determined to be 1,173,840,000 kilowatt hours annually, which reflects a greater than 70 percent capacity factor operation. Kerr is the largest of MPC's hydro projects. The Kerr Project's electrical capacity represents approximately 35 percent

-4-

of the MPC's total system hydro capability, and the Kerr Project is the MPC's single storage facility in the Columbia River Basin. The existing Kerr Project is used to displace higher cost thermal energy on the MPC system, and to help meet MPC's peak load requirements.

An equipment retrofit or upgrade was initially planned for the Kerr Dam in 1993 and 1994. The goal of this upgrade would have been to more economically utilize the water available at the existing Kerr site. Under the high demand scenario, the Kerr upgrade could be necessary to meet loads as early as 1989. This upgrading would include replacing turbine runners, rewinding generators, replacing unit transformers, and modifying other associated equipment and facilities for the three existing generating units at Kerr. The upgrading would increase the Kerr Project's capacity by 27.5 MW and its average energy by 4.6 MW, which represents an incremental 16.7 percent capacity factor. More recent MPC load projections, however, indicate that upgrading would not be required until the 2003-04 operating year. Accordingly, the upgrade is not proposed as part of the license approval. Such an upgrade would require the filing of an application for amendment of license, and subsequent technical and environmental review, agency consultation, and Commission approval.

MPC has developed a range of load forecasts that are set forth in its "Projection of Electric Loads and Resources" dated February 1983. These forecasts include a base case and a high scenario, and are provided in Appendix A. The base case is defined as that forecast that has the highest probability of occurring and the high scenario forecast is described as having a reasonable chance of occurring. MPC bases its resource plan on the high scenario of the peak load forecast. Energy deficiencies within the MPC system generally are not a problem through the forecast period.

MPC's average annual compounded peak load growth rate in the 9-year period from 1973 to 1982 averaged 3.4 percent per year, and the energy growth rate averaged 3.2 percent per year. By contrast, MPC's current base case projections indicate that over the next 10 years (1984 to 1994) the peak load and energy will grow by 2.1 and 2.2 percent per year, respectively, which is substantially less than the historical rates of growth.

Appendix A shows MPC's forecasted peak load requirements and peak capacity resources for the 18-year period, 1984-85 through 2001-02, for both the base case and the high demand scenario. System surplus or deficiency is shown as a bottom line figure, with and without the existing and modified Kerr Project. Appendix A shows that when the Kerr Project, including upgrade, is considered to be an MPC resource,

there is only 1 year (1988-89) during the high demand scenario forecast in which a system deficiency occurs. The remaining 17 years indicate a surplus. On the other hand, without Kerr as a MPC resource, the situation is nearly reversed, and all years except two (1990-91 and 1991-92) reflect a deficiency. Essentially the same situation as seen in the high demand scenario also holds true for the base case scenario: 2 years of deficiency with Kerr and 16 years of deficiency without Kerr.

The Tribes propose to market project power to the Pacific Northwest or to California, or to sell the power back to MPC. The Pacific Northwest is presently encountering a surplus of power. It is also uncertain whether Kerr power could be transmitted to California on a firm basis because of the existing demands on the Pacific intertie. Moreover, there exists over 100 public and private power utilities located in the Pacific Northwest and in California that could be potential purchasers of the Kerr power. Until a specific or potential buyer is identified by the Tribes, the need for project power by a potential buyer cannot be assessed.

III. PROPOSED PROJECT AND ALTERNATIVES

A. Existing Project

Project Description: The Kerr Project (Figure 2) consists of: (1) a 200-foot-high and 381-foot-wide, concrete arch dam with 14 spillway openings; (2) a 185-foot-long, 30-foot-high concrete gravity section; (3) three power tunnels, each approximately 800 feet in length; (4) a powerhouse containing three generating units, with a total installed capacity of 180 megawatts (MW); (5) three 115-kilovolt transmission lines, each approximately 1,500 feet long; and (6) a 126,000-acre reservoir (Flathead Lake) (Montana Power Company, 1976). The dam and generating unit 1 were completed in 1939, unit 2 in 1949, and unit 3 in 1954. MPC provides free public access at an undeveloped site near Kerr Dam and maintains an overlook a short distance upstream from the dam.

Project Operation: During times of excess water, the Kerr Project is operated essentially for base-load, although some automatic generation control is almost always assigned to the plant. At other periods, when the river flow levels are lower, Kerr is used for both lower level base-load and peaking operations. The Kerr development is operated pursuant to the provisions of the Pacific Northwest Coordination Agreement, dated September 1964, in coordination with most other major hydroelectric and thermal resources in the Columbia River Basin.

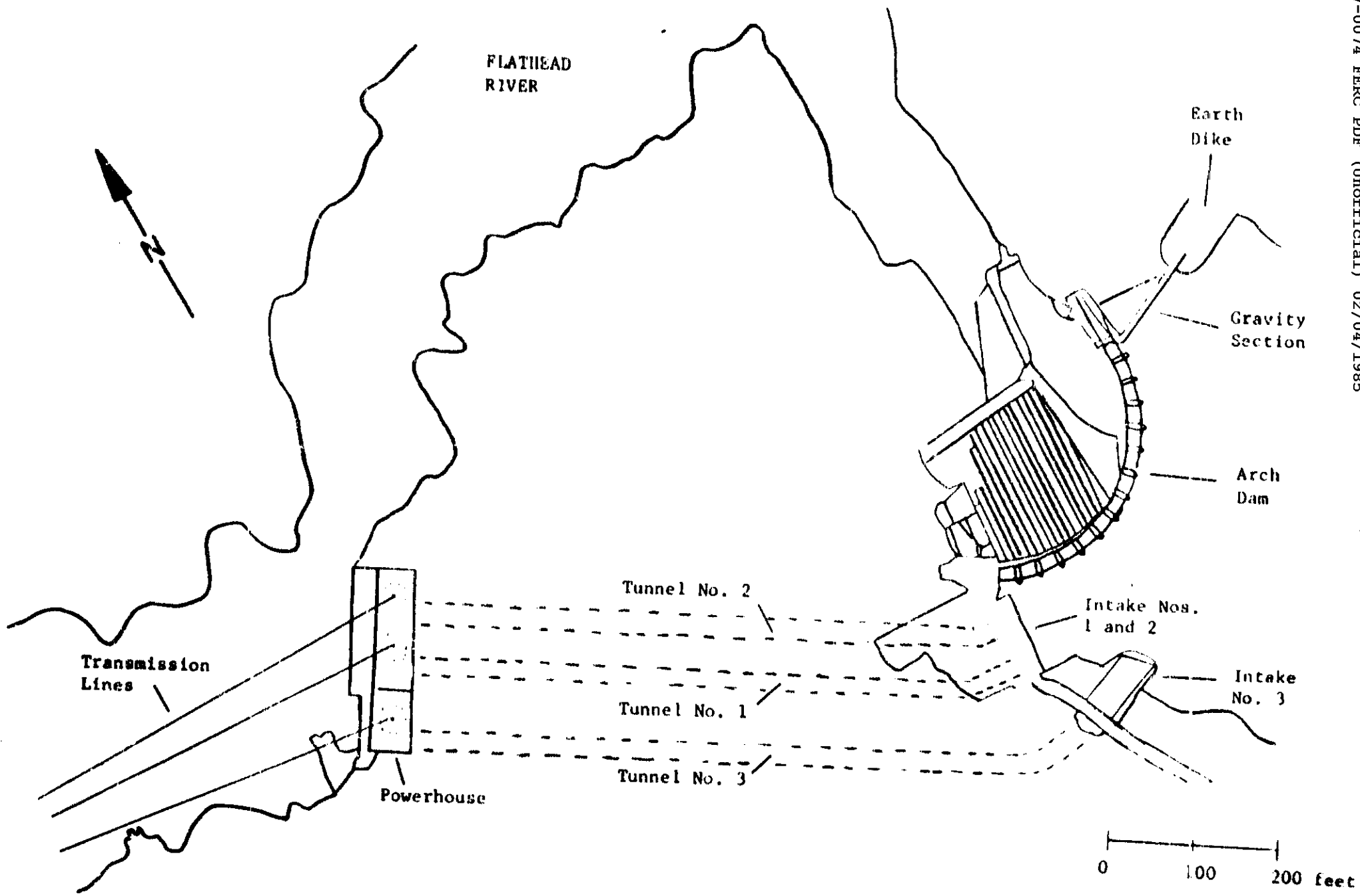


Figure 2. Location of principal features of the Kerr Project (Source: Montana Power Company, 1976, as modified by Staff).

The project reservoir is operated pursuant to procedures set forth in an agreement between MPC and the Army Corps of Engineers, and approved by the Commission on February 24, 1966. (See 35 F.P.C. 250.) According to the agreement, the reservoir is drafted to the minimum elevation of 2,883 feet ^{1/} by May 30, and then raised to the normal maximum elevation of 2,893 feet by June 15. Drafting of the storage begins in late August to mid-September. During the recreational season of July and August, Flathead Lake is generally held to within 0.5 feet of elevation 2,893 feet.

Project Safety: The project has been inspected by the Federal Energy Regulatory Commission (Commission) staff and independent engineering consultants and found to be well maintained and in good condition. Staff analyzed all of the project structures and found them safe for normal, earthquake, and probable maximum flood conditions. A safety inspection is performed for the Applicant by an independent consultant every 5 years. It is made pursuant to the provisions of Part 12, "Inspection of Project Works with Respect to Safety of Structures" of the Commission's Regulations. The safety report prepared subsequent to the inspection includes an evaluation of the geology, hydrology, and stability of the Kerr Dam and Powerhouse.

A survey of historical records regarding local seismic activity in the vicinity of Kerr Dam indicated that the project is located in a moderately active seismic zone. The largest recorded earthquake having a significant effect at Kerr Dam occurred on August 17, 1959. This earthquake had an intensity of X on the Modified Mercalli (MM) scale and its epicenter was located near Hebgen Lake, some 300 miles southwest of the project. The associated ground motion in the Flathead Lake area was intensity V on the MM scale.

In the years 1969 and 1970, approximately 100 earthquakes occurred in the vicinity of Flathead Lake. Between the years 1965 and 1975, at least 24 earthquakes having an intensity of V on the MM scale have occurred in the area. An earthquake of April 1, 1969, occurred virtually at the site and had an intensity of VII on the MM scale.

Regarding stress and stability of the structure, the safety report concluded that none of the dam structures were in imminent danger of failure and seismic risk to the structure was low due to the high competency of the foundation rock and the extensive distance to known active faults. Subsequently, no adverse geologic conditions were considered to be present in the reservoir area that could endanger the safety of the structures.

1/ All elevations refer to U.S. Geological Survey datum.

The project dam and powerhouse are solidly anchored on bedrock. There is no evidence of landslide, subsidence, or erosion at the forebay, the penstock alignment, or the powerhouse. There is no potential for liquefaction, ground rupture, or differential compaction at the site of the dam or powerhouse.

B. License Proposals

1. Issuance of License to MPC (Project No. 5)

MPC would continue to use the energy from the Kerr Project to meet the electrical demands of its integrated system. MPC does not propose any new major project construction, or any changes in operation. MPC proposes, however, to construct the following minor recreational improvements below the dam: restroom facilities, a boat ramp, picnic tables, improved road access, a parking area, and a change shield with a bench.

If MPC were granted the license for the Kerr Project, the Tribes would lose the opportunity to sell the Kerr power production in the open market. Since the Tribes have no power obligations, they would not need to develop other power resources. The alternative to the revenue the Tribes would receive from marketing Kerr power is the income the Tribes would receive from MPC as annual charges for use of Tribal lands. The amount the Tribes would receive as compensation for use of their lands if MPC were granted the license is indeterminable although it is generally accepted that it would be in excess of 2.6 million dollars annually. The amount the Tribes would receive for sale of the project power cannot be determined without knowing the identity of the power purchaser and whether or not the Tribes would be subject to rate regulation, allowing a specific rate of return on investment. If the Tribes do not have the opportunity to sell project power, alternate sources of revenue may be needed to finance Tribal goals.

2. Issuance of License to the Tribes (Project No. 2776)

The Tribes propose to market the output of the project primarily in the Pacific Northwest or in California (Russell, 1984). If the Tribes were not able to market the power to those regions, then the power could be sold back to MPC. Income from the project would help finance Tribal goals. No new construction, other than recreational improvements, or changes in operation are proposed; the Tribes are considering, however, upgrading the existing generating units and adding a fourth unit (Houle, 1984a). Such changes would require the filing of an amendment of license, and subsequent technical and environmental review, agency consultation, and Commission approval.

The Tribes propose to construct the following recreational improvements below the dam: road improvements, a raft launch, restroom facilities, picnic tables, and a sign.

If the Tribes were to receive the Kerr license, MPC's resources to meet load requirements would be reduced by 180 MW capacity and about 1,000 gigawatt hours of energy annually. MPC would have to replace the lost power in order to meet its load requirements (see Section II). MPC may be able to purchase power for the short-term. The most economical, reasonable, long-term alternative power source would be a partial share of a coal-fueled, steam-electric plant. Hydropower is not an alternative because all the environmentally acceptable sites for economical large-scale, hydro development have been utilized. MPC could, and does plan to expand its existing hydro developments, but such expansion yields peaking capacity with little attendant energy production. Further, the small amount of additional energy that would be produced, would be available during the spring high-runoff period, and would not be available for Montana's winter peak season.

The potential sale of power outside of Montana by the Tribes could reduce the need to construct new generating facilities in the purchasing region.

B. Alternatives

1. Denial of New Power License and Issuance of Nonpower License

Section 15(b) of the Federal Power Act, 16 U.S.C. §808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a State, municipality, interstate agency, or another Federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

If a nonpower license were granted for the Kerr project, the project could be operated to maximize flood control, fishery, and recreational resources. The reservoir operation would be very similar to past operation because flood control requirements, like power requirements, would dictate that the project discharge be increased in the winter to draw down the reservoir in anticipation of high spring runoff. The difference in project operation would be in the hourly

discharges from the project. If the Kerr Project were not operated to meet the changing hourly power requirements of the MPC system, it could be operated at a constant flow each day and the streamflow fluctuations downstream of the project could be virtually eliminated.

If a nonpower license were granted, MPC would, at some future date, have to develop additional power resources to replace the power lost from the Kerr project, as discussed in Section III. A. 2, and might require the Tribes to find other sources of revenue.

2. Denial of License Applications

Denial of the license application could lead to removal of the power facilities and removal of all project works. Such action would eliminate power production from a renewable natural resource and would be inconsistent with our national goal of energy self-sufficiency. Loss of the project power would require MPC to obtain equivalent power from another source, as described in Section III. A. 1, and might require the Tribes to find other sources of revenue.

