Discussion

The Board has previously held in *Petro-Lewis* that section 271.1104(e) did not establish a mandatory deadline of December 31, 1984, for the submission of claims and that the regulations did not bar claims for retroactive production-related costs invoiced after December 31, 1984.[3] The Commission upheld the Board in an order issued on July 2, 1987, stating that:

> [T]he Commission sees no harm in gas purchasers being required to pay lawful claims under their own contracts, even though such claims have not been filed promptly. The purchasers, of course, are free to raise any defenses they may have under state laws, either in state or federal courts, on the basis of any undue delay in submission of claims.[4]

Consistent with the orders issued by the Board and the Commission in *Petro-Lewis*, the Board concludes that the failure of a first seller to submit data required under section 271.1104(f) prior to December 31, 1984, does not bar its claim for retroactive production-related costs under section 271.1104(e).[5] The Board notes, however, that whether the purchaser pays the seller's claims for any production-related costs reimbursable under the regulations is a contractual matter which must be resolved by the parties or the courts if the parties are unable to resolve the matter by themselves.

In addition, the Board also notes that if the contract(s) involved in each complaint was included on the lists the purchaser filed pursuant to Order No. 473, the question of whether the area rate clause authorizes the collection of a delivery allowance will be resolved in the proceedings held pursuant to the procedures established in Order No. 473.[6]

Finding and Order

Consistent with the Petro-Lewis orders, the Board finds and orders that the failure of a first seller to submit data required under section 271.1104(f) prior to December 31, 1984, does not bar its claim for retroactive production-related costs under section 271.1104(e).

Appendix

Docket No./ Date Filed	*Complainant*	*Purchaser*
GP87-57-000 06/11/87	Burk Royalty Company	Trunkline Gas Company
GP88-5-00 11/16/87	Newman Brothers Drilling Company	Williston Basin Interstate Pipeline Company
GP88-23-000 06/10/88	Cobra Oil & Gas Corporation	ANR Pipeline Company
GP88-25-000 07/05/88	Cobra Oil & Gas Corporation	Texas Eastern Transmission Corporation

[¶ 62,041]

Fall River Rural Electric Cooperative, Inc., Project No. 2973-004; Rocky Mountain Hydro, Inc., Project No. 9366-000

Order Issuing Major License and Dismissing Preliminary Permit With Prejudice

(Issued October 19, 1988)

Fred E. Springer, Director, Office of Hydropower Licensing.

Fall River Rural Electric Cooperative, Inc. (Fall River) has filed a license application under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Island Park Hydroelectric Project, located at the Bureau of Reclamation's Island Park dam in Fremont County, Idaho, on the Henry's Fork of the Snake River. The project would also occupy lands of the United States within the Targhee National Forest.

Notice of the application has been published. The motions to intervene that have been

[3] *Petro-Lewis Corporation*, 37 FERC ¶ 62,090 (1986).

[4] 40 FERC ¶ 61,009 (1987).

[5] The Board issued a similar order on August 18, 1988 in Docket No. GP87-2-000 *et al.* [44 FERC

[6] Under these procedures, the protested area rate clauses will be reviewed by the Commission's Administrative Law Judges and will be resolved at hearing or by summary disposition.

granted and the comments filed by agencies and individuals have been fully considered in determining whether to issue this license.

The following agencies and individuals filed motions to intervene with environmental and safety concerns for the Island Park Project: the Department of the Interior (Interior),[1] the Idaho Department of Water Resources and the Idaho Water Resource Board (IDWR & IWRB), the Idaho Department of Fish and Game (IDFG), Henry's Fork Foundation, Inc. (Henry's Fork), Fremont-Madison Irrigation District (District), and the Greater Yellowstone Coalition (Coalition).

Interior, IDFG, and Coalition express concerns that the project may cause adverse impacts to fish and wildlife resources in the area.

IDFG is also concerned that any modified flow release from Island Park reservoir could negatively affect water temperature and dissolved oxygen levels downstream of the project and that any construction activities may increase sedimentation of the Henry's Fork River.

IDWR & IWRB request that any license issued at the Island Park dam be consistent with state water law and with provisions of the Idaho State Water Plan, which provides a comprehensive plan of development of the water resources of Idaho. These concerns are addressed in the staff's attached environmental assessment (EA).

The District expresses concern that the project could damage Island Park dam and restrict irrigation water use. The District's concern is addressed in the staff's attached Safety and Design Assessment (S&DA).

Comprehensive Plans

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

The staff reviewed four comprehensive plans that address various aspects of waterway management in relation to the proposed project.[3] No conflicts were found with three of the comprehensive plans, however, a potential conflict was found with the State Water Plan (ISWP).

In the ISWP, the Idaho Water Resources Board says that it is the policy of Idaho that the state has sovereignty over decisions affecting the development and use of its water resources and that the state opposes any attempt by the federal government or any other entity to usurp the state's role in these areas. The Commission' position, based on *First Iowa Hydro-Electric Coop. v. FPC*, 328 U.S. 152 (1946), is that state laws or requests that interfere with the Commission's comprehensive planning responsibilities under section 10(a)(1) of the Act are preempted and that the only rights saved for the states by section 27 of the Act are property rights. However, in this proceeding, no issue concerning the allocation of water rights has been raised nor has the state intervened on the basis of sovereignty. In addition, based on the comments of the state agencies and the fact that a water-quality certification was granted for the project, staff concluded that the state does not object to development of the site for hydropower so long as its recommendations for the protection of resources are considered in the licensing process.

Based upon a review of the agency and public comments filed in this proceeding, and on the staff's independent analysis, subject to the constraints of the Electric Consumers Protection Act of 1986 (ECPA),[4] the Island Park Dam Hydroelectric Project is best adapted to a comprehensive plan for the Henry's Fork of the Snake River.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions based on recommendations of federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife. In the EA, the staff addresses the concerns of the federal and state fish and wildlife agencies, and makes recommendations consistent with those of the agencies.

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[1] Interior's untimely motion to intervene, filed on January 13, 1986, was granted on April 28, 1988.

[2] Order No. 481-A, 53 Fed. Reg. 15,802 (May 4, 1988), *FERC Statutes and Regulations* ¶ 30,811 (1988).

[3] Northwest Power Planning Council's Conservation and Electric Power Plan and Columbia River Basin Fish and Wildlife Program, 1986, and Final Amendment Document, 1987; Idaho Water Resource Board's State Water Plan, 1986; Idaho Department of Parks and Recreation's Statewide Outdoor Recreation Plan, 1983; and Idaho Department of Fish and Game's Fisheries Management Plan, 1986.

[4] *See* page 8 of the EA for further discussion of ECPA's specific mandatory requirements concerning this project that does not allow significant and permanent alternation to streamflow.

Competing Application

The license application was filed in competition with a preliminary permit application filed by Rocky Mountain Hydro, Inc. (Rocky Mountain) for Project No. 9366-000. Rocky Mountain failed to substantiate the technical, environmental, economic, and other aspects of its proposal, and its application was therefore dismissed without prejudice so that it could be automatically reinstated if the competing development application were subsequently denied. *See Dennis V. McGrew*, 32 FERC ¶ 61,229 (1985). Fall River has met statutory and regulatory license requirements, including demonstrating its ability to carry out its plans. Rocky Mountain's preliminary permit application is therefore dismissed with prejudice.

Summary of Findings

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impacts on the environment are contained in the EA. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

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

The Director of the Office of Hydropower Licensing concludes that the project would not conflict with any planned or authorized development and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Fall River Rural Electric Cooperative, Inc. for a period of 50 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Island Park Hydroelectric Project. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provision of the Act.

(B) The project consists of:

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

Exhibit	*FERC Drawing No.*	*Showing*
G-1	2973-12	Boundary Map
G-2	2973-13	Transmission Line
G-3	2973-14	Ownership Map

(2) Project works consisting of: (a) a screened intake structure; (b) a 700-foot-long, 10-foot-diameter, siphon conduit at the left (east) abutment; (c) a powerhouse containing two generating units, each rated at 2,400 kW; (d) 4.16-kV generator leads; (e) a 4.16/24.9-kV, 5/5.5/6.6-MVA transformer; (f) a 15,000-foot-long, 24.9-kV buried transmission line; (g) a 24.9/46-kV transformer; (h) an aeration facility, and (i) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the S&DA.

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

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the S&DA are approved and made part of the license.

(D) This license is subject to the following terms and conditions submitted by the Forest Service (articles 101 through 114) and the Bureau of Reclamation (articles 115 through 133) under section 4(e) of the Act:

Article 101. Within 6 months following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature, the licensee shall obtain from the Forest Service a special-use authorization for the occupancy and use of National Forest System lands and shall file that authorization with the Director, Office of Hydropower Licensing.

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

Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands within the project boundaries shall be managed by the Forest Service under the laws, rules, and regulations applicable to the National Forest System. The terms and conditions of the Forest Service special-use authorization are enforceable by the Forest Service under the laws, rules, and regulations applicable to the National Forest System. The violation of such terms and conditions also shall be subject to applicable sanctions and enforcement procedures of the Commission at

the request of the Forest Service. In the event there is a conflict between any provisions of the license and Forest Service special-use authorization, the special-use authorization shall prevail on matters which the Forest Service deems to affect National Forest System resources.

Article 102. Before any construction of the project occurs on National Forest System land, the licensee shall obtain the prior written approval of the Forest Service for all final design plans for project components which the Forest Service deems as affecting or potentially affecting National Forest System resources. The licensee shall follow the schedules and procedures for design review and approval specified in the Forest Service special-use authorization. As part of such prior written approval, the Forest Service may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the Forest Service, the Commission, or the licensee to be a substantial change, the licensee shall follow the procedures of article 2 of the license. Any changes to the license made for any reason pursuant to article 2 and article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to section 4(e) of the Federal Power Act.

Article 103. Notwithstanding any license authorization to make changes to the project, the licensee shall get written approval from the Forest Service prior to making any changes in the location of any constructed project features or facilities, or in the uses of project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiating any such changes or departure, the licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the Forest Service for such changes. The licensee shall file an exact copy of this report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the licensee from the amendment or other requirements of article 2 or article 3 of this license.

Article 104. Each year during the 60 days preceding the anniversary date of the license, the licensee shall consult with the Forest Service with regard to measures needed to ensure protection and development of the natural resource values of the project area. Within 60 days following such consultation, the licensee shall file with the Commission evidence of the consultation, with any recommendations made by the Forest Service. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation that may be necessary to accomplish natural resource protection.

Article 105. Within 1 year following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for accommodation of project-induced recreation.

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

Article 106. Prior to full project operation and after consultation with the Forest Service, the U.S. Fish & Wildlife Service (USF&WS), the Idaho Department of Fish and Game (IDF&G), and the Idaho Department of Health and Welfare (IDH&W), the licensee shall complete a study of existing water quality of Henry's Fork and shall file this study, along with comments from the Forest Service, USF&WS, IDF&G and IDH&W, with the Director, Office of Hydropower Licensing (OHL). This study must, as a minimum, monitor existing natural water quality through a period of one year. Parameters to be monitored are: (a) dissolved oxygen (DO to be measured in milligrams per liter); (b) temperature (to be measured in degrees centigrade); (c) total gas pressure (TGP to be recorded as a percent of saturation); and (d) turbidity (to be measured in NTU's). Sampling shall be conducted at stations established by the agencies and licensee during preparation of the license application, including station X4 (see licensee's map dated 9-4-86, on file). Sampling frequency shall be continuous measurement with hourly recording of calculated averages. The study shall be designed to determine the natural existing daily and seasonal variations for all sampled parameters and stations (DO, temperature, TGP, and turbidity) and to identify precision and accuracy of monitoring instrumentation. These data will be used, in part, to define existing and long-term water quality and facilitate final design of a long-term water quality monitoring and project mitigation procedures plan (article 107). The Forest Service, after consultation with USF&WS, IDF&G, and IDH&W, may approve the study plan or require its modification.

Following completion of this study, the data shall be summarized in report form and submitted to Director, OHL, the Forest Service,

USF&WS, IDF&G, and IDH&W for their review and comments.

If the water quality study completed by the licensee indicates to the Forest Service or the Director, OHL, that changes in project structures or operations are necessary to maintain existing water quality, the licensee shall then file with the Director, OHL, within 60 days after completion of the study, a mitigation plan, approved by the Forest Service, with comments received from the USF&WS, IDF&G, and IDH&W, for implementing the necessary changes in project structures or operations.

Article 107. Within one year following the date of issuance of this license but prior to commencement of full project operation, the licensee, after consultation with the Forest Service, U.S. Fish and Wildlife Service (USF&WS), the Idaho Department of Fish and Game (IDF&G), and Idaho Department of Health and Welfare (IDH&W), shall file a long-term water quality monitoring and mitigation procedures plan, with comments from the USF&WS, IDF&G, and IDH&W and showing approval by the Forest Service, with the Director, Office of Hydropower Licensing. This plan shall provide for monitoring water quality at all times during project operation, at the same locations and frequency used for the water quality study completed by the licensee and any others deemed necessary by the Forest Service or the Director of Hydropower Licensing. The plan shall prescribe frequency of and periods of time for comparisons between water quality at the project outlet with water quality at the Island Park Reservoir outlet for each water quality parameter being monitored. The plan will provide for the maintenance of existing water quality by ensuring that water quality released from the project outlet will be maintained at the same level as the water quality released from Island Park Reservoir under the normal release patterns and schedules as controlled by the Bureau of Reclamation. It shall prescribe acceptable periods of time within which water quality at the project outlet may differ from water quality at the Reservoir outlet, not to exceed natural fluctuations for comparable time periods and seasons as recorded in the water quality study completed by the licensee. The plan shall prescribe critical water quality limits not to be exceeded during construction or project operations. These limits are as follows:

Until such time as the USF&WS, the IDF&G, the IDH&W and the Forest Service agree that sufficient data is available to predict dissolved oxygen conditions that would occur under continuing release patterns and schedules for the Island Park Reservoir, the dissolved oxygen content of water released by the licensee shall achieve, or exceed, 6(six) milligrams per liter or the levels of saturation which would occur under continuing release patterns and schedules for the Island Park dam as controlled by the Bureau of Reclamation, *whichever is higher.*

Compliance with this provision shall be determined by continuous monitoring and by comparing dissolved oxygen levels at the outlet of the project with levels at the existing outlet for the Island Park dam. Calculated averages from both stations will be reported hourly. For purposes of measuring levels at the existing outlet of Island Park Reservoir, there shall be maintained through said outlet such minimum flows of water as are necessary to replicate oxygenation that would occur if the project were not in operation. For informational purposes, dissolved oxygen levels shall also be monitored at (1) the existing intake for the Island Park Reservoir outlet tunnel and at the intake for the project and (2) at a point approximately 500 feet downstream from the Island Park dam (known as station X4).

In the event of noncompliance with this condition, as prescribed in the mitigation procedures plan, the licensee shall cease or alter operation until conditions would provide water quality within the above-prescribed limits.

During the months of April-October, the temperature of water released through the project shall not be significantly higher than would occur under continuing release patterns and schedules for the Island Park Reservoir as controlled by the Bureau of Reclamation. During the months of November through March, the temperature of water released through the project shall not be significantly lower than would occur under continuing release patterns and schedules for the Island Park Reservoir as controlled by the Bureau of Reclamation; provided, however, that nothing herein shall prohibit the release of water through the project of higher or lower temperature during certain periods where said release has been specifically and jointly approved in advance by memorandum agreement or on a case-by-case basis by the Forest Service, the USF&WS, the IDF&G, and the IDH&W. Compliance with this license condition shall be based on the continuous temperature measurements averaged hourly and shall be determined by comparing water temperatures at the outlet of the project and at the outlet for the Island Park Reservoir. For informational purposes, water temperatures shall also be monitored at the intake for the project and at a point approximately 500 feet downstream from the Island Park dam (known as station X4). As used in this license condition, the terms "significantly higher" and "signifi-

cantly lower" shall be determined through consultation with the Forest Service, the USF&WS, the IDF&G, and the IDH&W, based on the water quality study set forth in article 106 of this license.

In the event of noncompliance with this condition, as prescribed in the mitigation procedures plan, the licensee shall cease or alter operation until conditions would provide water quality within the above-prescribed limits.

Until such time as the USF&WS, the IDF&G, the IDH&W, and the Forest Service agree that sufficient data is available to predict total gas pressure (TGP) conditions that would occur under continuing release patterns and schedules for the Island Park Reservoir, the TGP (as a percent of saturation) released from the project shall be maintained at the same level as the TGP of waters released from Island Park Reservoir under continuing release patterns and schedules for Island Park dam as controlled by the Bureau of Reclamation, but shall not exceed 110 percent of saturation.

In the event of noncompliance with this condition, as prescribed in the mitigation procedures plan, the licensee shall cease or alter operation until conditions would provide water quality within the above-prescribed limits.

During construction, turbidity, as measured in NTU's, shall not exceed 10 percent of the background turbidity, when the background is over 50 NTU's, and shall never exceed an absolute level of 25 NTU's over background. During periods of time when the background turbidity is less than 50 NTU's, the difference from background shall not exceed 5 NTU's over background.

During project operation, turbidity, as measured in NTU's released from the project, shall be maintained at or below the same level of turbidity as that released from Island Park Reservoir under the continuing release patterns and schedules for Island Park dam, as controlled by the Bureau of Reclamation, but not to exceed a difference of 5 NTU's.

In the event of noncompliance with this condition, as prescribed in the mitigation procedures plan, the licensee shall cease or alter operation until conditions would provide water quality within the prescribed limits during project operations.