The removal of project works would adversely affect project benefits, which include flood control, tax revenues, payments to the Tribes, and recreation. Adverse environmental effects would occur, such as the resuspension of sediment that has accumulated behind the dam. Construction and operation of an alternative energy source would have additional impacts.

Considering the need for the project's power, the significant benefits that would be lost, and the adverse environmental impacts that would result, removal of project works is not considered to be a realistic alternative and is not discussed further.

3. Federal Takeover

An alternative to issuing a new license for continued operation of the Kerr Project would be takeover of the project by the Federal Government. Such action can be recommended to Congress by the Commission on its own motion or upon recommendation of a Federal department or agency, under the provisions of Section 14 of the Federal Power Act. If the Commission determined, after notice and opportunity for hearing, that the United States should exercise its right to take over the project, the Commission would submit its recommendation to Congress with such information as it considers appropriate.

If the Federal government were to take over the project, the project would be operated in coordination with the other hydro projects in the region just as it has in the past. The only difference would

-11-

be that the Federal government would market the power rather than MPC, and MPC would have to develop or obtain alternative additional generation resources in the future to make up for the loss of power from Kerr. The Tribes might have to look for additional sources of revenue.

To date, no agency has recommended Federal takeover. Federal takeover would not appear to offer any significant environmental benefits as compared to relicensing the project to either Applicant. Therefore, Federal takeover is not recommended.

4. Issuance of An Annual License

Section 15(a) of the Federal Power Act, 16 U.S.C. §808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to MPC until the resolution of all issues, including the completion of ongoing fish and wildlife studies, which are scheduled for completion in 1987. At that time, a long-term license would be issued to either Applicant. The annual license contains the same terms of the expired license, thereby maintaining the status quo.

5. Operational Alternatives

No specific long-term operating regime has been proposed that could enhance environmental resources at the project. Alternative operating regimes cannot be considered until a sufficient information base is developed after completion of ongoing fish and wildlife studies.

6. Issuance of a Joint License

Under a joint license, MPC and the Tribes would share the project. The arrangements by which the parties would share the project are numerous. MPC and the Tribes could concurrently share the project equally. Such a proposal would require extensive coordination in operation of the project if MPC's and the Tribes' respective customers had different power requirements. Another alternative would have MPC and the Tribes operate the project consecutively. This arrangement would permit a sharing of the power benefits and would allow the continued operation of the project under a single manager. If MPC were to manage the project over the first half of the license, the customers of MPC would continue to receive relatively low cost power and the Tribes an annual charge. When the project is turned over to the Tribes, the Tribes would obtain all of the benefits for its Tribal members.

IV. ENVIRONMENTAL ANALYSIS

A. Proposed Project

The following relates to a discussion of the environmental effects of issuing a license for the Kerr Project to either applicant.

1. General Description of the Locale

Flathead Lake, the largest natural lake west of the Mississippi River, is 28 miles long and 15 miles wide and contains 21 islands. Numerous small communities are located along the lakeshore (Figure 3). The lake lies in a broad north-south aligned glaciated valley bounded on the east and west by rugged mountain ranges. The dam is located on the Flathead River, 4 miles below the natural outlet of the lake. The 1,500 feet of river channel between the dam and powerhouse is characterized by a rocky gorge. Below the dam, the river flows through a steep canyon area before continuing south to join the Clark Fork River. The Continental Divide is located about 50 miles east of the project. Most of the lands surrounding the project area are in agricultural and forest production.

The surrounding mountain ranges and Flathead Lake have a moderating effect on the area's climate. Monthly precipitation is relatively constant; average annual precipitation is approximately 15 inches (Environmental Protection Agency, 1983).

2. Geology and Soils

Affected Environment: The project area is located in the Northern Rockies in Flathead Valley, which forms part of the Rocky Mountain Trench. Flathead Valley is a flat bottomed, north-south oriented valley that lies between the Salish and Mission Mountain Ranges. The area is largely underlain by Precambrian age metasedimentary rocks consisting of thin bedded, shallow water argillite, quartzite, metasandstone, and limestone. Flathead Valley is a down-thrown block fault valley bounded on the east by the Mission Fault, which is oriented generally north-south and roughly coincides with the eastern shoreline of Flathead Lake, and by the Salish Fault which is located 13 miles west of the southern end of the reservoir and angles off toward the north-northwest. The Shroder Creek and Jette Lake Faults are oriented generally east-west and intersect the reservoir about midway up the western side at Big Arm. Seismic activity at the project is discussed in Section III. A (Project Safety). The Flathead Valley floor is occupied by a thick inter-bedded sequence of unconsolidated glacial drift that includes till; ice marginal stream-deposited sands and gravels; ice marginal lake deposits of fine sand, silt, and clay; and outwash delta sands and gravels (Corps of Engineers, 1979).

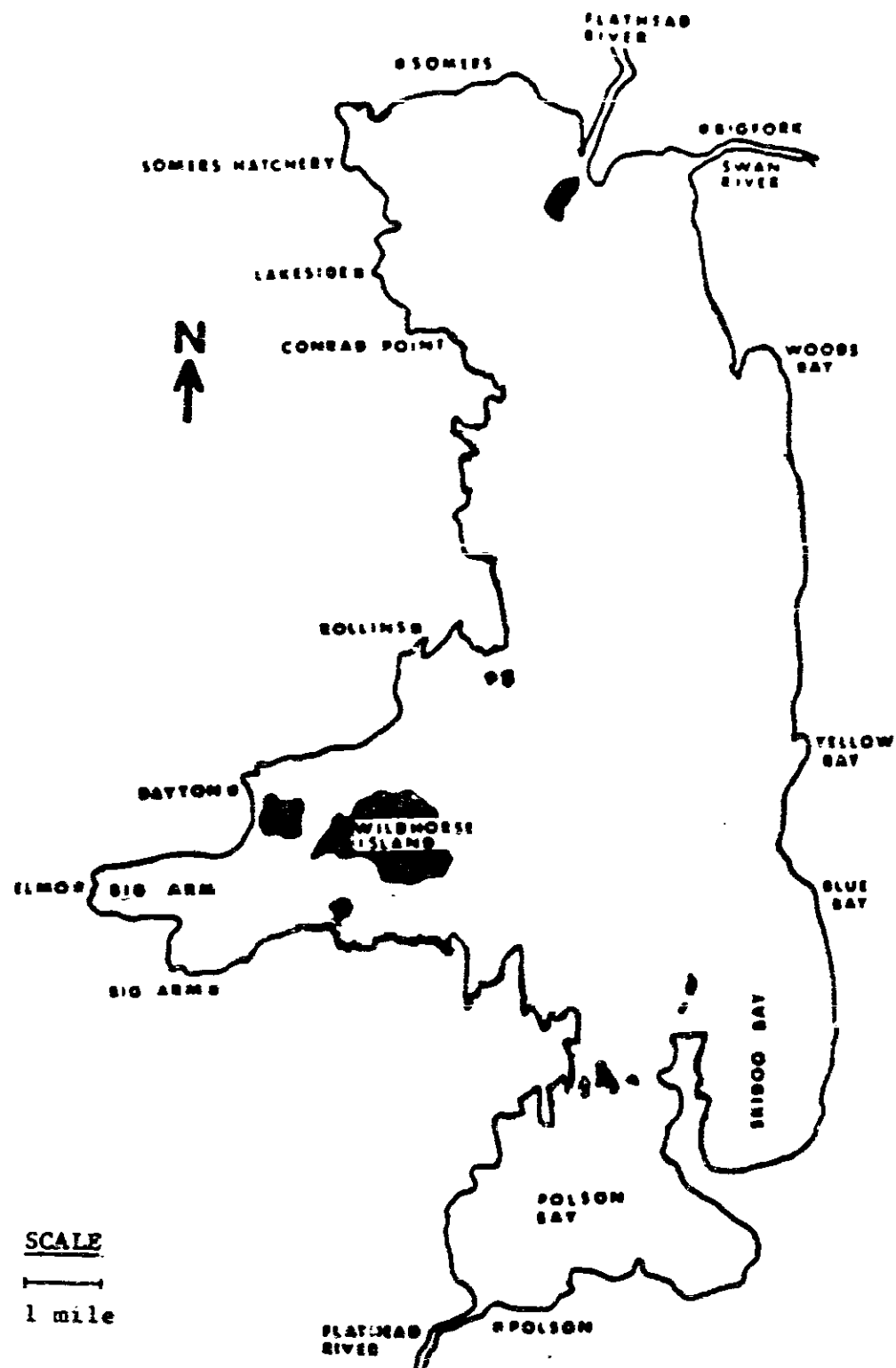


Figure 3. Map of Flathead Lake (Source: Decker-Hess and McMullin, 1983, as modified by Staff).

-14-

The project dam is located 4 miles south of Flathead Lake in a canyon cut by the Flathead River through the terminal moraines that comprise the original natural dam for the lake. The Flathead River meanders southward into the head of Flathead Lake along the gently sloping valley floor. Prior to the construction of the Kerr Project and the upstream Hungry Horse Reservoir, deposition of sediment at the head of Flathead Lake during high spring river flows and high lake levels formed an elongated delta and some islands at the head of the lake. This area was relatively unaffected by wave action during most of the year after the lake receded to lower levels following abatement of the spring flood flows (Stanford, 1979). The north and south ends of the lake, including the delta and associated islands at the north end, consist of sand and fine silts and comprise about 17 percent of the total shoreline of the lake. About 50 percent of the shoreline is composed of gravel and cobbles with remainder being characterized by steep cliffs and exposed bedrock (Decker-Hess and Graham, 1982).

Environmental Consequences: Since the commencement of project operation (and the construction of the Hungry Horse Reservoir), the delta and nearby islands at the head of the lake have been progressively reduced in size. The lake, from about May through January, is currently held to high levels that formerly occurred naturally for only short periods (May through July) during the high spring flows when river-borne sediment was also deposited. Consequently, the upper levels of delta and island shorelines are now subjected to extended periods of wave erosion during times when they were formerly well above the lake level. This high level erosion is a major causative factor in the gradual wasting away of the delta and nearby islands.

Recommended Mitigation: The loss of the delta and nearby islands at the head of the lake could likely be more than simply a case of extended erosion at high lake levels. For instance, the effects of Hungry Horse Reservoir and other upstream controls on the river's sediment load and delta building ability may also contribute to the loss. The entire dynamic system should be studied to fully determine the causes of the observed losses and other effects on the lake-head delta and islands. The studies should investigate operation of the project and reservoir, operation of the drainage basin above the project, flows and sediment loads entering the reservoir, and other factors. All factors need to be fully addressed for existing and pre-project and pre-river basin development conditions in order to determine their effects on each other and on deposition and erosion (delta/island building and delta/island losses) at the mouth of the river in Flathead Lake. This would be necessary to determine what changes in project operation or other measures would be needed to stop the losses and enhance delta/island growth, and to determine what project changes or other measures, if any, would be feasible.

Unavoidable Impacts: Pending the results of appropriate studies, continued losses of the lake head delta and islands would be unavoidable under continued current project operation.

3. Water Resources

Affected Environment: Flathead Lake is 28 miles long and varies from 5 to 15 miles wide, with 168 miles of shoreline (Montana Power Company, 1976). The lake has a mean depth of 165 feet and a maximum depth of 365 feet (Environmental Protection Agency, 1983). Storage capacity of the lake between elevations 2,883 feet and 2,893 feet is 1,219,000 acre-feet (Montana Power Company, 1976). The drainage area of Flathead Lake at Polson, Montana, is approximately 7,000 square miles in Montana and Canada. Major rivers in the drainage include the South, North, and Middle Forks of the Flathead River, which form the upper Flathead River at Columbia Falls (Figure 1), and the Swan River (Figure 4). The South Fork of the Flathead River and the Swan River are regulated by hydroelectric facilities. An average of 8,405,000 acre-feet of water flows through Flathead Lake, as measured at Polson, each year (Montana Power Company, 1976). Average annual flow is 11,700 cubic feet per second (cfs).

Kerr Dam controls the lake levels between elevations 2883 and 2893 feet, all within the natural fluctuations of lake levels existing before the dam was built (Decker-Hess and McMullen, 1983; Federal Energy Regulatory Commission, 1980). Lake elevations under high flows are not controlled by the dam but by the river channel between the lake and the dam. The natural flow and lake level regime were first changed when water storage began on April 11, 1938 (Figure 5), and was again altered when Hungry Horse Dam, located on the South Fork Flathead River, was closed in September, 1951 (Federal Energy Regulatory Commission, 1980). Hungry Horse Dam controls 26 percent of the drainage above Flathead Lake. The remainder of the drainage is uncontrolled. 1/

Maximum lake level is typically reached in May or June and maintained into September (Figure 5). The lake is drawn down through February at an average monthly rate of about 1.8 feet and held near minimum pool level for flood control purposes until spring refill (Decker-Hess and McMullen, 1983). Prior to impoundment, water levels remained relatively constant from September to mid-April (Figure 5); spring runoff increases the elevation to the maximum for the year in May and June.

1/ Letter from Bruce Blanchard, Director, Environmental Project Review, Office of the Secretary, Department of the Interior, Washington, D.C., October 5, 1984.

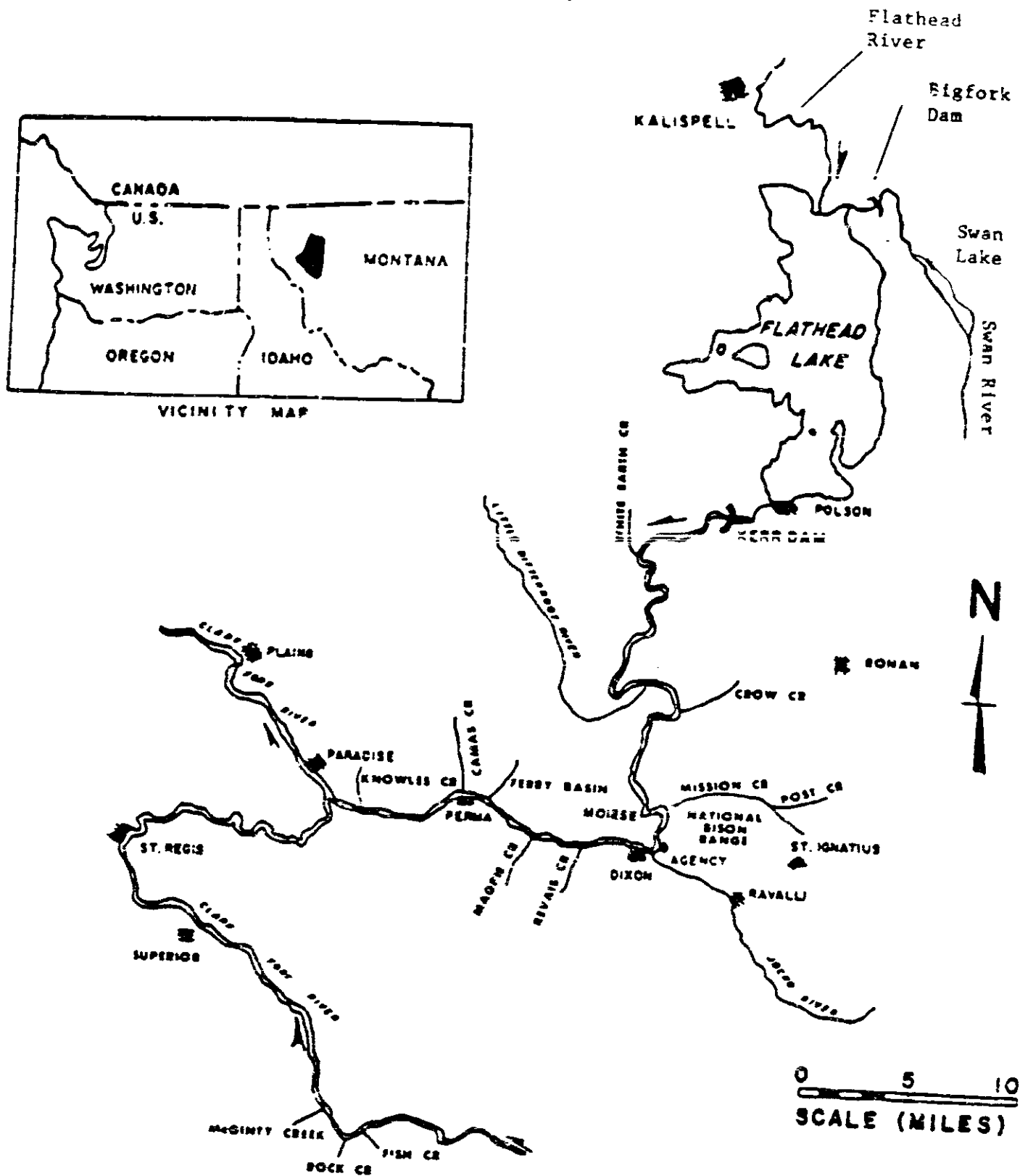


Figure 4. Location of rivers and creeks in the vicinity of the Kerr Project (Source: Corps of Engineers, 1979, as modified by Staff).

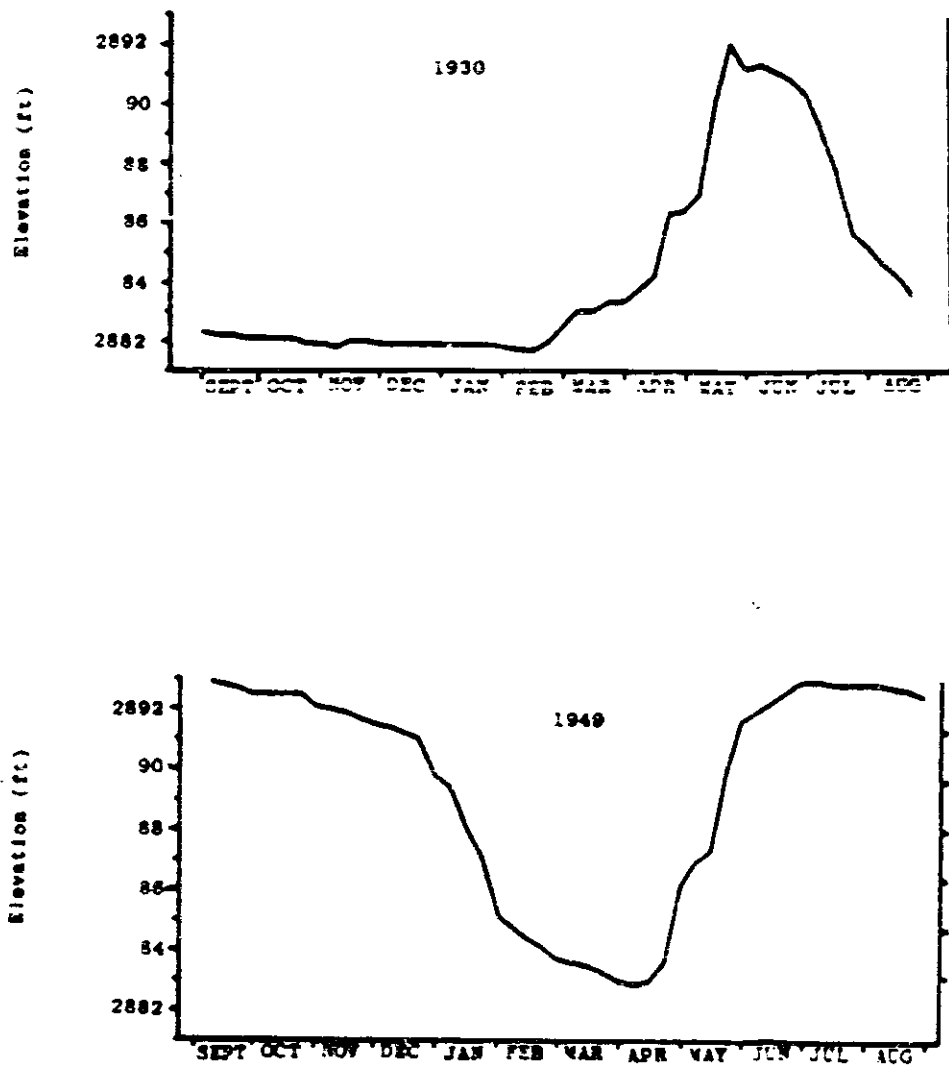


Figure 5. Annual lake levels of Flathead Lake in 1930, prior to construction of Kerr Dam and in 1949, after construction of Kerr Dam (Source: Decker-Hess and McMullin, 1983, as modified by Staff).

Below Kerr Dam, the lower Flathead River flows for 72 miles to its confluence with the Clark Fork River. Major tributaries of the lower Flathead River include the Jocko River, Post Creek, Mission Creek, Crow Creek, and Little Bitterroot River (Figure 4). The lower Flathead River is basically a low gradient river with flows regulated by Kerr Dam and affected by hydropower operations (DosSantos et al., 1983). High, mean, and low average runoff flows have been decreased 25, 32, and 79 percent, respectively (Figure 6). Winter flows, however, have been increased. Average increases from November through February for high, mean, and low flows are 65, 145, and 56 percent, respectively (Figure 6). Daily water level fluctuations occur due to project peaking and are represented in Figure 7. Operation of the project is based on a minimum average daily release of 1,500 cfs.

Flathead Lake is considered oligomesotrophic and has been classified by the State of Montana as A OPEN D1, which means that the water is unpolluted and suitable for all domestic and recreational purposes. The water quality of the lake is changing, however, due to an increase in the amount of phosphorus entering the lake (Environmental Protection Agency, 1983).

Water quality downstream from the project is classified by the State of Montana as B-D1, which means that the water is to be maintained suitable for drinking, culinary, and food processing purposes after treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes, waterfowl and furbearers; and agricultural and industrial water supply. Present operation of the project is in compliance with the State's water quality standards. ^{1/} During high flow periods, however, water quality is reduced due to turbidity and attendant sedimentation. Water temperatures in the lower Flathead River are slightly higher during summer than in the Flathead River above Flathead Lake (DosSantos et al., 1983). During 1982, summer water temperatures approached 68° Fahrenheit (F), while winter temperatures reached 32°F. Lower Flathead River tributaries have fair to poor water quality. Excessive turbidity is currently a problem, especially in the Little Bitterroot River, due to forest harvest, irrigation practices, and a lack of erosion control (Corps of Engineers, 1979). Water quality is further degraded by leaching of fertilizers and pesticides into the tributaries and mainstem Flathead River, by livestock access into streams, and erosion of fragile soils from livestock overgrazing (Corps of Engineers, 1979).

^{1/} Letter from D.G. Williams, Chief, Water Quality Bureau, Environmental Sciences Division, Montana Department of Health and Environmental Sciences, Helena, Montana, February 18, 1976.

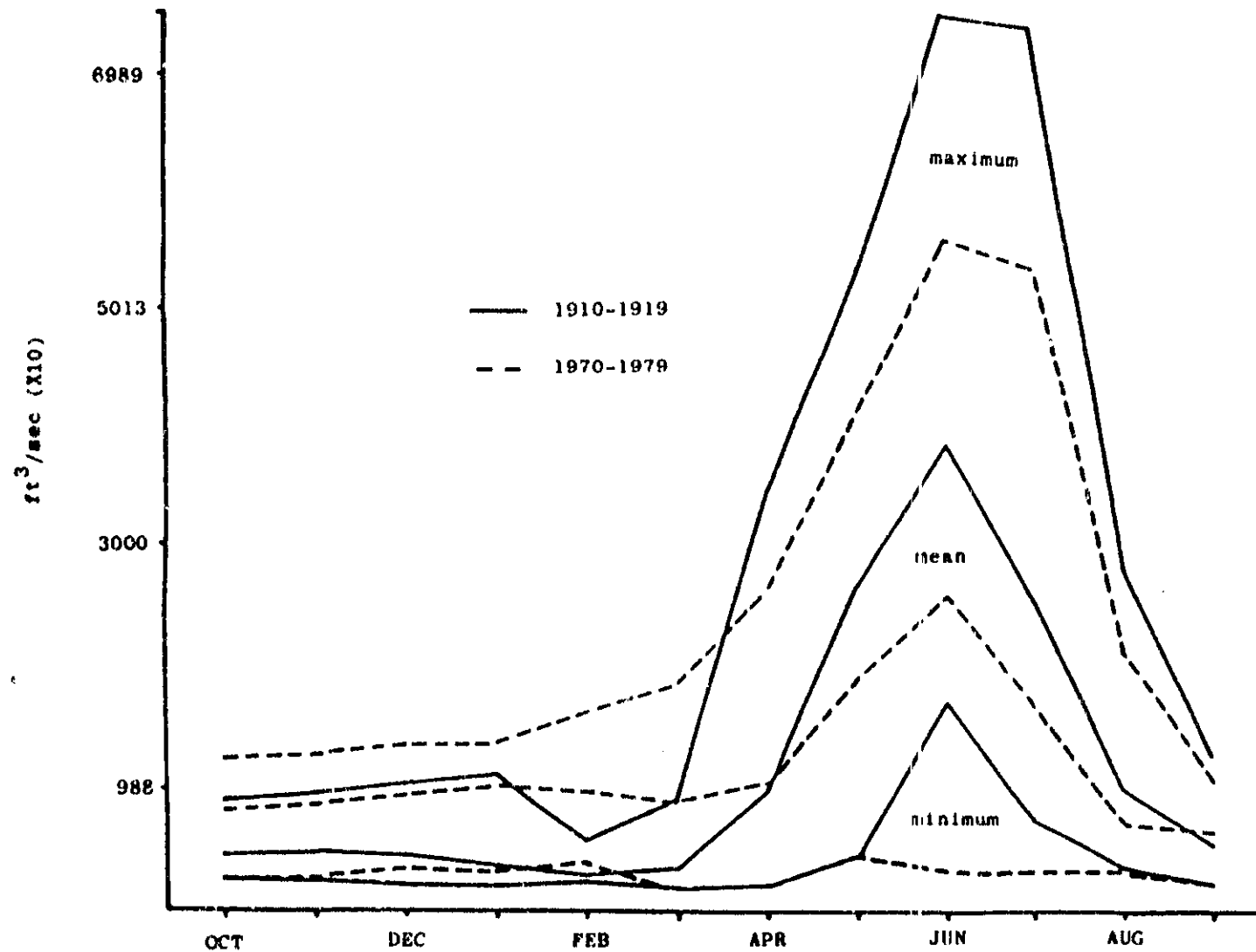


Figure 6. Pre- (solid lines) and post-impoundment (broken lines) average annual flows for the Lower Flathead River recorded directly below Kerr Dam (RM 74.7) at the USGS gauge station established in 1907 (Source: DosSantos et al., 1983, as modified by Staff).

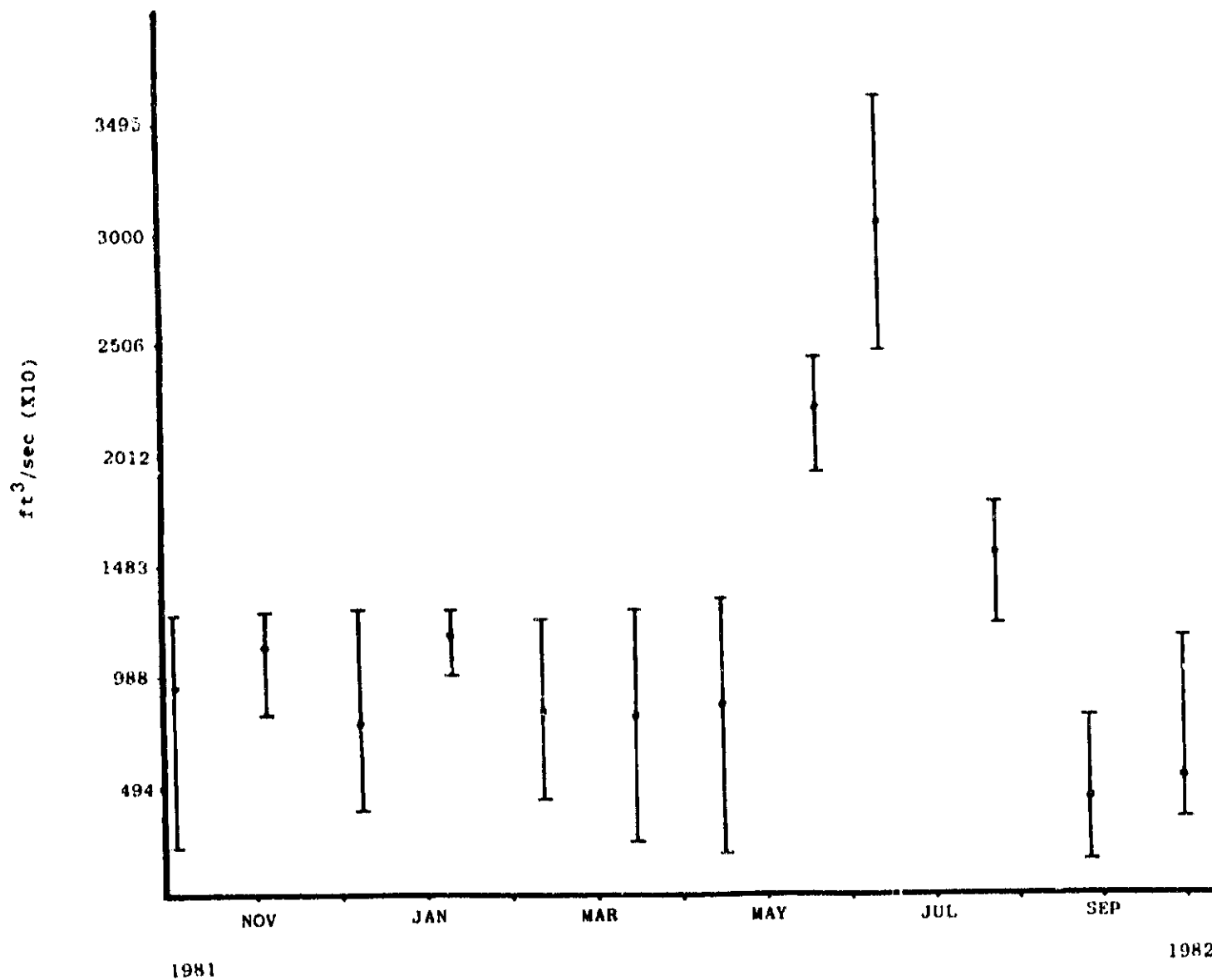


Figure 7. Representative monthly discharges from Kerr Dam for water year 1982 recorded directly below the facility (USGS unpublished data). Daily range and mean discharges for one random day each month are given (Source: DosSantos et al., 1983, as modified by Staff).