The monitoring and mitigation procedures plan shall prescribe mitigation measures to be applied should the acceptable periods of deviation or water quality limits be exceeded. In the case of exceedence of critical water quality limits, it shall provide reaction times within which the mitigation measures shall be employed, and shall provide the times within which the mitigation measures are expected to be effective in correcting water quality deficiencies. It shall prescribe actions to be taken if the expected results are not achieved. Prescribed actions, as approved by the Director, Office of Hydropower Licensing, may include cessation of project operations until conditions which would provide water quality within prescribed limits are obtained. The licensee shall suspend all project operations upon notification by the Forest Service or the Director of Hydropower Licensing that operations are not in compliance with provisions of the monitoring and mitigation procedures plan or when operations are not within prescribed critical water quality limits specified in this license condition. A suspension of operations will remain in effect until such time as the Director of the Office of Hydropower Licensing determines that conditions are such that the project can resume operation within provisions of the monitoring and mitigation procedures plan and will be within prescribed critical water quality limits.

Implementation for the monitoring and mitigation procedures plan will be by full-time project operator and automated systems. The full-time operator will be on-site for eight hours a day, seven days a week, and will be on-call 24 hours a day, seven days a week, with a response time of within 30 minutes. Action taken, in accordance with the mitigation procedures plan, shall be facilitated by automated systems to the extent possible. Automated systems will include, but not be limited to, (1) long-term monitoring and reports; (2) tailrace aeration system; (3) project shutdown and flow control or stoppage; and (4) releases from the existing Island Park Reservoir outlet subject to an agreement with the Bureau of Reclamation prior to construction.

The licensee shall maintain fully operational monitoring and mitigation systems at all times during project operations, as specified in the monitoring and mitigation procedures plan. These systems shall be operated, maintained, or renewed as necessary to meet the requirements of this plan and/or to ensure the critical water quality limits specified in this condition are not exceeded.

The licensee shall not commence full operation until after 60 days following the filing date of this plan, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Article 108. Within 1 year following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for the

control of erosion, stream sedimentation, dust, and soil mass movement.

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

Article 109. Within 1 year following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan, approved by the Forest Service, for the treatment and disposal of solid waste and wastewater generated during construction and operation of the project. At a minimum, the plan must address the estimated quantity of solid waste and wastewater generated each day; the location of disposal sites and methods of treatment; implementation schedule; areas available for disposal of wastes; design of facilities; comparisons between on and offsite disposal; and maintenance programs.

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

Article 110. Within 1 year following the date of issuance of this license and at least 60 days before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup.

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

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

Article 111. Within 1 year following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for the storage and/or disposal of excess construction/tunnel spoils and slide material. At a minimum, the plan must address contouring of any storage piles to conform to adjacent land forms and slopes, stabilization and rehabilitation of all spoil sites and borrow pits, and prevention of water contamination by leachate and runoff. The plan also must include an implementation schedule and maintenance program.

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

Article 112. Within 1 year following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for the design and construction of the project facilities in order to preserve or enhance its visual character. The plan must consider facility configurations and alignments, building materials, color, conservation of vegetation, landscaping, and screening. Project facilities of concern to this plan include, among other things, clearings, diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines and corridors, and access road.

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

Article 113. The licensee shall bury the transmission line along the existing 15-kV line (see exhibit G-2). The location and depth of burial of the line are subject to approval by the Forest Service.

Article 114. Road crossings over the penstock must be designed to carry a loaded logging truck.

Article 115. No later than 1 year after issuance of this license, and at least 60 days prior to initiating any project activities, the licensee shall enter into an agreement with the United States Bureau of Reclamation (Reclamation) to coordinate its plans with Reclamation for access to and site activities on lands and property administered by Reclamation so that the authorized purposes, including operation of the federal reservation, are protected. In general, the agreement shall identify the facility, the

applicable study and construction activities, and terms and conditions under which the studies and construction shall be conducted. The agreement shall include, but not be limited to, the following items: (1) reasonable arrangements for access to the federal reservation to conduct studies and construction activities, such access to be conditioned by Reclamation as may be necessary to protect the federally authorized project purposes and operations; (2) charges to be paid by the licensee to Reclamation for (a) technical studies conducted by Reclamation that relate to the structural integrity or operation of the federal reservation associated with hydropower development; (b) review of designs including plans and specifications; (c) construction inspections based on personnel costs, where such reviews and inspections are directly related to the structural integrity or operation of the federal reservation; (d) copies of reports, drawings, and similar data based on printing and mailing costs; and (e) the value of the right of use of land under easements and all associated administrative costs incurred by Reclamation, provided that charges shall not be assessed for information or services that would normally be provided to the public.[5]

Article 116. The design and construction of those facilities that would be an integral part of or could affect the structural integrity or operation of the federal reservation shall be done in consultation with and subject to the review and approval of Reclamation, based on the following schedules. The design drawings shall be approved by Reclamation at 30 percent; 60 percent; and 100 percent completion stages. Two sets of design drawings shall be forwarded at each completion stage to the Regional Director, Bureau of Reclamation. The inspection of construction and its conformity to the Reclamation-approved design drawings shall be conducted by Reclamation at 30 percent; 60 percent; and 100 percent completion stages. Any subsequent changes in the design and construction of the project must be approved by Reclamation prior to implementation.

Article 117. The licensee's construction, operation, and maintenance of the project works and project investigations related to hydropower development, as determined by Reclamation, must not weaken, damage, or affect the structural integrity or operation of the federal reservation or reduce or impair the capability to provide for the purposes and services of the federal reservation and shall be subject to periodic or continuous inspections by Reclamation, as appropriate. Any construction, operation, or maintenance deficiencies or difficulties detected by Reclamation will be immediately reported to the licensee and to the FERC Regional Engineer. Reclamation shall report to the FERC Regional Engineer the need to stop construction, operation, or maintenance while awaiting resolutions of any deficiency or difficulty that would affect the structural integrity of the federal reservation. In those cases when a construction, operation, or maintenance practice or deficiency may result in a situation that would or could endanger the structural integrity, safety, or operational commitment of the federal reservation, Reclamation shall have the authority to stop construction, operation, or maintenance activities until the problem or situation is resolved to the satisfaction for Reclamation. Operation of the powerplant shall be secondary to the operation and maintenance of the federal reservation. No water will be released solely for hydroelectric generation.

Article 118. The licensee shall enter into an operation and maintenance (O&M) agreement with Reclamation of least 60 days prior to commencement of operation of the project. The FERC Regional Engineer shall be invited to attend discussion or negotiation meetings related to the O&M agreement. The O&M agreement shall be subject to revision by the mutual consent of the licensee and Reclamation as experience is gained by actual project operation.

Article 119. All newly disturbed land areas shall be revegetated by the licensee with plant species indigenous to the area within 6 months of completion of project construction.

Article 120. The licensee shall have no claim against the United States arising from any future changes made to meet authorized federal purposes, from the effect of any changes made in releases from or operation of the federal reservation, from modifications resulting from dam safety requirements, or from any changes in reservoir level of the Reclamation project.

Article 121. The licensee shall recognize the primary right of any federal work, either by force account or by contractors or both, associated with the federal reservation, associated facilities, access roads, and the operation and maintenance thereto, whether ongoing at the time of commencement of work by the licensee or initiated subsequent to start of the work by

[5] The charges required by items 2(a) through 2(e) of this article may not be permissible pursuant to section 10(e) of the Act, as amended by ECPA. Article 201 provides what the Commission believes is the vehicle for the United States to be reimbursed for the costs of administrating Part I of the Act, for the use of U.S. lands, and for the use of the federal dam.

the licensee, and to coordinate licensee's work with the federal work.

Article 122. The licensee shall provide the FERC Regional Engineer two copies of all correspondence between the licensee and the Bureau of Reclamation. The FERC Regional Engineer shall not authorize construction of any project work until Reclamation's written approval of construction plans and specifications has been received by the FERC Regional Engineer.

Article 123. The licensee shall review and approve design of contractor-designed cofferdams and deep excavations prior to the start of construction and shall ensure that construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the licensee shall file with the FERC Regional Engineer and Director, Division of Inspections, and the Regional Director, Bureau of Reclamation, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Article 124. The licensee, within 60 days from the issuance of license, shall contact the Regional Director, Bureau of Reclamation, for coordination of Reclamation conditions.

Article 125. For the purposes of this hydroelectric project, the applicant shall attempt to maintain a reservoir surface water elevation of 6,289 feet. At no time during construction shall the water level elevation go below 6,282 feet. If it is necessary to lower the water level below 6,289 feet, then the applicant must consult with the Idaho Department of Fish and Game on potential impacts to the reservoir fishery and develop an acceptable mitigation plan within two months from the date of issuance of the license. Applicant shall file the mitigation plan with comments from the agencies with the Commission for approval. Project construction shall not commence prior to Commission approval of the mitigation plan.

Article 126. The licensee's operation of the project shall not interfere with the use, storage, or release of water from Island Park Reservoir and shall be subordinate to operating standards currently in effect or as they may be modified in the future by the Bureau of Reclamation.

Article 127. If at any time, additional flows are needed and available in the reservoir to open up feeding areas for trumpeter swans downstream of the project, the applicant will cooperate with the Bureau of Reclamation, U.S. Fish and Wildlife Service, and Idaho Department of Fish and Game to allow additional water through the project area.

Article 128. Licensee shall consult with the Idaho Department of Fish and Game and the U.S. Fish and Wildlife Service on the final design of the intake structure and fish screening and within six months from the date of issuance of this license, file with the Commission for approval, functional design drawings of the fish screening structure for the intake with comments from consulted agencies. Licensee shall file as-built drawings with the Commission within two months after completion of construction. Project construction may not commence prior to Commission approval of the functional design drawings along with the comments of the consulted agencies. The construction commencement date may be extended for completion of this article.

Article 129. Licensee shall consult with the Idaho Department of Fish and Game and the U.S. Fish and Wildlife Service on the final design of the aeration system and within six months from the date of issuance of this license, file with the Commission for approval functional design drawings of the aeration system with comments from consulted agencies.

Within two months of completion of construction, licensee shall file as-built drawings, including comments from the consulted agencies, with the Commission. Project construction may not commence prior to Commission approval of the functional-design drawings, along with the comments of the consulted agencies. The construction commencement date may be extended for completion of this article.

Article 130. Licensee shall, within six months of the issuance of this order and after consultation with the Idaho Department of Health and Welfare, the Idaho Department of Fish and Game and the U.S. Environmental Protection Agency, install continuous total gas and temperature monitoring equipment below the powerhouse return flow. Licensee shall monitor dissolved oxygen and temperature concentrations and maintain records of the monitoring data for a period of 12 months, and shall file with the Idaho Department of Health and Welfare, and Idaho Department of Fish and Game, U.S. Environmental Protection Agency, and the Commission, an annual data summary, filed annually on the anniversary date of issuance of the license, that shall include observed daily minimum, maximum, and average dissolved gas concentrations.

If total dissolved gas is in excess of 110 percent and temperature levels are found higher than normal ambient, the licensee shall immediately consult with the state and federal fish and wildlife agencies and the state water quality agency and take prompt and effective action to correct the deficiency.

Further, if the results contained in any annual report indicate that changes in project structures or operations are necessary to main-

tain a maximum dissolved gas concentration of 110 percent, licensee shall, within two months from the date of annual report submission, file with the Commission for approval, with copies to the agencies consulted, a schedule for implementing the specific changes in project structures or operations that are needed. Documentation of agency consultation on the schedule and specific changes shall be included in the filing.

Article 131. Licensee shall, within six months from the date of issuance of this license, after consultation with the U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, National Marine Fisheries Service, and U.S. Forest Service, and before construction begins, prepare and file with the Commission a plan to control erosion, dust, and slope stability, and to minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project, along with the comments from the above agencies on the adequacy of the plan. The plan shall address, among other things, vegetation, grading of slopes, control of surface drainage, measures to contain sediment or minimize the amount of sediment that would be generated in the event of a break in the pipeline/penstock, temporary stockpiling of topsoil, storage and disposal of excess excavation and slide materials, and any construction or upgrading of access roads, including construction access. The plan shall also include: provisions for identifying and mapping any erosive soils and potentially unstable slopes; an implementation schedule; monitoring and maintenance programs for project construction and operation; provisions for periodic review of the plan and for making any necessary revisions to the plan; documentation of consultation with the above agencies during preparation of the plan; and a summary of agency comments and recommendations. In the event that the license does not concur with any agency recommendations, licensee shall provide a discussion of the reasons for not concurring, based on actual-site geological, soil, and groundwater conditions. The Commission reserves the right to direct changes to the plan. Unless the Director, Office of Hydropower Licensing, within two months from the filing date instructs otherwise, the licensee may commence ground disturbing or spoil disposal activities at the project at the end of that period.

Article 132. Transmission lines shall be installed underground.

Article 133. Licensee shall, after consultation with the National Park Service, the U.S. Forest Service, the Bureau of Reclamation and the Idaho Department of Parks and Recreation, prepare and file with the Commission for approval, within 18 months from the date of issuance of this license, a revised Report on Recreational Resources that conforms to the requirements of Commission Regulations, 18 C.F.R. at § 4.41(f)(7). The report shall include, but not be limited to, provisions for development of improved access to the project lands and waters, parking and toilet facilities, including consideration of facilities for the handicapped. Further, the filing shall include a drawing showing the type and location of the facilities to be provided at the project, a construction schedule, an operation and maintenance schedule and/or agreement, and documentation of consultation with the above-named agencies.

(E) This license is also subject to the articles set forth in Form L-2 (October 1975) [reported at 54 FPC 1808], entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States," except article 20, and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective the first day of the month in which this license is issued.

a. For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount, as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 6,400 horsepower.

b. For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 4.5 acres of its lands for transmission line right-of-way, a reasonable amount, as determined in accordance with the provisions of the Commission's regulations in effect from time to time.

c. For the purpose of recompensing the United States for utilization of surplus water or water power from a government dam, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time.

Article 202. Pursuant to section 10(d) of the Act, after the first 20 years of operation of the project under license, a specified reasonable rate of return on the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of

project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserved account shall be maintained until further order of the Commission.

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

Article 203. The licensee shall clear and keep clear to an adequate width all lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project that result from maintenance, operation, or alteration of project works. All clearing of lands and disposal of unnecessary material shall be done with due diligence to the satisfaction of the authorized representative of the Commission and in accordance with appropriate federal, state, and local statutes and regulations.

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

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

Article 303. Within 90 days of completion of construction, the licensee shall file, for Commission approval, revised exhibits A, F, and G, to describe and show the project as-built, including all facilities determined by the Commission to be necessary and convenient for the transmission of all of the project power to the interconnected system. The requirements of this article are related to articles 116 and 129.

Article 304. Within 30 days after submitting the design drawings to the Bureau of Reclamation (BR), the licensee shall file for Commission approval two sets of design drawings required by article 116. The Commission reserves the right to resolve any disagreement between the licensee and BR about the requirements of article 116.

Article 305. The licensee shall provide the Commission's Regional Director with two copies of the agreement, signed between the licensee and the Bureau of Reclamation (BR) required by article 115. Should the BR fail to reach agreement with the licensee, the matter shall be referred to the Director, Office of Hydropower Licensing, for resolution.

Article 306. The licensee shall provide the Director, Office of Hydropower Licensing, and Regional Director with copies of the signed memorandum of agreement (MOA) required by article 118. Should the BR fail to agree with the licensee on the MOA, the matter shall be referred to the Director, Office of Hydropower Licensing, for resolution.

Article 401. The licensee shall operate the Island Park Dam Project so that all water released downstream in the Henry's Fork River will not contain less than 7 milligrams per liter of dissolved oxygen (DO) or the level of DO as monitored at the dam outlet structure, whichever is higher. The requirements of this article are in addition to the requirements of article 107.

Article 402. The licensee shall operate the Island Park Dam Project so that all water released downstream in the Henry's Fork River will not result in temperatures: (1) lower than 3 degrees celsius (°C) throughout the year; (2) higher than a maximum temperature of 13°C, with a maximum daily average of 9°C from March 1 through June 30 and from October 1 through November 30, and higher than a temperature of 17°C from July 1 through September 30, for the purpose of maintaining state water quality standards and aquatic resources. The requirements of this article are related to article 107.

Article 403. The licensee shall limit the rate of change in river flow (ramping rate) from the Island Park Dam Project to 50 cubic feet per second (cfs) every half-hour upramping and 50 cfs every half-hour downramping during the hours of 7 p.m. to 5 a.m. for the enhancement of fish and wildlife resources in the Henry's Fork River. These rates may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods upon mutual agreement with the Idaho Department of Fish and Game (IFG), Bureau of Reclamation (BR) and the Forest Service (FS). The licensee shall develop a ramping rate monitoring plan in cooperation with the BR, FS, IFG, and the U.S. Fish and Wildlife Service, and include the following provisions in the plan: (1) a continuous recording stream gauge to monitor ramping rates; (2) reporting of monthly ramping records to the aforementioned agencies, and (3) reporting of yearly records to the regional engineer and the Commission. The licensee must file the plan for Commission approval along with all agency comments and correspondence at least 90 days prior to project operation.

Article 404. The Commission, upon its own motion or upon the recommendation of federal or state fish and wildlife agencies or affected Indian Tribes, reserves the authority to order alterations of project structures and operations to take into account, to the fullest extent practicable, the regional fish and wildlife program developed and amended under the Pacific Northwest Electric Power Conservation Act.