Environmental Consequences: Seasonal water levels in Flathead Lake would continue to be altered from pre-impoundment days by hydroelectric operations as described above (Figure 5). The flow regime and river water levels in the lower Flathead River would also continue to be altered by hydroelectric operations. In the Lower Flathead River, continuous water level fluctuations due to power peaking and land use practices would continue to aggravate turbidity and sedimentation problems (DosSantos et al., 1983).

Recommended Mitigation: See Section IV. A. 4.

Unavoidable Impacts: Historic lake levels and flow patterns would continue to be altered by current hydropower operations. Water level fluctuations and area land use practices would continue to exacerbate naturally occurring turbidity and sedimentation in the lower Flathead River.

4. Fishery Resources

Affected Environment: A variety of game and non-game fish are found in Flathead Lake and the lower Flathead River (Table 1). Important game fish in Flathead Lake include bull trout, cutthroat trout, lake trout, and kokanee salmon. Important game fish in the lower Flathead River include several species of trout (rainbow, brown, cutthroat, and bull), northern pike, and largemouth bass (DosSantos et al., 1983). A year-long creel census on Flathead Lake completed in May 1982, showed that kokanee salmon comprise 92 percent of the sportfishing catch in the lake (Environmental Protection Agency, 1983).

Kokanee, like cutthroat and bull trout, utilize Flathead Lake tributaries for spawning purposes. Kokanee also utilize suitable habitat along the Flathead Lake shoreline for spawning. Surveys of kokanee redds (spawning bed of a fish) during autumn of 1981 and 1982, revealed that the major spawning areas for kokanee are McDonald Creek and the mainstem Flathead River, which accounted for 75 and 13 percent, respectively, of the redds counted (Environmental Protection Agency, 1983). Flathead Lake contributed only 4 percent of the kokanee redds in the Flathead system during this period.

In the lower Flathead River, mountain whitefish, brown trout, and northern pike have been collected throughout its entire length (DosSantos et al., 1983). Rainbow and cutthroat trout have been collected throughout most of the river, but appear to be most numerous in the lower reaches. Largemouth bass have been collected primarily in backwater areas. Northern pike also prefer backwater areas, but are commonly found in slackwater areas along the entire river. Mountain whitefish is the most abundant salmonid in the lower Flathead River, while brown, rainbow, cutthroat, and bull trout are relatively uncommon (DosSantos et al., 1983).

-22-

Table 1. The common and scientific names and distribution of fish species found in Flathead Lake and in the lower Flathead River System. 1/

Common Name	Scientific Name	Distribution <u>2/</u>
Lake trout	<u>Salvelinus namaycush</u>	F
Bull trout	<u>S. confluentus</u>	FR
Brook trout	<u>S. fontinalis</u>	FR
Cutthroat trout	<u>Salmo clarki</u>	FR
Rainbow trout	<u>S. gairdneri</u>	FR
Brown trout	<u>S. trutta</u>	R
Kokanee salmon	<u>Oncorhynchus nerka</u>	F
Mountain whitefish	<u>Prosopium williamsoni</u>	FR
Lake whitefish	<u>Coregonus clupeaformis</u>	FR
Pygmy whitefish	<u>Prosopium coulteri</u>	F
Northern pike	<u>Esox lucius</u>	R
Largemouth bass	<u>Micropterus salmoides</u>	FR
Black bullhead	<u>Ictalurus melas</u>	FR
Yellow bullhead	<u>I. natalis</u>	R
Yellow perch	<u>Perca flavescens</u>	FR
Northern squawfish	<u>Ptychocheilus oregonensis</u>	FR
Peamouth	<u>Mylocheilus caurinus</u>	FR
Pumpkinseed	<u>Lepomis gibbosus</u>	FR
Largescale sucker	<u>Catostomus macrocheilus</u>	FR
Longnose sucker	<u>C. catostomus</u>	R
Redside shiner	<u>Richardsonius balteatus</u>	FR
Slimy sculpin	<u>Cottus cognatus</u>	FR

1/ Source: Montana Power Company, 1976; DosSantos et al., 1983.

2/ F=Flathead Lake; R=Lower Flathead River; FR=both lake and river.

Environmental Consequences: Kokanee salmon in Flathead Lake are reported to be adversely impacted by operation of the Kerr Project and Hungry Horse Dam (Environmental Protection Agency, 1983; Decker-Hess and McMullin, 1983). Hungry Horse Dam operations affect kokanee that utilize the mainstem Flathead River above Flathead Lake for spawning. Kokanee spawn in the fall when Hungry Horse Dam generates peak power and, thus, flows are high in the mainstem Flathead River. Flows are reduced during the winter egg incubation period, resulting in dewatering of many redds and subjecting eggs to freezing and dessication (Environmental Protection Agency, 1983). In 1981, the Montana Department of Fish, Wildlife, and Parks (MDFWP) recommended that flow releases from Hungry Horse Dam be adjusted to minimize the dewatering of redds to the extent possible. The Northwest Electric Power and Conservation Planning Council adopted the recommendations in 1982. Implementation of the recommended flow releases began in the fall of 1982 (Environmental Protection Agency, 1983).

Kokanee salmon that spawn along the shoreline of Flathead Lake above minimum pool levels are also affected by water level fluctuations due to current operation of Kerr Dam. Presently, lake levels remain high during kokanee spawning in November. Lake levels are then reduced during the egg incubation and emergence periods. Decker-Hess and McMullin (1983) report that the operation of Kerr Dam by drawing down the reservoir through February and holding the water level near minimum until spring refill is not conducive to successful shoreline embryo survival.

In the lower Flathead River, operation of the Kerr Project, coupled with land use practices within the lower Flathead River drainage, results in depressed fish and invertebrate production. Flow fluctuations result in the exposure of aquatic habitat. This often results in reduced populations, numbers, biomass, and diversity of benthic invertebrates (Hildebrand, 1980). Flow fluctuations due to hydroelectric operations also appear to impact reproductive success and recruitment of northern pike, trout, and whitefish by the dewatering of spawning areas and stranding of larval fish (DosSantos et al., 1983). DosSantos et al. (1983) reported that Flathead River marshes, utilized for spawning by northern pike, were found to be drained frequently during the spawning season. Further, the current operating practice of releasing a minimum flow as low as 1,500 cfs may be another factor limiting aquatic production in the lower Flathead River. This low flow results in significant exposure of channel substrate. 1/

1/ Letter from James H. Rathiesberger, Special Assistant to the Secretary, Office of the Secretary, Department of the Interior, December 9, 1980.

Recommended Mitigation: In 1981, an intensive research program to document the extent of kokanee salmon spawning along the Flathead Lake shoreline and to determine the effects of water level regulation by Kerr Dam and Hungry Horse Dam, was sponsored by BPA (Decker-Hess and McMullin, 1983). In January 1983, BPA also funded a study of the lower Flathead River (DosSantos et al., 1983). The results of both studies are expected to be completed in 1987. The completed studies will provide the necessary data from which a fisheries management plan for Flathead Lake and River would be developed with consideration given to recreation, hydropower operations, and other water use requirements.

In the interim, the Department of the Interior (Interior) believes that a 3,200 cfs instantaneous minimum flow requirement would be appropriate to partially mitigate impacts in the lower Flathead River from operation of the Kerr Project until a more permanent management plan is developed (Jones, 1984). This flow would increase the permanently wetted area of the river, likely improve aquatic invertebrate production, and increase fishery habitat as compared to existing low flows. The continued release of this flow during dry years, however, could result in reservoir drawdown of a few inches, which may adversely affect recreation at Flathead Lake by exposing additional shoreline (see Section IV. A. 3).

To limit impacts to Flathead Lake, an interim instantaneous flow of 3,200 cfs should be released during the recreational season (June through August), unless lake levels drop below 2892.7 feet elevation. At that time a minimum flow of at least 2,200 cfs should be released. This would allow for maintenance of lake water levels during the recreational season and would provide fishery benefits. During the remainder of the year (September through May), the 3,200 cfs instantaneous flow should be the minimum release. After the aforementioned studies are completed, the Licensee should cooperate with the appropriate Federal and state resources agencies in determining more permanent measures for protecting and enhancing the fishery resources in the Flathead River drainage.

Unavoidable Impacts: Seasonal drawdown of Flathead Lake for flood control purposes would continue to impact shoreline spawning kokanee salmon. Downstream flow fluctuations would continue to be a factor contributing to depressed fish populations. The fishery may, however, show slight improvement with the proposed interim minimum flow release.

5. Vegetation

Affected Environment: Three diverse vegetative communities dominate the Flathead Lake area. Riparian woodlands are found on river banks, level bottoms, and floodplains in the project area. Aspen (Populus tremuloides), willow (Salix spp.), and black cottonwood (P. trichocarpa) are important tree species. The arid, rolling foothills are dominated by bunchgrass and shrub vegetation. The valley bottoms and surrounding mountains are characterized by a coniferous forest type. Douglas fir (Pseudotsuga menziesii), ponderosa pine (Pinus ponderosa), and lodgepole pine (P. contorta) are the dominant tree species (Montana Power Company, 1976).

Vegetative types found along the Flathead River below the dam are varied, and include grassland; brush; dry and open-canopied coniferous forest; open-canopied broadleaf forest; cropland; and wetlands (Corps of Engineers, 1979). The riparian vegetation along the river from Kerr Dam to Dixon is dominated by Rocky Mountain juniper (Juniperus scopulorum). Downstream of Dixon, the riparian communities are characterized by red-osier dogwood (Cornus stolonifera), willows, black cottonwood, and ponderosa pine (Gregory et al., 1984).

There are no Federally listed threatened or endangered plant species known to occur in the project area.

Environmental Consequences: The project would result in the continued loss of timber production that resulted from original project construction and from increased lake and groundwater levels produced by initial operation of the project. No specific figures are available, but in 1930 the U.S. Geological Survey estimated that a maximum of 5,700 acres of pasture and timber land and 7,200 acres of cultivated land would be affected by project operation (U.S. Geological Survey, 1930). Approximately 400 acres of additional vegetation was affected by construction of project facilities.

Water level fluctuations resulting from present project operation hinders the establishment of vegetation along the shoreline.

Recommended Mitigation: No mitigation appears necessary for the protection of vegetative resources, other than that outlined in Section IV. 6.

Unavoidable Impacts: Reduction in timber production that resulted from construction and from initial operation of the project would continue to occur for the life of the project.

6. Wildlife Resources

Affected Environment: The project area provides habitat for mule (Odocoileus hemionus) and white-tailed deer (O. virginianus). Higher elevations outside the project area support mountain lion (Felis concolor), elk (Cervus elaphus), bighorn sheep (Ovis canadensis), mountain goat (Oreamnos americanus), and black (Ursus canadensis) and grizzly bear (U. arctos). Furbearing species associated with the aquatic environment include beaver (Castor canadensis), muskrat (Ondatra zibethicus), river otter (Lutra canadensis), and mink (Mustela vison). Important upland game birds found in the project vicinity include ring-necked pheasant (Phasianus colchicus), Hungarian (Perdix perdix) and chukar partridge (Alectoris chukar), and sharp-tailed grouse (Pedioecetes phasianellus) (Montana Power Company, 1976).

Flathead Lake and Flathead River provide important habitat for waterfowl. An estimated 165 Canada geese (Branta canadensis) nests were located on the lake shoreline and islands in 1983 (Olson, 1984). Thirty-six goose nests were located in the 40-mile-long stretch of river below the dam in 1982 and 53 in 1983 (Gregory et al., 1984). Mallards (Anas platyrhynchos) are also common on the lake and river. Waterfowl concentrations occur during the winter and migration periods. Peak populations of fall migrants along the north shore of the lake totaled 40,000 ducks in 1978 and 1,800 geese in 1979 (Olson, 1984). Waterfowl use days in 1978 exceeded 1.1 million during the October to December migration period (Olson, 1984). Great blue herons (Ardea herodias) nest along the river.

The Federally listed endangered bald eagle (Haliaeetus leucocephalus) and the osprey (Pandion haliaetus) inhabit Flathead Lake and Flathead River. Four eagle nests are located at the lake. In 1982, three of the nests produced a total of seven fledglings. In the winter of 1982, 6 eagles were observed on the northern half of the lake, 26 on the southern half, and 23 on the Flathead River below the dam (Montana Power Company, unpublished data). In 1979, 21 successful osprey nests were observed on the northern part of the lake, 16 on the southern half, and 6 on the lower Flathead River (Klaver et al., 1982). Other birds of prey include the golden eagle (Aquila chrysaetos), prairie falcon (Falco mexicanus), red-tailed hawk (Buteo jamaicensis), and great-horned owl (Bubo virginianus).

Environmental Consequences: Original construction and initial project operation affected approximately 13,000 acres of vegetation (see Section IV. 5). Estimates of the different habitat types affected are not available, and the impacts to wildlife have not been evaluated. The most important effect was the loss of approximately 700 acres of productive wildlife habitat at the mouth of Flathead Lake, which was used by deer, waterfowl, bald eagles, and ospreys (Stanford, 1979). Loss of shoreline and wetland habitat also had important adverse impacts to wildlife.