Article 405. The licensee, before beginning any land-clearing or land-disturbing activities within the project boundaries, other than that specifically authorized in this license, shall consult the Idaho State Historic Preservation Officer (SHPO), the Forest Service, (FS), and Bureau of Reclamation, Pacific Northwest Region (BR). If the licensee discover previously unidentified archeological or historic properties during the course of constructing or developing project works or other facilities at the project, the licensee shall stop all land-clearing and land-disturbing activities in the vicinity of the properties and consult with the SHPO, the FS, and the BR. In either instance, the licensee shall file with the Commission a cultural resource management plan prepared by a qualified cultural resource specialist after having consulted with SHPO, FS, and BR.

The management plan shall include at least the following components: (1) a description of each discovered property, indicating, whether it is listed on or eligible to be listed on the *National Register of Historic Places*; (2) a description of the potential affect on each discovered property; (3) proposed measures for avoiding or mitigating effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for mitigating effects and conducting additional studies. The Commission may require changes to the plan.

Before beginning to excavate or remove any archeological resource located on National Forest System and/or BR lands, the licensee shall secure a permit from the FS and/or the BR authorizing such excavation or removal. The licensee shall not begin land-clearing or land-disturbing activities, other than those specifically authorized in this license, or resume such activities in the vicinity of a property discovered during construction, until informed that the requirements of this article have been fulfilled.

Article 406. The licensee, after consultation with the Forest Service (FS), the Bureau of Reclamation (BR), and the Idaho Department of Parks and Recreation, and before project construction shall schedule all construction activities after Labor Day through May 15, in order to avoid the peak recreational season.

Article 407. The licensee, after consultation with the Forest Service, the Bureau of Reclamation and the Idaho Department of Parks and Recreation and before beginning project operation or construction shall replace and maintain portions of the Brimstone cross-county ski trail that would be disturbed by project construction or operation. Further, the licensee shall file with the Commission, within 90 days of completing the trail, as-built drawings showing the location of the trail and documentation of agency consultation. The licensee, except during emergencies, shall use snowmobiles or cross-county skis to operate and maintain project facilities during the winter months.

Article 408. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee also shall have continuing responsibility to supervise and control the use and occupancies for which it grants permission and to monitor the use of and to ensure compliance with the covenants of the instrument of conveyance for any interests that it conveys under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for the protection and enhancement of

the project's scenic, recreational, or other environmental values or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any noncomplying structures and facilities.

(b) The types of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) noncommercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where the facility is intended to serve single-family type dwellings; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee also shall ensure to the satisfaction of the Commission's authorized representative that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee among other things, may establish a program for issuing permits for the specified types of use and occupancy of project lands and waters that may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) nonproject overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than 1 million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report, briefly describing for each conveyance made under this paragraph (c) during the prior calendar year the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) nonproject overhead electric transmission lines that requiring erection of support structures within the project boundary for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved exhibit R or an approved report on recreational resources of an exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is 5 acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director of the Office of Hydropower Licensing, stating the licensee's intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for

prior approval, the licensee may convey the intended interest at the end of that period.

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

(1) Before conveying the interest, the licensee shall consult with appropriate federal and state fish and wildlife or recreational agencies and with the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or an approved report on recreational resources of an exhibit E or if the project does not have an approved exhibit R or an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance shall include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands occur in a manner that protects the scenic, recreational, and environmental values of the project.

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

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

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

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

(G) The application for preliminary permit for Project No. 9366-000 filed by Rocky Mountain Hydro, Inc. is dismissed with prejudice.

(H) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment

Federal Energy Regulatory Commission

Office of Hydropower Licensing, Division of Project Review

Island Park Dam Project

FERC Project No. 2973-004—Idaho

September 29, 1988

I. Application

On July 1, 1985, the Fall River Rural Electric Cooperative, Inc. (Fall River) applied for a license for the proposed Island Park Dam Project, a major hydroelectric project of 5 megawatts (MW) or less. Fall River supplemented their application on January 13, and October 14, 1986, and January 19, February 17, February 21, and March 3, 1987. The proposed project would be located on federal land, in the Targhee National Forest, and at Island Park reservoir dam (Island Park dam) on the Henry's Fork, in Fremont County, Idaho (Figures 1 and 2). The Targhee National Forest is administered by the Forest Service (FS) and Island Park dam is operated by the Bureau of Reclamation (BR).

II. Purpose and Need for Action

A. Purpose

The proposed project would provide an estimated average of 11,800,000 kilowatthours (kWh) of electrical energy per year to Fall River's system.

B. Need for Power

Fall River is the only electric utility serving the area that is conveniently located to provide electric transmission and distribution. In 1986, Fall River's distribution system experienced a peak demand of 52 MW. Fall River forecasts

an average annual growth rate in peak demand of approximately 2 percent. The capacity and energy required to supply Fall River's customers are presently being purchased from the Bonneville Power Administration (BPA).

The proposed project would be useful to Fall River and its customers for the following reasons.

(1) The project would not reduce Fall River's reliance on purchased power, but would eliminate uncertainty about the availability and cost of that portion of the cooperative's future power supply that could be produced by the project.

(2) The proximity of the project to Fall River's service area gives the cooperative an opportunity for convenient, effective operation and control of an independent, reliable power supply that would give customers in its service area a lower rate, and a more reliable electric power supply.

(3) The proximity of the project to Fall River's isolated service area makes the service area the logical market for the project power, and makes the project more valuable to Fall River than to other applicants with more remote markets.

III. Proposed Project and Alternatives

A. Proposed Project

1. Project Description

The Island Park dam is a 9,448-foot-long, earthfill structure with a maximum height of 91 feet, and a concrete spillway at crest elevation 6,309 feet above mean sea level (m.s.l.) that joins the outlet tunnel at the bottom of the dam. The dam outlet structure is at 6,230 feet m.s.l. inside the reservoir and is composed of the following components: (1) an intake structure with trashracks and screens; (2) a 12-foot-diameter, concrete, circular intake tunnel 238 feet long; (3) a gate chamber, 75 feet long, at the confluence of the spillway; and (4) a 13-foot-diameter, concrete, circular tunnel, 500 feet long, with a 3,400 cubic foot per second (cfs) capacity, discharging into the Henry's Fork southwest of the dam and opposite the proposed project location.

Fall River would build a reinforced concrete powerhouse containing two vertical Francis turbines with a combined installed capacity of 4.8 MW southeast of the dam on Henry's Fork. Fall River would also construct the following: (1) a 24.9-kilovolt (kV) buried transmission cable, 15,000 feet long, which would connect with Fall River's existing 48-kV line; (2) a water intake with four interconnected 6-foot-diameter by 25-foot-long "well screened" cylinders at elevation 6,245 to 6,230 m.s.l. on the reservoir bottom; (3) a 10-foot-diameter siphon penstock, 700 feet long, over and into the dam; and (4) an aeration facility (figures 2 through 5).

2. Proposed Mitigative Measures

a. Fishery Resources

The proposed intake siphon is designed to use a 3/8-inch Johnson-type well screen, would have velocities of 1-foot per second (fps) or less at the screen to prevent fish entrainment, and would be located on the bottom of the reservoir to withdraw water during all seasons with temperatures that are beneficial to trout growth in the downstream Henry's Fork fishery.

b. Water Resources

Fall River proposes to prevent increased sediment deposit in the Henry's Fork River by using cofferdams around the site during construction of the powerhouse and excavation for the tailrace. After placement of the penstock in the embankment section of the dam, Fall River proposes to reestablish the design slopes of the embankment. Additionally, Fall River would construct an aeration facility downstream from the turbine outlet and would also use turbine venting to increase dissolved oxygen (DO) in the water to meet state standards and to protect aquatic life.

c. Visual Resources

The siphon intake would be located at the bottom of the reservoir, and the penstock would be routed to the existing dam embankment, where it would be buried. The area disturbed by construction of the penstock would be shaped and covered with the native materials removed from the site to make it blend into the existing surroundings. Penstock construction has been planned, as much as possible, along existing roadways and along areas of construction activity.

Power lines constructed in conjunction with the project would be buried, and would be constructed, whenever possible, along existing roadways and along the dam (figure 2). The area disturbed by construction would be kept to a minimum and reseeded as soon after construction as possible but in no event later than the same season in which construction takes place.

The powerhouse and associated transformer pad would be constructed at the base of the dam in an area previously disturbed by construction activity. The powerhouse would be constructed with horizontal wood siding, in keeping with FS building practices in the area. The color of the building would be an earth tone to blend with the surrounding area. The roof of the structure would be a cedar shake roof that also would be an earth tone. A multi-level roof line would be featured on the powerhouse to help it blend the surrounding area.

Plantings would be utilized to screen the transformer platform and the powerhouse. The area between the powerhouse and the existing pool, featuring a 16-foot-wide 200-foot-long fisherman access walkway, would be fenced with a natural wood railing.

d. Recreation Resources

Fall River proposes to do the following: (1) construct the proposed penstock, powerhouse, and underground transmission line after the prime recreation season to minimize disturbance to fishermen using the area immediately below the dam; (2) improve public access to the Henry's Fork by upgrading the Box Canyon boat launch area and by providing fishing trails along Henry's Fork; and (3) limit winter access for project maintenance to snowmobiles to avoid conflict with cross-country skiers using the Brimstone trails.

3. Federal Land Management Conditions

Under section 4(e) of the Federal Power Act the BR has provided conditions for the proposed project in letters dated December 30, 1985, and September 25, 1986 (attachment 1). In summary, these conditions require Fall River to take the following actions:

(1) enter into an agreement with the BR for access and charges;

(2) provide all project designs for BR approval during various stages of construction and for any project changes after construction;

(3) make the project compatible with BR project purposes, provide for BR inspections, and provide BR authority to stop construction and operate the project as secondary to operation of the BR project;

(4) enter into an operation and maintenance agreement with BR;

(5) revegetate disturbed areas within 6 months of project construction;

(6) have no claim against future BR project operation changes;

(7) recognize project work as secondary to any BR project work and coordinate any work with BR prior to commencement;

(8) coordinate all work with BR for approval prior to Commission approval;

(9) obtain BR approval of all cofferdam construction drawings;

(10) coordinate with the BR Regional Director within 60 days of license issuance;

(11) maintain the reservoir water elevation at 6,289 feet m.s.l. and draw down the reservoir no lower than elevation 6,289 feet m.s.l. only after coordination with the Idaho Department of Fish and Game (IFG) and after the filing of a mitigation plan for Commission approval;

(12) ensure that project operation would not interfere with BR use, storage, or release of water from the dam and be subordinate to current BR operation or future BR operation;

(13) provide any additional water releases to Henry's Fork requested by BR, the U.S. Fish and Wildlife Service (FWS), or IFG;

(14) consult with FWS and IFG on the final fish screen design and, within 6 months of license issuance file coordinated drawings with agency comments with the Commission, and within 2 months after the completion of construction file as-built drawings with the Commission;

(15) consult with FWS and IFG on final design of any aeration system and within 6 months of license issuance, file for Commission approval functional design drawings along with agency comments and, within 2 months of construction completion, file as-built drawings with the Commission;

(16) within 6 months of license issuance and after consultation with the IFG, Idaho Department of Health and the Welfare (DHW), and Environmental Protection Agency (EPA), submit a water quality monitoring plan to measure total dissolved gases, DO, and temperature in Henry's Fork below the powerhouse and include remedial action to correct any water quality problems;

(17) consult with the BR, FWS, IFG, FS, and the National Marine Fisheries Service (NMFS) and provide an erosion control plan for Commission approval within 6 months from the license issuance date;

(18) bury the transmission line; and

(19) within 18 months from license issuance, consult with the National Park Service (NPS), FWS, BR, and the Idaho Department of Parks and Recreation (DPR) and file a recreation report for Commission approval.

FS has also provided conditions for the proposed project by letter dated February 23, 1988, under section 4(e) of the Federal Power Act (attachment 2). These conditions require Fall River to take the following action:

(1) within 6 months of license issuance file for a special use authorization enforceable by the FS;

(2) obtain FS approval of all final designs;

(3) obtain FS approval of any design changes after project construction starts;

(4) each year consult with the FS on protecting and developing natural resources and provide a report of this consultation to the Commission;

(5) develop a recreation mitigation plan in cooperation with the FS and file this plan with the Commission within 1 year of license issu-

ance and prior to any land-disturbing activities;

(6) prepare a water study plan in cooperation with the FS, FWS, IFG, and DHW and file the plan with the Commission for approval prior to operation;

(7) consult with the FS, FWS, IFG, and DHW to develop a water quality monitoring plan that would assess project impacts, provide remedial measures to correct any water quality problems identified, provide a full-time operator and automated operation, and file the plan with the Commission at least 60 days prior to operation;

(8) develop an erosion control plan with FS approval prior to construction and file this plan and consultation with the Commission within 1 year from project issuance;

(9) consult with FS to develop a solid waste and water management plan, and file the plan and consultation with the Commission prior to land-disturbing activities and within 1 year of license issuance;

(10) consult with FS to develop an oil and hazardous substance storage and spill prevention plan, and file the plan and consultation with the Commission prior to any land-disturbing activities and within 1 year of license issuance;

(11) consult with FS and develop an excavated material storage plan, and file the plan and consultation with the Commission prior to land-disturbing activities and within 1 year of license issuance;

(12) consult with FS to develop an aesthetics plan and provide the plan and consultation to the Commission for approval before land disturbance and within 1 year from license issuance;

(13) consult with FS on transmission line burial along the existing 15-kV transmission line; and

(14) design the crossing over the penstock to support a logging truck.

B. Alternatives To The Proposed Project

The only alternative to the proposed action would be denial of license. Denial of license would also mean that the benefits specific to Fall River and their service area would be lost. These specific benefits are identified in the "Need for Power" section of this document. Additionally, if the project is not developed, the potential renewable hydraulic energy of this resource would be lost and might eventually have to be generated from non-renewable primary energy resources.

C. Alternative of No Action

No action would mean that the potential hydropower of the proposed project would not be produced; there would be no construction and no alteration of the existing environment.

IV. Consultation and Compliance

A. Agency Consultation

The Commission's regulations require prospective applicants to consult with the appropriate resource agencies before filing the 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. Prefiling consultation must be complete and must be documented in accordance with the Commission's regulations.

After the Commission accepts the application, concerned entities may submit formal comments during notice period. In addition, organizations and individuals may petition to intervene and to become a party to any subsequent proceedings. The comments provided by concerned entities are made part of the record and are considered during the review of the proposed project. After the Commission issued a public notice of the application on October 23, 1985, the following entities commented on the application or petitioned to intervene.

Commenting Entity	*Date of Letter*
Forest Service	December 20, 1985
	December 10, 1985
	March 4, 1987
	August 8, 1987
	February 23, 1988.
Department of the Interior	December 30, 1985
	September 25, 1986
	November 12, 1986

Intervenors	*Date of Petition*
Henry's Fork Foundation, Inc.	December 6, 1985
Idaho Department of Water Resources and Water Resource Board	December 13, 1985
Greater Yellowstone Coalition	December 13, 1985
Fremont-Madison Irrigation District	December 18, 1985

Commenting Entity	*Date of Letter*
Idaho Department of Fish and Game	December 19, 1985
Department of the Interior	January 8, 1986

Fall River responded to Interior's comments in letters dated February 25 and November 24, 1986.

B. Water Quality Certification

Fall River applied for a water quality certificate on June 3, 1985. In a letter dated February 7, 1986, DWH issued a water quality certificate to Fall River under authority of section 401 of the Clean Water Act. The certificate contained no conditions.

C. Electric Consumers Protection Act

Conservation provisions for Henry's Fork are found in the Electric Consumers Protection Act of 1986 (ECPA), section 15A, miscellaneous provisions. These provisions state "the Commission may issue such a license only if the Commission determines that significant and permanent alteration of streamflow, habitat, water temperature, and quality will not occur as a result of the project." These conservation provisions are included in ECPA to protect the existing trout fishery and other natural resources of the Henry's Fork. In addition, section 15A takes precedence over section 3(2) of ECPA that states "the Commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawing grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality." Licensing the project and implementing the mitigative recommendations of Fall River, the agencies, and staff would comply with ECPA requirements.

D. Pacific Northwest Power Planning and Conservation Act

Under section 4(h) of the Pacific Northwest Power Planning and Conservation Act, the Northwest Power Planning Council (Council) developed the Columbia River Basin Fish and Wildlife Program (Program) to protect, mitigate, and enhance fish and wildlife resources associated with development and operation of hydroelectric projects within the Columbia River Basin. Section 4(h) states that responsible federal agencies should provide equitable treatment for fish and wildlife resources in addition to the other purposes for which hydropower is developed. Section 4(h) further states that these agencies shall take into account, to the fullest extent practicable, the Program adopted under the Act.

The Program directs agencies to consult with federal and state fish and wildlife agencies, appropriate Indian Tribes, and the Council during the study, design, construction, and operation of any hydroelectric development in the basin. At the time the application was filed, the Commission's regulations required applicants to initiate prefiling consultation with the appropriate federal and state fish and wildlife agencies and the Tribes, and provide these groups with post filing opportunities to review and to comment on the application. This consultation process has occurred.

The program states that authorization for new hydroelectric projects should include conditions of development that would mitigate the impacts of the project on fish and wildlife resources. The relevant federal and state fish and wildlife agencies have reviewed and commented on the application. In addition, any license issued would provide for mitigative measures to protect fish and wildlife resources and therefore, is consistent with section 1200 of the Program. Further, a condition of any license issued would reserve to the Commission the authority to require future alterations in project structures and operation in order to take into account, to the fullest extent practicable, the applicable provisions of the Program.