Present operation of the Kerr Project adversely impacts wildlife habitat. Fluctuations in lake levels and river levels below Kerr Dam reduces Canada geese nesting opportunities and brooding habitat. Decreases in water levels after the initiation of the nesting period (March to May) can expose land bridges giving predators access to nest sites. Gregory et al. (1984) noted that flows below 6,000 cfs may expose some nesting islands to access by predators. Increases in water levels after nest site selection can inundate low-lying nests. Water level fluctuations below the dam can adversely affect invertebrate production (Gregory et al., 1984), therefore decreasing the food supply of goslings, and can also limit the use of the river by aquatic furbearers. Lake drawdown in the fall can affect the use of emergent and submergent vegetation by resident and migratory waterfowl, especially at the north end of the lake. Water level fluctuations are believed to contribute to the loss of wildlife habitat as a result of bank and island erosion from wave action, primarily near the mouth of Flathead Lake (Section IV. A. 4). The exact extent of these impacts has not been quantified.

There is no evidence that project operation adversely affects the bald eagle or osprey. Although project operation does have adverse effects on certain fish species, there is an abundant prey base for fish-eating birds. Preferred eagle prey species, such as kokanee (Shea, 1973), mountain whitefish (Craighead and Craighead, 1979), and nongame fish species (Snow, 1973), are abundant in the Flathead River system. Further, higher lake levels resulting from project operation provides additional eagle foraging habitat, particularly during the summer months.

Recommended Mitigation: Under the Pacific Northwest Electric Power Planning and Conservation Act of 1980, BPA is sponsoring two studies designed to determine the effect of operation of the Kerr Project on wildlife resources, principally Canada geese. One study is being conducted by the Tribes and will examine the southern half of Flathead Lake and the Flathead River, from Kerr Dam to the confluence with the Clark Fork River (Bonneville Power Administration, 1983a). The second study, being performed by MDFWP, will examine the northern end of Flathead Lake and the Flathead River from the confluence of the South Fork Flathead River to Flathead Lake (Bonneville Power Administration, 1983b). Generally, the studies will provide baseline data on use of the area by geese and on geese habitat, and will evaluate the effects of water level fluctuations on Canada goose nesting success, gosling survival, and nesting and brooding habitat. These studies should also provide useful information concerning the impacts of the project on other wildlife species. Studies are also being conducted by MPC to determine the effect of water level fluctuations on the bald eagle and osprey, and on aquatic furbearers. The studies are scheduled for completion in 1987.

The development of measures to protect and enhance wildlife and wildlife habitat at the project, based on the results of ongoing studies, should ensure that future operation of the Kerr Project does not significantly affect wildlife resources. Consideration should be given to the desirability of increasing minimum flows during the growing season to revitalize backwater and wetlands area; measures to protect wildlife habitat at northern end of the lake from erosion (See Section IV. A. 4); and measures to protect and enhance bald eagle use of the project area, if studies show that project operation adversely affects the eagle. Any recommended mitigative measures should consider the effect on other beneficial uses, including fisheries, recreation, flood control, and power generation.

Unavoidable Impacts: Measures developed after the completion of ongoing wildlife studies would mitigate operational impacts to Canada geese and other wildlife species. Wildlife habitat and wildlife productivity lost as a result of original project construction and initial project operation would continue for the life of the project.

7. Visual Resources

Affected Environment: The Mission Mountains provide a scenic backdrop to the east side of Flathead Lake, forests dominate the northwest shore, and rolling grasslands back the southwest corner. The project lies in an area of snow-capped mountains, canyons, and broad valleys (Environmental Protection Agency, 1983).

Environmental Consequences: Should the lake need to be drafted temporarily during the summer months, then exposed areas of shoreline may occur in those areas with extended gentle horizontal slopes that generally occur at the north and south ends of the lake. The existing dam, powerhouse, and transmission lines would continue to have minor impacts to the area's visual quality. The recommended interim minimum flow would enhance visual quality compared to existing conditions.

Recommended Mitigation: When possible, drafting during the recreational season should be avoided.

Unavoidable Adverse Impacts: Short-term impacts to the shoreline during lake drafting during the summer months could constitute temporary unavoidable minor impacts on visual quality.

8. Cultural Resources

Affected Environment: Several archeological and historic sites are located adjacent to the project boundary around Flathead Lake. These sites should not be affected by the continued operation of

-29-

the project. The Montana State Historic Preservation Officer (SHPO), however, recommends that the sites be periodically monitored to ensure that these sites are not affected by the fluctuations in lake levels associated with project operation. 1/

Environmental Consequences: None.

Recommended Mitigation: On-site visits or visual inspections by boat should be undertaken in a manner satisfactory to the SHPO to ensure the protection of the archeological and historic sites in the vicinity of Flathead Lake.

Unavoidable Impacts: None.

9. Recreation and Other Land Uses

Affected Environment: Recreational activities at the project include fishing, boating, swimming, waterskiing, camping, picnicking and sightseeing. Rafting is a popular activity downstream of the existing powerhouse. Federal, state, and local agencies provide for recreational use at 20 sites around the lake that include facilities for picnicking, camping, swimming, boat access, and fishing. These are supplemented by commercial enterprises that offer similar facilities. MPC provides free public access at an undeveloped site near Kerr Dam and maintains an overlook a short distance upstream from the dam. MDFWP estimates 680,000 visitor days per year on Flathead Lake (predominantly fisherman) and 60,000 visitor days per year on the river (predominantly rafters), which contribute \$5 million to the local economy (Environmental Protection Agency, 1983).

There are many orchards in the Flathead River Valley. The treeless slopes in the southwestern corner of the basin provide significant rangeland, while forests dominate the mountainous terrain that composes the majority of the basin area. Generalized land use consists of 80 percent being in forest and alpine areas (timber management), 8 percent in rangeland, 7 percent in cropland, 4 percent in water, and 1 percent in urban development. Residential dwellings are found along much of the lake perimeter, while undeveloped shoreline sections are dominated by coniferous forest, rock outcrops, and gravel beaches (Environmental Protection Agency, (1983).

1/ Letter from Ken Korte, State Historic Preservation Officer, Montana State Historical Society, Helena, Montana, May 22, 1979.

Environmental Consequences: The present mode of operation that results in stabilized lake levels during the recreational season has benefited the recreational opportunities around the project reservoir. The maintenance of higher minimum flows from the project would enhance rafting on the river downstream from the project dam (Personal communication, Mr. Onno, Owner, Glacier Raft Company, Polson, Montana, July 30, 1984). Based on preliminary analysis, the release of a minimum flow of 3,200 cfs at all times, as recommended by Interior, could result in the exposure of varying amounts of lake shoreline in the shallow areas during the summer months of low water years. Higher lake levels and groundwater elevations, resulting from initial project operation, have adversely affected agricultural lands located near the mouth of the lake, and timber lands (U.S. Geological Survey, 1930). Recreational facilities proposed by each applicant would enhance recreational use of the project area.

Recommended Mitigation: The release of the increased minimum flow of 3,200 cfs should enhance rafting in the Flathead River below the dam. During low flow periods when lake levels drop to 2892.7 feet elevation, however, a minimum flow release of at least 2,200 cfs should be released to accommodate and maintain recreational opportunities at the lake during the recreational season.

Unavoidable Adverse Impacts: Short-term impacts to shorelines during temporary lake drawdowns could constitute an unavoidable minor impact. Agricultural and timber production would continue to be lost with project operation.

10. Socioeconomic Considerations

Affected Environment: The economy of Lake and Flathead Counties is based on natural resource development. The wood products industry is the largest economic sector, providing about 28 percent of the basic income of the two counties. A diverse agricultural industry produces beef, dairy products, hay, grains, cherries, apples, seed potatoes, Christmas trees, trout, and other farm goods, with cash receipts totaling about \$50 million annually. Primary metals production and tourism are also important industries (Environmental Protection Agency, 1983).

Total employment in Lake and Flathead Counties increased by 60 percent between 1970 and 1980, almost double the statewide and national growth rates. This was accompanied by a 31 percent increase in population, most of which was caused by immigration in response to new job opportunities. In 1980, the population of Lake County was 19,056 with a total employment of 6,388, and the population of Flathead County was 51,966 with a total employment of 8,460 (Environmental Protection Agency, 1983).

Per capita income statistics reveal a sharp difference between Flathead County (1 percent above the Montana average) and Lake County (27 percent below the statewide average). A shortage of job opportunities on the Flathead Reservation is one major reason for the lower per capita income of Lake County residents. Unemployment among Indians on the reservation has been estimated at between 30 and 50 percent in recent years. Also, Lake County jobs are concentrated in lower paying sectors, with agriculture, retail trade, and service employment providing the majority of jobs (Environmental Protection Agency, 1983).

The Kerr Project provides employment for 5 individuals. During the 11-year period, 1973 to 1983, MPC's property tax payments averaged \$387,143 per year to Lake County and \$8,587 per year to Flathead County (Houle, 1984b). Rent paid to the Tribes by MPC for use of Tribal land is currently \$2.6 million per year. Payment to the Federal government for headwater benefits from Hungry Horse Dam was \$155,833 in 1982 (Gregg, 1984).

Environmental Consequences: The wages and salaries earned by project personnel (MPC employs 5 persons, the Tribes propose to employ 11 persons) and their subsequent spending at nearby retail establishments would continue to benefit the economies of Lake and Flathead Counties. Lost agricultural and timber revenues from lands affected by initial project operation would persist.

If MPC receives the license, rental payments to the Tribes and tax revenues to Lake and Flathead Counties would continue. Licensing the project to the Tribes, who are not subject to local property taxes, could result in the loss of revenues to the counties. The Tribes, however, support a license condition requiring payments in lieu of taxes to Lake County. 1/

Recommended Mitigation: Payments in lieu of taxes to Lake County, in the event the Tribes were to receive the license, should eliminate adverse impacts to Lake County.

Unavoidable Impacts: Lost agricultural and timber revenues would continue. Licensing the project to the Tribes would result in the loss of about \$8,600 in yearly tax revenues to Flathead County.

B. Nonpower License

Issuance of a nonpower license would maintain existing benefits of the project, such as flood control and recreation, and would benefit the downstream environment. Flows below Kerr Dam would

1/ Resolution of the Governing Board of the Confederated Salish and Kootenai Tribes of the Flathead Reservation, No. 84-158, June 13, 1984.

be stabilized and would mimic a more natural flow regime. Flow fluctuations resulting from peaking operations would be eliminated. A more stable and productive aquatic community would develop. More constant water depths, velocities, and intergravel flows would increase trout spawning success. Northern pike spawning marshes would not be dewatered daily. More stable water levels would also enhance use of the river by nesting Canada geese, aquatic furbearers, and fish-eating birds. The adverse effects of a nonpower license include the loss of property tax revenue to Lake (\$397,000 in 1983) and Flathead Counties (\$27,000 in 1983) and the loss of annual charges to the Tribes (\$2.6 million in 1983).

Replacing the power now being generated by the Kerr Project with power produced from a coal-fired steam plant would adversely impact the environment by increasing the contaminants to be released into the atmosphere and by adding to the visual intrusions and geographical disturbances created by mining of the coal, stockpiling, and hauling it to market. In addition, replacing hydropower with fossil-fired, steam-electric generation would increase the rate of depletion of our natural resources and would substitute a less reliable generating machine for a most reliable one.

C. Annual License

Continued issuance of an annual license to MPC would maintain the status quo. Issuance of a long-term license to either Applicant would be delayed until resolution of outstanding issues. An interim minimum flow release, however, could be incorporated into the annual license, after notice and opportunity for hearing. The environmental consequences and recommended mitigation would be identical to that discussed in Section IV. A, with the exception that implementation of an interim minimum flow release may be delayed. Whether the existing annual license continues in effect or a new, long-term license is issued, implementation of final fish and wildlife mitigative measures would not result until after 1988. Both applicants have the capability to develop an adequate mitigative plan.

Continued issuance of an annual license to MPC or issuance of a long-term license to either applicant at this time would have similar environmental consequences. If an annual license is continued to be issued to MPC, and subsequently a license is issued to the Tribes, then the Tribes' ownership and operation of the project would be delayed.

D. Joint License

The environmental consequences of issuing a joint license would be the same as described under Section IV. A.

V. COMPARISON OF ALTERNATIVES

Issuance of a license to MPC or to the Tribes for the Kerr Project would result in similar beneficial and adverse environmental impacts. Interim mitigative measures incorporated into the license and long-term measures determined after issuance of a license would reduce or compensate for the adverse effects of continued operation of the project on environmental resources.

Issuance of a nonpower license would result in benefits to the fish and wildlife resources located downstream of Kerr Dam, as compared to the proposed project. The flood control and recreational benefits of the project would continue. Power generated by the project, however, would be lost. The power developed by the project is fully utilized to meet Applicant's load requirements and if not available would require construction of a fossil-fired, steam-electric plant to make up the lost power. Construction and operation of a steam-electric plant would have adverse environmental impacts, and its use of a nonrenewable resource would have a negative influence on the Nation's energy independence. Lost revenues to Lake County and to the Tribes would also result. There does not appear to be any persuasive reasons for the denial of a new power license and the issuance of a nonpower license.

Continued issuance of an annual license to MPC would have similar environmental consequences as compared to the issuance of a long-term license. Implementation of an interim minimum flow release, however, may be delayed.

Issuance of a joint license to MPC and the Tribes would have similar environmental consequences as compared to issuing a long-term license to either applicant.

VI. SUMMARY OF UNAVOIDABLE ADVERSE IMPACTS

Issuance of a license for the Kerr Project would perpetuate conditions that have existed for almost 50 years. Lands used for project purposes would continue to be preempted from other uses. Continued operation of the Kerr Project by either MPC or the Tribes would not result in any additional impacts or exacerbate those impacts that have occurred or would continue to occur under the operational regime proposed by either applicant. The development of appropriate mitigative measures, either before or after issuance of a license, would ensure that the impacts of future operation of the project are minimized or adequately compensated. Therefore, licensing the Kerr Project would not constitute a major Federal action significantly affecting the quality of the human environment.

VII. NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

The Environmental Assessment (EA) assesses the environmental consequences of licensing the Kerr Project based on information that is currently available. Based on the discussion in Section VI, an environmental impact statement (EIS) is not necessary at this time. Further, the preparation of an EIS would not provide a more indepth analysis than that provided in the EA. Staff acknowledges, however, that the development of specific mitigative measures or operating regimes and the evaluation of conflicting resource uses can not be finalized at this time until completion of ongoing studies. Staff recognizes that the impacts associated with implementation of specific mitigative measures or changes in project operation that may result from the studies could potentially have significant impacts on the human environment.

Any license issued at this time could contain provisions that would reserve to the Commission sufficient authority to require mitigative measures or changes in project operation, after completion of ongoing studies, to protect and enhance environmental resources. At the time an application for amendment of license is filed to incorporate such measures or changes into the license, Staff will fully assess the environmental consequences of such action and will evaluate the need for an EIS. In the interim, the aquatic environment would benefit from increased minimum flow releases and no irreversible or irretrievable commitment of resources would result.