V. Environmental Analysis

A. General Description of the Locale

1. The Upper Henry's Fork River Basin

The Island Park dam and reservoir are in the Upper Henry's Fork River Basin, which is located in the Continental Divide Mountains at elevation 6,300 feet m.s.l., approximately 39 miles north of the city of Ashton, Idaho, and about 15 miles west of Yellowstone National Park (figure 1). The project area is located on the rim of an inactive collapsed volcano called the Island Park Caldera (figure 1). The project area varies from forested mountains to rolling hills and some areas vegetated with low shrubs. All the project area is part of the Targhee National Forest. Land use adjacent to the project area is rural. Timber production, rangeland, and irrigated cropland are the basic components of the area's agriculture. Annual precipitation varies from 15 inches in lower elevations to 40 inches in higher elevations. Seventy percent of the precipitation occurs between November and May, mainly in the form of snow (Bingham Engineering, 1985).

2. Cumulative Environmental Impact Analysis

The staff analyzed the potential cumulative environmental effects of the Island Park Dam

Project in an environmental assessment for the Cross-Cut Project (FERC Project No. 3991) issued on February 28, 1986, by the Commission. The staff concluded that the Island Park Dam Project would have no significant adverse cumulative impacts on the environment, including the following target resources: resident trout, water quality, bald eagles, and trumpeter swans.

B. Proposed Project

1. Geology and Soils

Affected Environment: The project area is underlain by basalt and welded, rhyolite tuff bedrock. A portion of the new penstock would be buried in the existing engineered granular section of the existing earthen dam embankment. The remaining section of the penstock and the powerhouse would be constructed in basalt and welded tuff overlain by a thin layer of poorly consolidated colluvial and alluvial deposits. These deposits consist primarily of gravel, cobbles, and blocks of basalt and welded tuff in a silty soil matrix, with some silt, clay, and gravel stream deposits (Bingham Engineering, 1985). Fall River states that the project area slopes are stable and not prone to erosion (Bingham Engineering, 1985).

Environmental Impacts and Recommendations: Due to the small area of land disturbance, erosion and sedimentation that would occur during project construction would be minor and localized. Temporary erosion and sedimentation would occur primarily during cofferdam placement and removal, burial of the penstock, and disposal of excess spoil materials. Fall River's proposed use of cofferdams to isolate the excavations for the powerhouse and tailrace from the river would prevent large amounts of sediment from entering the river. Other measures proposed by Fall River include: (1) diversions from excavated areas; (2) hay bales; (3) turbidity screens in the water; (4) revegetation of excavated areas; and (5) working during the low-flow period.

IFG, in its motion to intervene, recommends that it approve detailed plans for road location, construction scheduling, soil erosion control, topsoil stockpiling, disposal of excess excavated spoil, and revegetation of all disturbed sites. The BR's and FS's section 4(e) conditions would require Fall River, prior to starting any project-related, land-disturbing activities, to file a plan for control of erosion, stream sedimentation, dust, and soil mass movement that includes the measures recommended by IFG. The FS and BR section 4(e) requirements to control erosion and sedimentation include the following measures:

(1) revegetating disturbed areas within 6 months of completion of project construction;

(2) grading slopes to stabilize the site;

(3) controlling of surface drainage;

(4) providing sediment control during a penstock break;

(5) stockpiling of topsoil;

(6) storage and disposal of slide and excavated material;

(7) construction or upgrading of access roads;

(8) identification and mapping of erosive soils or unstable slopes;

(9) an implementation schedule;

(10) monitoring and maintenance programs;

(11) provisions of periodic review or the plan and revisions in the plan;

(12) documentation of agency consultation;

(13) summary of agency comments and recommendations on the plan;

(14) removal of solid waste and waste water;

(15) hazardous substance storage, spill clean up, and spill prevention; and

(16) the rehabilitation of all spoil sites (*see* attachment A, condition nos. 5 and 17, and attachment B, condition nos. 8, 9, 10, and 11).

The erosion and sediment control measures proposed by the the applicant and recommended by the agencies are general descriptions of the types of control measures that would be used. In order to ensure that project-related erosion and sedimentation would be kept to minor levels, a detailed plan that includes the applicant's proposed measures, the measures recommended by the FS and BR, and the actual locations of the specific control measures to be used, should be filed with the Commission prior to commencing any ground-disturbing activities; such a plan is specifically required by BR section 4(e), condition no. 17.

Unavoidable Adverse Impacts: During construction some minor, localized short-term erosion and sedimentation losses would be unavoidable. There would be no long-term erosion or sedimentation losses from project construction or operation, once the disturbed land surfaces have been stabilized and vegetated.

2. Water Resources

Affected Environment: The flow regime of Henry's Fork has been greatly altered since 1938 by construction of the Island Park dam to meet local mid-summer irrigation needs. The runoff pattern for Henry's Fork and its tributaries is typical for a snowmelt-fed river providing greater flows in late spring and early summer, decreasing flows later in summer and fall, and much lower flows in late fall and early winter. Flows from the dam, however, are much different due to regulation with storage occurring in fall and winter, overflow releases in spring, and large releases in July and August

for downstream irrigation needs. During the period of record (1940 through 1979) daily flows have varied from 2 to 2,500 cfs. Average monthly flows (table 1) are highest May through August and lowest November through March (Bingham Engineering, 1985).

Table 1. Average monthly flows for The Henry's Fork River downstream from the Island Park dam for 1940 through 1979 and the estimated percentage of these flows that could be diverted through the proposed Island Park Dam Project, FERC Project No. 2973, Idaho (Source: the staff).

Month	*Average monthly flow release in cubic feet per second*	*Estimated percentage of flow that could be diverted through the project*
October	480	100
November	308	100
December	239	100
January	187	100
February	255	100
March	320	100
April	494	100
May	978	98
June	966	99
July	1,154	83
August	1,189	81
September	818	100

The Island Park reservoir is eutrophic (nutrient enriched) and varies from good to poor in water quality (Ecosystems, 1988). According to Idaho State Water Quality Standards, the reservoir is designated for use for domestic water supply, agricultural water supply, coldwater biota, salmonid spawning, primary contact recreation, and special resource water.

Fall River's temperature and DO sampling from 1985 to 1987 shows that the Island Park Dam reservoir is chemically and thermally stratified; the reservoir water quality varies from good to poor depending on the season and water depth. During late September and early October, the reservoir water fully mixes, resulting in fairly uniform temperatures and DO for a short period of time. On October 3, 1985, the reservoir water mixing was verified and measured at 6 degrees celsius (°C) and DO levels ranged from 8.5 to 10.2 milligrams per liter (mg/l) (Ecosystems, 1988). On October 26, 1986, the reservoir water mixing was also verified and measured at 8°C and DO levels ranged from 8.6 to 9 mg/1 (Ecosystems, 1988).

During reservoir refilling from fall through winter, the reservoir becomes thermally stratified, ice forms on the surface, and the upper water level from the surface to 12 feet below the surface becomes colder and contains more DO than the bottom, 44 to 46 feet below the surface where the existing dam outlet and proposed project intake are located. During this time, studies show that in the upper level water temperature ranged from 0 to 2.5°C, and DO levels ranged from 7.5 to 12.5 mg/l, and in the bottom level water temperature ranged from 2.3 to 3.2°C and DO levels ranged from 2.1 to 5.9 mg/l (Ecosystems, 1988). This reservoir thermal stratification briefly ends with another full water mixing in the early spring.

After turnover when the reservoir has refilled, from spring through summer and into early fall, the reservoir is thermally stratified. The upper level is warmer and DO is higher than the bottom level. During this time, studies show that in the upper level water temperatures ranged from 11.5 to 21.5°C and DO levels ranged from 4.8 to 9.2 mg/l, and in the lower level water temperatures ranged from 9 to 17.5°C and the DO was 2.9 to 6.9 mg/l (Ecosystems, 1988).

Fall River's water quality monitoring at the existing outlet from 1985 to 1987 shows that flow releases to the Henry's Fork have excellent DO and excellent to poor temperatures for fish spawning (Piper *et al.*, 1982; Bardach *et al.*, 1973; Davis, 1975; Brungs and Jones, 1977; Hokanson, 1977; EPA, 1986). From spring through early fall, temperatures of Henry's Fork ranged from 6.5 to 17°C and DO levels ranged from 7.5 to 10.2 mg/l, resulting in DO saturation of 95 to 133 percent. During the October 13, 1986, reservoir turnover, the temperature of Henry's Fork was 8°C and the DO level was 9.7 mg/l or 102 percent of saturation. From fall through winter, the temperature of Henry's Fork ranged from 3 to 5°C and DO levels ranged from 8.8 to 11.5 mg/l or 82 to 107 percent of saturation. Fall River's monitoring also shows that the existing dam outlet greatly aerates flow releases to Henry's Fork, which allows flows to meet the state DO standard of 6 mg/1.