Continued issuance of an annual license to MPC until completion of ongoing studies would allow an evaluation of the impacts of recommended mitigative measures or changes in project operation that may result from the studies, and a determination of the eventual need for an EIS, prior to issuance of a long-term license. The need for and decision on long-term measures would be the same under either alternative discussed above.

VIII. CONSULTATION AND COORDINATION

Commission regulations require prospective applicants to consult with the appropriate resource agencies before filing an application for license. This constitutes an initial step in compliance with the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, and other Federal statutes. Preapplication consultation must be complete and documented. After the Commission accepts the application, formal comments may be submitted by concerned entities during the public notice period. The following agencies commented on the application.

<u>Agency</u>	<u>Date of Letter</u>
National Marine Fisheries Service	September 15, 1980
State of Montana, Department of Fish, Wildlife, and Parks	September 25, 1980

Army Corps of Engineers	October 24, 1980
Forest Service	November 5, 1980
Environmental Protection Agency	November 10, 1980
Department of the Interior	December 9, 1980
U.S. Fish and Wildlife Service	March 10, 1982; July 9, 1982

MPC responded to agency comments by letters dated April 6, 1981, and April 26, 1982. The Tribes, in a letter dated February 4, 1981, stated that agency concerns would be addressed at the hearing on the competing applications.

Public meetings on the competing applications were held in Kalispell, Montana, on July 9, 1984, and in Pablo and Missoula, Montana, on July 10, 1984.

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X. LIST OF PREPARERS

Alan Mitchnick--EA Coordinator, Vegetation, Wildlife Resources (Wildlife Biologist; M.S., Wildlife and Fisheries Sciences).

Jack Duckworth--Project Safety (Civil Engineer; B.S., Civil Engineering).

Robert Grieve--Water Resources, Fishery Resources (Fishery Biologist; B.S., Fishery Biology).

James Haines--Socioeconomic Considerations (Economist; B.A., Economics, 60 semester hours for Ph.D.).

Peter Leitzke--Geology and Soils (Geologist; M.A., Geological Sciences).

Peter Nygard (Office of Electric Power Regulation)--Need for Power (Electrical Engineer; B.S., Electrical Engineering).

Bonnie Poston--Recreation and Other Land Uses, Visual Resources (Environmental Protection Specialist; B.S., Natural Resource Management).

Edwin Slatter--Cultural Resources (Archeologist; Ph.D, Anthropology).

XI. APPENDICES

- A. Montana Power Company Resource/Requirements for the High Demand and Base Case Scenarios.
- B. Letters of comment on the Draft Environmental Assessment.

Appendix A. Montana Power Company Resource Requirements for the High Demand and Base Case Scenarios.

**MONTANA POWER COMPANY
RESOURCE/REQUIREMENTS FOR THE HIGH DEMAND SCENARIO
PEAK LOAD AND PEAK CAPACITY (MW)
1984-85 THRU 1992-93**

YEAR:	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
RESOURCES:									
MADISON HYDRO	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
HAUSER HYDRO	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
HOLTER HYDRO	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
BLACK EAGLE HYDRO	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
RAINBOW HYDRO	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
COCHRANE HYDRO	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
RYAN HYDRO	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
MOROHY HYDRO	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
MYSTIC LAKE HYDRO	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
FLINT LAKE HYDRO	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
HILLTOWN HYDRO	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
KERR HYDRO (EXISTING)	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0
THOMPSON FALLS HYDRO	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
SUBTOTAL (HYDRO)	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0
BIRD	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
DIESEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CORETTE	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
COLSTRIP 1	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 2	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 3	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
COLSTRIP 4	0.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
BPA PEAK PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BPA(PK/EM EXCHANGE)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MMP NO. 1	80.0	80.0	80.0	80.0	80.0	80.0	77.0	77.0	77.0
MANFORD EXT.	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
WHEELING	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KERR UPGRADE	0.0	0.0	0.0	0.0	19.0	28.0	28.0	28.0	28.0
HAUSER UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T. FALLS UPGRADE	0.0	0.0	0.0	0.0	0.0	50.0	50.0	50.0	50.0
RYAN UPGRADE	0.0	0.0	0.0	0.0	40.0	40.0	40.0	40.0	40.0
CARTER HYDRO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SALEM PLANT (COAL)	0.0	0.0	0.0	0.0	0.0	0.0	330.0	330.0	330.0
GENERIC PLANT NO. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL RESOURCES	1592.0	1776.0	1778.0	1778.0	1837.0	1896.0	2223.0	2223.0	2223.0
FORCED OUTAGE RESERVES:									
ICP	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
NEW PLANT	31.0	63.0	63.0	63.0	66.0	69.0	118.0	118.0	118.0
PEAK LOAD (HIGH SCENARIO)	1320.0	1459.0	1492.0	1528.0	1612.0	1651.0	1685.0	1718.0	1751.0
SYSTEM SURPLUS (DEFICIT):									
WITH KERR EXIST. + UPGRADE	73.0	88.0	55.0	19.0	(9.0)	8.0	252.0	219.0	186.0
WITHOUT KERR EXIST. + UPGRADE (105.0)	(105.0)	(90.0)	(123.0)	(159.0)	(206.0)	(198.0)	46.0	13.0	(20.0)

MONTANA POWER COMPANY
RESOURCE/REQUIREMENTS FOR THE HIGH DEMAND SCENARIO
PEAK LOAD AND PEAK CAPACITY (MW)
1993-94 THRU 2001-02

YEAR:	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-
RESOURCES:									
MADISON HYDRO	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
HAUSER HYDRO	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
HOLTER HYDRO	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
BLACK EAGLE HYDRO	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
RAINBOW HYDRO	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
COCHRANE HYDRO	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
RYAN HYDRO	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
MORONY HYDRO	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
MYSTIC LAKE HYDRO	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
FLINT LAKE HYDRO	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MILLTOWN HYDRO	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
KERR HYDRO (EXISTING)	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0
THOMPSON FALLS HYDRO	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
SUBTOTAL (HYDRO)	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0
BIRD	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
DIESEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CORETTE	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
COLSTRIP 1	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 2	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 3	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
COLSTRIP 4	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
BPA PEAK PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BPA(PK/EN EXCHANGE)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0
MWP NO. 1	77.0	77.0	77.0	0.0	0.0	0.0	0.0	0.0	0.0
HANFORD EXT.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHEELING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KERR UPGRADE	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
HAUSER UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0
T. FALLS UPGRADE	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
RYAN UPGRADE	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
CARTER HYDRO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SALEM PLANT (COAL)	330.0	330.0	330.0	330.0	330.0	330.0	330.0	330.0	330.0
GENERIC PLANT NO. 1	0.0	0.0	0.0	330.0	330.0	330.0	330.0	330.0	330.0
TOTAL RESOURCES	2143.0	2143.0	2143.0	2396.0	2396.0	2396.0	2396.0	2421.0	2421.0
FORCED OUTAGE RESERVES:									
ICP	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
NEW PLANT	118.0	118.0	118.0	168.0	168.0	168.0	168.0	169.0	174.0
PEAK LOAD (HIGH SCENARIO)	1784.0	1820.0	1855.0	1888.0	1918.0	1951.0	1981.0	2012.0	2046.0
SYSTEM SURPLUS (DEFICIT):									
WITH KERR EXIST. + UPGRADE	73.0	37.0	2.0	172.0	142.0	109.0	79.0	72.0	33.0
WITHOUT KERR EXIST. + UPGRADE	(133.0)	(169.0)	(204.0)	(34.0)	(64.0)	(97.0)	(127.0)	(134.0)	(173.0)

**MONTANA POWER COMPANY
RESOURCE/REQUIREMENTS FOR THE BASE CASE SCENARIO
PEAK LOAD AND PEAK CAPACITY (MW)
1984-85 THRU 1992-93**

YEAR:	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
RESOURCES:									
MADISON HYDRO	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
HAUSER HYDRO	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
HOLTER HYDRO	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
BLACK EAGLE HYDRO	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
RAINBOW HYDRO	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
COCHRANE HYDRO	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
RYAN HYDRO	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
MORONY HYDRO	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
MYSTIC LAKE HYDRO	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
FLINT LAKE HYDRO	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MILLTOWN HYDRO	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
KERR HYDRO (EXISTING)	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0
THOMPSON FALLS HYDRO	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
SUBTOTAL (HYDRO)	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0
BIRD	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
DIESEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CORETTE	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
COLSTRIP 1	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 2	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 3	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
COLSTRIP 4	0.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
BPA PEAK PURCHASE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BPA(PK. EXCHANGE)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MWP NO. 1	80.0	80.0	80.0	80.0	80.0	80.0	77.0	77.0	77.0
HANFORD EXT.	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
WHEELING	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KERR UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAUSER UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T. FALLS UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RYAN UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARTER HYDRO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SALEM PLANT (COAL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GENERIC PLANT NO. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL RESOURCES	1592.0	1778.0	1778.0	1778.0	1778.0	1778.0	1775.0	1775.0	1775.0
FORCED OUTAGE RESERVES:									
ICP	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
NEW PLANT	31.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0
PEAK LOAD (BASE CASE SCENARIO)	1314.0	1341.0	1371.0	1403.0	1435.0	1464.0	1496.0	1528.0	1557.0
SYSTEM SURPLUS (DEFICIT):									
WITH KERR EXIST. + UPGRADE	79.0	206.0	176.0	144.0	112.0	83.0	48.0	16.0	(13.0)
WITHOUT KERR EXIST. + UPGRADE	(99.0)	28.0	(2.0)	(34.0)	(66.0)	(95.0)	(130.0)	(162.0)	(191.0)

MONTANA POWER COMPANY
RESOURCE/REQUIREMENTS FOR THE BASE CASE SCENARIO
PEAK LOAD AND PEAK CAPACITY (MW)
1993-94 THRU 2001-02

YEAR:	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
RESOURCES:									
MADISON HYDRO	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
HAUSER HYDRO	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
HOLTER HYDRO	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
BLACK EAGLE HYDRO	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
RAINBOW HYDRO	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
COCHRANE HYDRO	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
RYAN HYDRO	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
MORONY HYDRO	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
MYSTIC LAKE HYDRO	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
FLINT LAKE HYDRO	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MILLTOWN HYDRO	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
KERR HYDRO (EXISTING)	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0	178.0
THOMPSON FALLS HYDRO	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
SUBTOTAL (HYDRO)	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0
BIRD	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
DIESEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CORETTE	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
COLSTRIP 1	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 2	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0	165.0
COLSTRIP 3	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
COLSTRIP 4	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
BPA PEAK PURCHASE	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BPA(PK/EN EXCHANGE)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MMP NO. 1	77.0	77.0	77.0	0.0	0.0	0.0	0.0	0.0	0.0
HANFORD EXT.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHEELING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KERR UPGRADE	19.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
HAUSER UPGRADE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0
Y. FALLS UPGRADE	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
RYAN UPGRADE	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
CARTER HYDRO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SALEM PLANT (COAL)	0.0	0.0	330.0	330.0	330.0	330.0	330.0	330.0	330.0
GENERIC PLANT NO. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL RESOURCES	1829.0	1838.0	2143.0	2066.0	2066.0	2066.0	2066.0	2091.0	2091.0
FORCED OUTAGE RESERVES:									
ICP	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
NEW PLANT	68.0	49.0	118.0	118.0	118.0	118.0	118.0	120.0	125.0
PEAK LOAD (BASE CASE SCENARIO)	1566.0	1615.0	1644.0	1669.0	1687.0	1709.0	1733.0	1757.0	1781.0
SYSTEM SURPLUS (DEFICIT):									
WITH KERR EXIST. + UPGRADE	7.0	(14.0)	213.0	111.0	93.0	71.0	47.0	40.0	17.0
WITHOUT KERR EXIST. + UPGRADE	(190.0)	(220.0)	7.0	(95.0)	(113.0)	(135.0)	(159.0)	(160.0)	(189.0)

Appendix B. Letters of comment on the Draft Environmental
Assessment

B-1

The draft environmental assessment (EA) was published and mailed to the Federal, state, and local agencies and individuals for comments on or about August 24, 1984.

All letters of comment that address specific analyses in the draft EA were reviewed by Staff. Suggestions for correcting text or data and requests for further discussions of a subject have been given consideration. Those editorial changes and suggestions that were practicable and reasonable and that improved the quality of the final EA are incorporated herein.

Constructive criticism presenting a major environmental point of view or one in opposition to a point in the draft EA, when persuasively supported, is treated by making revisions in the appropriate part of the final EA. When the major point of view is not persuasive, reasons are given why Staff did not change its point of view.

The sections or pages of the final EA that have been modified as a result of comments received are listed to the right of the letters of comment.

A "no response is required" answer is given to comments that are statements that raised no questions concerning treatment of subject matter in the EA.

A "your opinion is noted" or "your comment is noted" response is given to comments that are considered to be statements of opinions.

The respondents and the page on which their letter occurs are:

	<u>Page</u>
The Confederated Salish and Kootenai Tribes of the Flathead Reservation	B-2
Montana Department of Fish, Wildlife, and Parks	B-4
Environmental Protection Agency	B-6
Department of the Interior	B-7
Soil Conservation Service	B-15

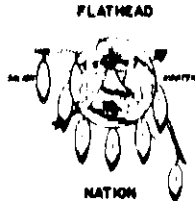


**THE CONFEDERATED SALISH AND KOOTENAI TRIBES
OF THE FLATHEAD RESERVATION**

Fred Hester, Jr. Executive Secretary
Vern L. Chubbuck Executive Treasurer
Loyale Hesterman, Sergeant at Arms

Box 278
Pablo, Montana 59651
(406) 775-6600

September 20, 1984



TRIBAL COUNCIL MEMBERS
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James W. Seale, Vice Chairman
Al Hesterman
Kern S. Hesterman
Robert L. Gertler
Sandy Morgan
Michael Pablo
Victor L. Sengert
Ron Thorsgaard
Terese M. Wolf

HAND DELIVERED

The Honorable Kenneth F. Plumb
Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Re: FERC Project Nos. 5-004 and 2776-000

Dear Secretary Plumb:

Please consider this letter the official response of the Confederated Salish and Kootenai Tribes to the FERC's Environmental Assessment of the relicensing of the Kerr Project, FERC Nos. 5 and 2776. Because we did not receive a copy of the Environmental Assessment until September 4, 1984, and because our staff has since been involved in discussions with the Montana Power Company for a negotiated settlement, our comments are not as detailed as we would have liked. On September 19, 1984, the Presiding Judge in this matter denied our motion for an extension of time from today until October 5, 1984 to file our comments. However, our positions on most of the specific issues covered in the EA are contained in testimony presented by Tribal witnesses, and we refer you to that body of information.

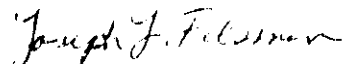
Our general view of the EA is that it is inadequate and needs to be redesigned, supplemented, and/or amended in order to achieve a more accurate and balanced assessment of the impacts associated with the relicensing of the Kerr Project. We believe the alternatives were improperly selected and inadequately considered, particularly those based upon Tribal control of the license. Moreover, the assessment procedure used does not follow federal regulations. Most obviously, the assessment does not identify a preferred alternative on each point considered. Finally, we believe that the data presented in the EA do not justify some of the EA's conclusions and that further research is necessary in several areas, particularly those involving economic impacts of a Tribal license.

A revised discussion of alternatives based on a license issued to the Tribes is set forth in Section III. In such an event, the alternatives to the Montana Power Company (MPC) are fully discussed. Further, Regulations for Implementing the National Environmental Policy Act do not require that a preferred alternative be identified in an Environmental Assessment (see 40 CFR §1508.9). As to the discussion involving economic impact of a Tribal license, no detailed discussion can be made until a specific or potential buyer of Kerr power is identified.

The Honorable Kenneth F. Plumb
September 20, 1984
Page 2

1 Concerning the EA's recommendation for minimum flow in the Lower Flathead River, we strongly object to any qualification of the 1200-feet-per-second recommendation made by the U.S. Fish and Wildlife Service. We believe that this flow is necessary to maintain our valuable aquatic resources. We further believe that if in-flows into Flathead Lake fall below this figure, the difference should be made up by increased releases from Hungry Horse Dam.

Sincerely,


Joseph J. Felaman
Chairman, Tribal Council

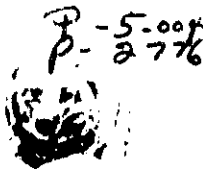
cc: All Counsel
The Honorable Bruce L. Birchman

1 Comment noted. Staff has modified its flow recommendation to further protect the fisheries resources (see item IV. A. 4). In addition, releases from Hungry Horse Dam are controlled by Bureau of Reclamation and not by the Commission.

MONTANA

DEPARTMENT OF

FISH, WILDLIFE AND PARKS



1984 SEP 27 1420 East Sixth Avenue
Helena, Montana 59620
September 24, 1984

REGULATORY COMMISSION

Office of the Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Attn: Quentin A. Edson

Dear Mr. Edson:

- 1 These represent the comments of the Montana Department of Fish, Wildlife and Parks on the Environmental Assessment of the Kerr Project, No. 5-004/2776-GUO. As mentioned in the assessment the Department of Fish, Wildlife and Parks is currently conducting studies funded by the Bonneville Power Administration on kokanee spawning in shoreline areas of Flathead Lake and wildlife studies on the north shore of Flathead Lake. Preliminary results indicate the operation of Kerr Dam has had, and continues to have, an impact on both fish and wildlife. It is our understanding that upon completion of these studies in 1987, the record and the relicensing of the Kerr Project would be reopened to include recommendations for mitigation, protection or enhancement of fish and wildlife based on the results of the studies conducted by the department and the Confederated Salish and Kootenai Tribes.
- 2 It is also our understanding that the minimum flow of 3,200 cfs requested in the lower Flathead River below Kerr Dam would be granted on an interim basis. The EA states "withdrawal of this flow ... could result in reservoir drawdown of a few inches in dry years". The impact of this drawdown on kokanee in shoreline areas of the lake is presently unknown. Such impacts, if they exist, would be identified by the completion of our studies.
- 3 On page 11 of the EA, paragraph 1, titled Water Resources, the average monthly drawdown of 1.8 feet was for water year 81-82 only. This statement could be interpreted to indicate that the 1.8 foot drawdown was an average for the life of the dam.

- 1 Upon completion of studies a mitigation plan for the protection and enhancement of fish and wildlife resources could be developed after consultation with the appropriate agencies.
- 2 No response is necessary.
- 3 Decker-Boss and Graham (1982) state that during the 1981-82 water year drawdown was relatively rapid, declining on the average 1.64 feet per month in December, January, and February. Decker-Boss and McMullin (1981) state that present dam operation results in drawing down the reservoir at an average monthly rate of 1.00 foot from December through February.

Mr. Quentin Edson
Page 2

Thank you for the opportunity to comment. Do not hesitate to
contact us for additional information.

Sincerely,



PATRICK J. GRAHAM
Chief, Research/Special Projects
Fisheries Division

PJG/bjm
C: R. Driest
L. Berry
A. Olsen
J. Decker-Reas

United States
Environmental Protection
Agency

Region 8, Montana Office
Federal Building
301 S. Park, Drawer 10088
Helena, Montana 59626



Ref: BMO

September 28, 1984

Mr. Quentin A. Edson, Director
Office of Hydropower Licensing
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Dear Mr. Edson:

The Environmental Protection Agency (EPA) has completed its review of your agency's environmental assessment (EA) on relicensing the Kerr Project, Flathead River, Montana. The EA appears to be complete and well-written.

1 There are two differences between the alternative of granting the license to Montana Power Company and granting the license to the Confederated Salish and Kootenai Tribes. If the MPC were to lose the license and be forced to make up the power, it may attempt to replace the losses with construction of a new coal-fired thermal generating plant. This could impose environmental impacts on an area where none presently exist. This scenario implies that the Tribes do not sell the power back to the MPC.

2 The second potential difference is the difference, if any, in willingness between the MPC and the Tribe to implement operational changes that would be an improvement environmentally over the present operations. The EA does explain how the MPC and the Tribe may be willing to implement the recommendations that will come from the on-going environmental studies. This issue should be considered when the license decision is made.

3 The most environmentally sound alternative would appear to be the issuance of a yearly license, to either party, until the resolution of all issues, particularly the environmental is made. If a long-term license is issued at this time implementation of environmental improvements following operational changes at the facility might be solely at the discretion of the licensee.

If you have further questions please call Mr. Gene Taylor in this office at FTS 585-5486.

Sincerely yours,


John F. Wardell, Director
Montana Office

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REGULATORY COMMISSION

P.5
P.2776

- 1 Your comment is noted.
- 2 Staff's analysis of necessary operational changes would be the same no matter which applicant receives the license. Staff's recommendations are based on the record evidence and not on a licensee's "willingness" to implement necessary changes.
- 3 Whether a long-term license is issued at this time or after completion of studies, a comprehensive fish and wildlife plan would be developed after completion of the studies. In a new license, the Commission can reserve the right to require reasonable measures after the studies are completed.



ER 84/017

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

NOV 05 1984
REGULATORY DIVISION

Honorable Kenneth F. Plumb, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Dear Mr. Plumb:

The Department of the Interior has completed its review of the Environmental Assessment (EA) for the Kerr Project (FERC Nos. 5 and 2776), Flathead and Lake Counties, Montana. We have reviewed the EA relative to the purpose of an EA which is the development of the information necessary to make the determination of need for an Environmental Impact Statement (EIS). In our evaluation of the document, we looked at three primary areas of concern as follows:

1. Fulfillment of the Council on Environmental Quality (CEQ) regulatory requirements of an EA.
2. Correctness and completeness of the information presented in the EA.
3. The conclusions drawn out of the EA, particularly with respect to the significance of the identified environmental impacts and in turn the need for an EIS.

We have a substantial interest in the adequacy of the EA due to our role in the relicensing process under Sections 4(e) and 10(e) of the Federal Power Act (FPA) as well as our role as trustee for the reserved rights and resources of the Salish and Kootenai Tribes. In regard to Section 10(e), we urge FERC to move forward with review of the annual rent issue independently of the National Environmental Policy Act (NEPA) process. We believe the Tribes should receive an equitable rent for use of their lands regardless of whether the Kerr Project is operated under an annual or term license. The Tribes should not be subject to economic loss as a result of FERC's current emphasis on its responsibility to comply with NEPA.

L. Compliance with Council on Environmental Quality (CEQ) Regulations

The CEQ regulations require that an EA shall include brief discussions of the need for the proposal, of alternatives as required by Section 102(2)(E) of NEPA, of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted. In general we believe these minimum requirements were not met.

In Section II of the EA, Montana Power Company's (MPC) need for the power from the Kerr Project is addressed in some detail with respect to their general power sources and

- 1 demand. However, Section II of the EA does not address the regional need for power from Kerr Dam. We believe this aspect of the need for the project is particularly significant in view of: 1) the regional surplus of electrical power, 2) the concept addressed in Confederated Tribes and Bands of the Yakima Indian Nation v. Federal Energy Regulatory Commission, No. 82-7561, Slip. Op., F.2d (9th Cir. June 7, 1984) that "Congress intended the Commission to make the same inquiries on relicensing as on initial licensing," and 3) the need to explore the operational flexibility of the Kerr Project for the benefit of resource needs other than power generation (i.e. fishery habitat improvement).
- 2 It is apparent on review of the EA that the need for power and the need for the project in the context of which applicant receives the license are not necessarily synonymous. That is to say the regional power supply would not necessarily be deficient without all or part of the Kerr power generation. However, the MPC might have to look to more expensive, although available, sources of power to meet the demands of its service area.
- 3 As noted very briefly in the EA, the Tribes have not identified the need for project power from their perspective as a marketer of power. This is no doubt due, in part, to the regional surplus of power. The Tribes have, however, identified several needs and/or justifications why they should receive the license: 1) it would serve to further "self determination" by the Tribe (a Federal objective), 2) it would reduce tribal dependency on Federal assistance and 3) would promote the reasons for which the reservation was established. We suggest, therefore, that need for the power should have been addressed independently of the discussion of the competing entities need for the license.
- 4 The discussion of alternatives in the EA addresses only the fate of the license (i.e., MPC license, tribal license, Federal takeover, etc.). There is no discussion of the operational flexibility of the Kerr facility and the associated operational alternatives. We believe this is a major deficiency because it does not consider unresolved conflicts concerning alternative uses of available resources as required by Section 102(2)(e) of NEPA. Although MPC and/or the Tribes may propose to continue operation as has occurred over the past 50 years, it is not appropriate to preclude other options as Federal resource management philosophy has changed to one of multiple-use to reflect the expanding resource demands of both the Indian and non-Indian public. A discussion of the environmental impacts of the various operational alternatives would facilitate a comparative analysis of each, thereby achieving the purpose of the EA, the determination of need for an EIS.
- 5 It is recognized throughout the discussion of environmental consequences in the EA that considerable data gaps exist, particularly with respect to past operational impacts to the fish and wildlife resources of the Lower Flathead River. This situation lends itself to difficulty in establishing and/or quantifying the significance of the environmental impacts of past operations. Therefore, with respect to the completeness with which some issues are addressed, it is questionable whether the EA can and should be used as the basis for a judgment on the need for an EIS at this time.

II. Review of the Text of the EA

General Comments

The EA does not recognize the unique land status of the Flathead Reservation and particularly that portion of the Kerr Project located on reserved lands subject to the trust

1 See revised Section II.

2 See revised Section II.

3 See revised Section II.

4 See revised Section III, C. 5. Operational alternatives would be considered after completion of fish and wildlife studies.

5 Your comment is noted.

- 1 responsibility of the Federal Government. As indicated in the case *Nance v. EPA*, U.S. Court of Appeals, 9th Circuit Court, May 18, 1981, the Federal Government must exercise this trust responsibility according to the strictest fiduciary standard. The FERC must exercise its licensing authority and responsibility in a manner consistent with the Federal trust responsibility. In this regard the exercise of the Secretary of the Interior's responsibility to set license terms and conditions under Section 4(e) of the Federal Power Act 16 U.S.C. 797(e) for the objective of protecting the purposes for which the Flathead Reservation was established should have been addressed as a mechanism for achieving mitigation of several of the adverse impacts that occurred under the past license.
- 2 The EA contains some discussion regarding threatened and endangered species, but is not conclusive about whether these would be any effects to any of those species that occur in the project area. The regulations for implementing the Endangered Species Act 50 CFR 402.04(a)(1) state that, "it is the responsibility of each Federal agency to review its activities and programs and to identify any such activities or programs that may affect listed species or their habitat . . ." Formal consultation with the Fish and Wildlife Service (FWS) is required under Section 7 of the Endangered Species Act for projects that may affect threatened or endangered species. We recommend that the FERC clearly identify in any revised NEPA document the results of their threatened and endangered species review.

Throughout a significant portion of the document we find very little analysis to support the conclusions reached about various environmental impacts. Without such analytical support the EA cannot be relied upon to determine the need for an EIS.

Specific Comments

- 3 Page 1, line 15: The list of project facilities located on trust lands should include transmission lines.
- 4 Page 1, paragraph 3: The discussion of the market for MPC power should include the out-of-state sales.
- 5 Page 1, paragraph 5: The term "high average annual capacity factor" should be defined and its significance explained.
- 6 Page 3, paragraph 2: This paragraph addresses the increased generation capacity of the Kerr facility associated with the proposed upgrade. It should also indicate if additional discharge of water will be required to utilize this increased capacity, particularly if an increase in downstream fluctuation will result.
- 7 Page 4, paragraph 2: The discussion of the need for power relative to the Tribes' license addresses the present surplus in the Pacific Northwest. It is unclear why this same power surplus was not addressed relative to MPC as the licensee.
- 8 Page 7, paragraph 3: It is stated "Since the Tribes have no power obligations, they would not need to develop other power resources." This statement is not necessarily true if viewed from a slightly different perspective. If the revenue to the Tribes from this reservation resource (Kerr Dam) is diminished because the Tribes are not granted the license, the Tribes may be forced into development of other hydropower sites out of economic considerations.

- 1 The authority of the Secretary of the Interior to set license terms and conditions in a relicensing case is an unresolved legal issue.
- 2 See revised Section IV. A. 6. Staff has consulted with the U.S. Fish and Wildlife Service's Endangered Species Office. Staff would recommend that any license issued contain a provision that would require the licensee to implement measures to protect the bald eagle, if the comprehensive ongoing studies indicate that project operation is adversely affecting the eagle.
- 3 See revised Section I.
- 4 See revised Section II.
- 5 See revised Section II.
- 6 The environmental effects of upgrading the Kerr Project won't be considered after an application for amendment of license is filed. Such application must contain sufficient information concerning environmental impacts of the proposal. The necessary information is currently not available.
- 7 The same power surplus was not addressed relative to MPC as the licensee because the project is part of MPC's system resource and is included in MPC's rate base. Marketability of the project output is not an issue if the project remains in the MPC system. It only becomes an issue if it is removed from its established position within the MPC system.
- 8 See revised Section III. B. 1. It should be noted, however, that development of other hydroelectric sites is not the only alternative revenue-producing resource available to the Tribes.

- 1 This paragraph also states "The alternative to the revenue the Tribes would receive from marketing Kerr power is the income the Tribes would receive from MPC as annual charges for use of Tribal lands." The amount the Tribe can expect to receive from these two sources should have been specified so that the associated socioeconomic impact could have been evaluated.
- 2 Page 7, paragraph A: The statement is made "The most economical, reasonable, alternative power source would be a partial share of a coal-fueled, steam-electric plant." This statement should have been supported by an economic comparison between the cost of a kilowatt hour from a new steam-electric plant and cost of a kilowatt hour from Bonneville Power Administration, particularly in view of the current and projected regional power surplus.
- 3 Page 8, paragraph 6: The last sentence in this paragraph states "Construction and operation of an alternative energy source would have additional impacts." The groundwork was not laid which would indicate that an alternative energy source would be needed, particularly in view of the present regional power surplus. Therefore, we suggest the drawing of the conclusion from this alternative is inappropriate at this time.
- 4 Page 8, paragraph 3: This paragraph states "...MPC would have to develop alternative additional generation resources in the future to make up for the loss of power from Kerr." This position on the part of PERC is presented several times throughout the EA without supportive documentation. Since there is a surplus of power in the region, the purchase of power to meet MPC needs seems to be a viable alternative thereby eliminating the environmental impacts associated with other forms of generation.
- 5 Pages 12 and 13: References on these pages relative to the effects on Flathead Lake from the Hungry Horse Dam of the Bureau of Reclamation (BR) should be corrected. These references suggest that the Hungry Horse Dam operations impact the control of elevations at Flathead Lake. The Flathead Lake levels are controlled mostly by Kerr Dam. The Hungry Horse Dam Reservoir controls only 26 percent of the drainage above Flathead Lake. The remainder of the drainage is uncontrolled.
- 6 If in spite of these erroneous suggestions it is determined that studies be undertaken "to fully determine the causes of the observed losses and other effects on the lake-head delta and islands," we recommend that BR staff be involved in any study that may result in changes at the head end of Flathead Lake. We also suggest that the impacts of the Kerr Dam operations be evaluated should such studies be conducted.
- 7 Page 18, paragraph 2: The discussion of water quality reflects unsubstantiated subjective conclusions on the Flathead River water quality downstream from Kerr Dam. The first sentence of the paragraph indicates MPC has concluded the water quality is considered excellent. The following discussion indicates the water quality is degraded with respect to turbidity, sediment load and summer water temperature. It is essential in an EA of this type that data developed on the appropriate parameters be provided to include the applicable water quality standards. Since MPC is not proposing to change their operations of Kerr Dam, it does not seem probable the company would see the water quality below the dam as other than excellent.

1 See revised Section III, B, 1.

2 All of the statements made in the Environmental Assessment with regard to alternate power resources were made on the basis that the license would be granted for a period equal to or in excess of 30 years. The short-term surplus of resources in the region does not affect the long-term assessment of alternative power sources. A discussion of regional power needs have been added to Section 11.

The Bonneville Power Administration (BPA) and the Northwest Power Planning Council have concluded that coal-fueled steam electric generating facilities are the most reasonable economical power sources for future development. Further, both entities use the cost of coal-fueled generation as the basis for economic evaluation of power development and conservation expenditures.

3 In the long-term, in the absence of the project, alternative power resources would be needed as indicated in response to the previous comments.

4 The temporary surplus of power in the region does not affect the long-term assessment of alternative power resources to MPC. MPC is not a preference customer of BPA and cannot rely on purchases of power as a long-term option. MPC is obligated to develop its own long-term power sources.

5 See revised Section IV, A, 1.

6 The need for study was in no way based on the effect of Hungry Horse Dam operations on Flathead Lake elevations, but rather on the changes in river sediment loads entering Flathead Lake. Staff concurs that studies should consider the impacts of Kerr Dam operation, and that the Bureau of Reclamation should be involved.

7 See revised Section IV, A, 1.

- 1 The last sentence of this paragraph indicates the Flathead River water quality is further degraded by various agriculture-related activities. This may well be, however, the source of this conclusion was not provided making substantiation impossible.

Page 22, paragraph 1: The proposal to discharge an interim low flow of 3200 cfs or inflow to Flathead Lake whichever is less (for June through August) is unacceptable. If the objectives of the minimum 3200 cfs flow are to be achieved, it is essential the flow be maintained throughout the summer.

- 2 In addition, since the Bureau of Reclamation is required to make the discharges from Hungry Horse Reservoir necessary to maintain 3500 cfs at Columbia Falls during the summer months, it is apparent that the inflow to the lake will always exceed 3200 cfs.
- 3 Page 23, paragraph 7: The EA indicates the federally listed endangered bald eagle and the osprey inhabit the Flathead Lake and Flathead River areas. Both of these species depend heavily on the fishery resource of both the river and lake. Since the EA recognizes significant adverse impacts to the lake and river fishery and as a result of Kerr and Hungry Horse Dams, it should also address the associated impacts to the endangered bald eagle and the osprey.
- 4 Page 25, paragraph 2: The conclusion that "The development of measures to protect and enhance wildlife and wildlife habitat at the project, based on the results of ongoing studies, should ensure that future operation of the Kerr Project does not significantly affect wildlife resources" seems to be inconsistent with stated intent of both MPC and the Tribes to continue Kerr operations as they have occurred in the past. This is particularly obvious in view of the last sentence of paragraph 2 which suggests that wildlife mitigation be traded off for such other project benefits as flood control and power generation.
- 5 The second sentence of paragraph 2 suggests an increase in the minimum flow should be achieved during the growing season (summer months) for the purpose of benefiting the degraded wildlife resource of the project area. This suggestion is inconsistent with the proposal of FERC to limit interim summer discharges to lake inflow or 3200 cfs whichever is the lesser. The inconsistency further diminishes the probability that such a mitigative measure is being seriously considered for implementation.
- 6 Page 25, paragraph 4: The visual impact of dewatered or greatly fluctuated Lower Flathead River was not addressed. We suggest that project operation has greatly altered the aesthetic integrity of the river environment and should have been considered in the EA.
- 7 Page 26, paragraph 1: The EA does not address the project and its operation from the cultural resource perspective of the Salish and Kootenai Tribes. Since the project is located on the Flathead Reservation, it is essential this aspect be considered.
- 8 Pages 26 and 27: The section on Recreation and Other Land Use does not address the effect of peaking power operations on recreational use of the lower Flathead River. This aspect of the project is particularly significant from a public safety perspective, and should be a substantial consideration in the development of operational limitations of the project as reflected in the license.

- 1 See revised Section IV, A. 3.
- 2 Pursuant to the Fish and Wildlife Program adopted by the Northwest Power Planning Council, the Bureau of Reclamation is maintaining a flow of 3,500 cubic feet per second (cfs) as measured at Columbia Falls during the summer months via releases from Hungry Horse Dam. Staff believes that an interim flow of 3,200 cfs can be maintained below the Kerr Project from June through August. Staff's modified flow recommendation is discussed in Section IV, A. 4.
- 3 See revised Section IV, A. 6.
- 4 Although neither Applicant proposes any changes in operation, the Commission can require the new licensee to implement measures to protect and enhance wildlife at the project. The objective of the mitigative plan shall be to reach a specified goal with the least effect on other beneficial resources (i.e., off-site mitigation may be beneficial compared to increasing flows).
- 5 The need to increase the minimum flows for a period of time each year to enhance wetlands should be part of the long-term mitigative plan for the project. Staff's recommendation of a 3,200 cfs minimum flow is only an interim measure.
- 6 See revised Section IV, A. 7.
- 7 The Tribes have not identified any of the cultural resource sites, either in their application or in any correspondence concerning the proposed project, as having cultural significance for the Tribes. In their application, the Tribes indicated that the project would not affect the sites. The recommended mitigation would ensure the protection of the sites, including any cultural values that the site would possess for the Tribes.
- 8 There is no documentation that peaking in the past has affected public safety. In the past, no problems have been reported. As noted in Section IV, A. 9, an increased minimum flow would enhance recreational use below the dam.

Honorable Kenneth F. Plumb

8

- 1 Page 30, paragraph 1: The first full sentence of this paragraph is in error as at least one other practicable alternative exists; purchase of surplus regional power from the BPA. A considerable portion of BPA marketed power is hydropower utilization of which would not result in impacts to the Nation's non-renewable resource base.
- 2 Page 30, paragraph 3: We cannot concur with the conclusion drawn in this paragraph that "The development of appropriate mitigative measures would ensure that the future operation of the project would not significantly affect the environmental resources of the project area." It is entirely appropriate to expect that the significant impacts of past operations can be reduced. However, unless the Kerr Project is to be operated in a manner that would simulate the natural flow regime of the Lower Flathead River, significant impacts would continue to occur. We are not aware of any naturally occurring freshwater, aquatic and/or riparian community that is adapted to daily flow fluctuation associated with hydroelectric peaking power operations. It is generally accepted that significant environmental impacts must be traded off for such project benefits as hydroelectric power and flood control. It must also be recognized that in an effort to mitigate downstream impacts of the Kerr Project, there may be substantial impact to the aquatic and recreational resources of the lake. This again necessitates a balancing of tradeoffs.

III. Determination of the Significance of the Environmental Impacts and the Need for an EIS

- 3 Based on: 1) our review of the subject EA and other pertinent information, 2) our understanding of the Kerr Project and its past/proposed operation as well as 3) substantial coordination with Federal, State and Tribal technical experts, we cannot agree with the FERC staff conclusion, in the EA, that relicensing of the Kerr Project would not constitute a major Federal action significantly affecting the quality of the human environment. We concur that relicensing will probably not exacerbate those significant impacts that have occurred under past operation. However, it seems clear that the significant environmental impacts of past operation will be perpetuated and other substantial impacts may result out of an effort to adjust and balance the various use demands on the Kerr Project area. We believe recognition of perpetuation of those significant impacts that occurred under the past term license as well as the subsequent annual licenses is of particular relevance as there are practicable alternatives which could preclude the future occurrence of these impacts.

As indicated in the August 27, 1984 testimony of Mr. Bruce Blanchard, Director, Office of Environmental Project Review, Department of the Interior (DOI), it is the position of DOI that the initial determination of need to do an EIS on the relicensing of Kerr Dam is the responsibility of FERC and furthermore that such a determination should be made relative to identification of significant impacts of the project being proposed for licensing. Such a determination of need for an EIS should be based on the environmental merits of the specific proposed action.

Although a final decision on whether to prepare an EIS has not been made by FERC (as distinct from the staff conclusion in the EA) at this time, we believe there are several issues which should be taken into account when making such a decision:

- 1 Purchase of surplus power from BPA is not a practicable alternative to the Kerr Project. The surplus is temporary and when it ends BPA plans to acquire power from non-renewable resources, such as coal-fueled, steam-electric plants, to meet future firm power obligations. Even if power were purchased in the future from BPA after the surplus is expended, the purchase would force the increased utilization of the Nation's non-renewable resource base, because BPA will depend on non-renewable resources to meet its future firm power obligations. See revised Section II.
- 2 Any amendment to license that would be required by the development of a mitigative plan, would require the determination of the need for an environmental impact statement in order to ensure that the environmental values of the project area are fully considered as required by the National Environmental Policy Act. See new Section VII.
- 3 See new Section VII.

Honorable Kenneth F. Plumb

7

- A. The recognition and substantiation of the occurrence of significant environmental impacts as a result of Kerr Dam operation.

The Bonneville Power Authority acting under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L. 96-50) has justified the expenditure of approximately \$1 million/yr. on 5 year fish and wildlife studies out of recognition of the significant environmental impacts of Kerr and Hungry Horse Dams.

The Confederated Salish and Kootenai Tribes have initiated procedures to close all fishing for salmonid species in the Lower Flathead River as a result of recognition of the degraded condition of the fishery, a product in part of Kerr Dam operation.

The commitment of the DOI to conduct the wildlife studies identified in the Blanchard testimony of August 27, 1984 (\$100,000/yr for 4 years) was made out of recognition of need to quantify the significant impacts of the past operation of Kerr Dam and assist in the development of the data needed to establish mitigatory measures in accordance with the Secretary of the Interior's authority under Sec. 4(e) of the FPA.

The text of the August 23, 1984 EA for the Kerr Project relicense recognizes the occurrence of several significant environmental impacts and a result of past and proposed operations at Kerr Dam. For example, it is recognized on page 13, paragraph 4 that operation of Kerr Dam has resulted in a dramatic change in the natural flow regime of the Lower Flathead River. On page 21, paragraph 2 of the EA, the associated adverse impacts on the fishery resource is discussed. Page 25, paragraph 7 indicates that any mitigation of operation environmental impacts would have to consider the effect on other beneficial uses such as flood control and hydropower generation. This would suggest PERC is considering trading off environmental impacts for hydropower benefits.

- B. The recognition of the need for a comprehensive/cumulative impact analysis of hydroelectric development in the Flathead River Basin.

For example, page 12, paragraphs 3 and 4 of the EA state in regard to the adverse impacts recognized on

Honorable Kenneth F. Plumb


8

the Flathead River Delta in Flathead Lake, that "The entire dynamic system should be studied to fully determine the cause of the observed losses and other effects on the lake head delta and islands."

Maintenance and/or the enhancement of the kokanee fishery in Flathead Lake is a recognized priority. It is also recognized in the EA that this fishery is adversely affected by the operation of both Hungry Horse and Kerr Dams. It is, therefore, essential that operation of both projects be addressed in order to assure the success of the species.

- C. The apparent variation and difference throughout the interested public regarding the licensing of Kerr Dam. We suggest that full compliance with the NEPA process is the best mechanism for obtaining full public input and for the balancing of the public interests and the selection of alternative licensing action to be taken by FERC.
- D. The identification of several practicable alternative actions that could be taken by FERC on the Kerr Dam license which would have less environmental impact than would the proposed action. In Mr. Bruce Blanchard's testimony he states "if there is a reasonable alternative regime available to the FERC that will produce significantly greater environmental benefits than continuing the current regime, then an EIS needs to be done."

Sincerely,


Bruce Blanchard, Director
Environmental Project Review

cc: Mr. Fred E. Springer

United States
Department of
Agriculture

Soil
Conservation
Service

File #
100-3-39

Federal Building, Room 403
10 East Babcock Street
Baltimore, MD 21202

REGULATORY COMMISSION

October 13, 1984

Office of the Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, DC

Gentlemen:

RE: Licensing the Kerr Project, FERC No. 5 and 2776, on the Flathead River
in Flathead and Lake Counties, MONTANA.

We have reviewed the above environmental assessment and have no comments to
offer.

Sincerely,

Glen B. Loomis
Glen B. Loomis
State Conservationist

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding in accordance with the requirements of Rule 2010 of the Rules of Practice and Procedure (18 CFR § 385.2010).

Dated at Washington, D.C., this 4th day of February, 1985.



Richard L. Miles
Commission Staff Counsel