The 1985 to 1987 monitoring of Henry's Fork shows that temperatures of the flow releases ranged from 3 to 17°C and DO levels ranged from 7.5 to 11.5 mg/l or 82 to 113 percent of

saturation (Ecosystems, 1988). The downstream river temperature measured is similar to the lower reservoir level water temperature, where the existing dam outlet structure is located, with the exception of the spring temperatures when warmer reservoir surface water flows over the spillway. The low level intake draws water low in DO ranging from 2.1 to 6.9 mg/l. The high DO levels measured downstream ranging from 6.8 to 10.6 mg/l, however, are attributed to the tremendous aeration provided by the dam outlet structure (Ecosystems, 1988). The flow releases currently provide DO year-round and temperatures most of the year that are beneficial and sometimes optimum for the salmonids and other types of fish found in Henry's Fork (Piper *et al.*, 1982; Bardach *et al.*, 1973; Davis, 1975; Brungs and Jones, 1977; Hokanson, 1977; EPA, 1988), except during May and June. During these 2 months, surface overflow spillage results in temperatures too warm for salmonid spawning and violates the state standard, which is a daily average of no more than 9°C and a maximum of 13°C. These overflows also violate the state standard for total dissolved gases, which is a maximum limit of 110 percent of saturation.

Environmental Impacts and Recommendations:

a. Sedimentation and Turbidity

Erosion from disturbed areas in the dam adjacent to the reservoir and in land adjacent to the Henry's Fork would introduce some sediment into the water column. Fine-sized clay and silty sediment would enter the reservoir and Henry's Fork. This sediment would settle to deeper areas of the reservoir and some would be carried downstream and settle in riffles and deep pools.

Increases in turbidity and sedimentation, with their negative effects on aquatic resources, are among the most significant construction-related effects of hydropower development (Rochester *et al.*, 1984). Because sedimentation resulting from project construction would be minor (section V. B.1), associated impacts on aquatic resources are expected to be minor and temporary. Fall River's application of good erosion prevention techniques, such as sediment traps, hay bales, revegetation, diversions away from excavated areas, turbidity screens in the water, and working in the fall low-flow period, along with agency section 4(e) requirements (section V.B.1.), should greatly reduce construction-related sediment problems. To prevent the introduction of sediment into the water column, Fall River proposes constructing the project when the reservoir is drawn down during the winter low-flow period and to implement an erosion control and sedimentation plan developed after consultation with interested agencies.

Fall River should consult with FS, BR, FWS, and IFG to develop a detailed erosion control and sedimentation plan, as discussed in section V.B.1, Geology and Soils. The plans required by Interior's and FS's section 4(e) conditions and recommended by staff would adequately protect resources from sedimentation impacts (*see* section V.B.1.).

b. Reservoir drawdown

A lower reservoir drawdown required for siphon water intake construction in the dry as compared to the existing drawdown limits could affect reservoir water quality by increasing erosion and sedimentation and could affect the quantity of winter flow releases after construction because of proposed reservoir refilling. FS, BR, FWS, IFG, DWR, the Idaho Department of Water Resources (IWR), the Henry's Fork Foundation (HFF), and the Greater Yellowstone Coalition (GYC) are concerned that prolonged drawdowns lower than existing drawdown elevation limits for project intake and siphon penstock construction would affect the fish and wildlife resources in the Henry's Fork by reducing winter flows.

Fall River would limit any within-reservoir construction to the current BR reservoir drawdown schedule and limit reservoir drawdown to an elevation of 6,289 feet m.s.l. A lower drawdown level for any extended period of time is not necessary, because the project intake would be constructed on the water surface and installed by divers underwater. This type of construction is required by BR's and FS's section 4(e) conditions on drawdown elevation limits for construction. Staff, therefore, concludes that project intake and siphon construction would not adversely affect reservoir water quality or downstream fish and wildlife resources by increasing drawdown levels or by reducing winter flows.

c. Dissolved Oxygen and Total Dissolved Gases

Project operation could result in a reduction of DO levels downstream of the dam. The proposed project operation would draw water from near the bottom of the reservoir, which is low in DO; releases would require substantial aeration to meet state standards for DO which is 6 mg/l. Fall River proposes aerating these flows using turbine venting and an experimental design aeration facility engineered to provide up to 12,000 kilograms per day of oxygen (Ecosystems, 1988). The aeration facility, however, could raise DO, nitrogen, and other dissolved gases to levels exceeding the state standard of 110 percent of saturation (Ecosystems, 1988). The proposed project would have an operating capacity of 138 to 960 cfs, which would divert

an estimated 81 to 100 percent of the monthly flows containing water high in DO that is currently released from the existing dam outlet (table 1).

FS, BR, FWS, IFG, HFF, and the GYC are concerned that the project flows would degrade the DO concentration or increase total dissolved gases over 110 percent of saturation in the Henry's Fork. FS section 4(e) conditions requires the following of Fall River: (1) establish a water quality baseline by monitoring the reservoir and Henry's Fork; (2) mitigate any potential water quality problems the project would cause; (3) maintain the existing water quality found in the flow releases to Henry's Fork; and (4) install an automated system and employ an on-site operator to maintain the existing water conditions such as DO, other gases, and temperature. Fall River has started monitoring the reservoir and Henry's Fork for baseline water quality, and has changed plans to now include an aeration facility.

BR section 4(e) conditions require the following of Fall River: (1) consult with IFG and FWS on final design for the proposed aeration system and file all consultation and the plan with the Commission for approval; and (2) consult with DHW, IFG, and EPA on developing a water quality monitoring plan that includes DO, TDG, temperature, annual reporting, and remedial action to correct total dissolved gas concentrations above 110 percent of saturation and temperatures above the existing level at the dam outlet, (3) provide for changing project structures and operation should monitoring show that the project is not maintaining a maximum dissolved gas concentration of 110 percent of saturation, and (4) file the plan and all consultation with the Commission for approval.

IFG has recommended monitoring DO and temperature before project construction and duplicating these pre-project DO concentrations and water temperatures during project operation. Fall River has started water quality monitoring and proposes to raise the powerhouse discharge flows to the highest quality level possible to meet these recommendations.

IFG recommended and the FS section 4(e) conditions would set an interim DO lower limit of 6 mg/l (the state standard) or the DO levels at the existing dam outlet, whichever is higher, which would be determined by future continuous monitoring. Fall River's monitoring to date, however, has shown that DO concentrations at the outlet ranged from 6.8 to 10.6 mg/l and averaged 7.3 mg/l and the percent of saturation averaged 96.4 (Ecosystems, 1988). Increasing the minimum DO limit to 7 mg/l or the DO level at the dam outlet, whichever is higher, would slightly enhance the downstream fishery and aquatic life by increasing DO and would protect fisheries and aquatic life dependent on these DO levels (Piper *et al.*, 1982; Bardach *et al.*, 1973; Davis, 1975; Brungs and Jones, 1977; Hokanson, 1977; EPA, 1988). This DO level better duplicates existing conditions than the FS section 4(e) conditions and would prevent DO levels from falling below 7 mg/l in the Henry's Fork.

Should Fall River not meet the 7 mg/l minimum DO limit, an on-site operator should implement remedial measures such as mixing outlet flows and project flows, adding liquid oxygen, or stopping project operation to protect water quality and aquatic life. Fall River should monitor to ensure that water released from the project immediately downstream from the aeration facility would not contain less than 7 mg/l of DO or the DO level of the outlet tunnel discharge measured immediately downstream, whichever is higher, to protect aquatic life in Henry's Fork. Further, Fall River should file with the Commission a DO monitoring and maintenance plan, including evidence of consultation with BR, FS, FWS, IFG, and DHW, provisions for rapid automated measures that alter project operation, including project shutdown to maintain the minimum DO concentration limit, and provisions for an on-site project operator to ensure that DO is maintained; such a monitoring plan is required by FS section 4(e) condition no. 7.

Dissolved nitrogen levels in Henry's Fork exceed the state standard at times and has been measured at the project site as high as 110.4 percent of saturation by the BR and 111.9 percent of saturation by Fall River (Ecosystems, 1988). Spring spillway flows and Fall River's turbine venting and experimental aeration system have the capacity to increase total dissolved gases to over 110 percent of saturation. The IFG has recommended and BR and FS section 4(e) conditions would set a total dissolved gas upper limit of 110 percent of saturation, the state standard, to protect the fishery from gas bubble disease from excessive dissolved nitrogen. Maintaining total dissolved gas levels no higher than 110 percent of saturation is necessary to protect water quality and aquatic life. Fall River should, therefore, include in the DO protection plan provisions to monitor to ensure that total dissolved gases would not exceed 110 percent of saturation in the water released to the Henry's Fork, and measures for rapid alteration of project operations to comply with this limit.

d. Temperature

The proposed project would withdraw water from near the bottom of the reservoir which should result in water temperatures similar to existing conditions and beneficial to the down-

stream fishery, wildlife, and other aquatic life. The project, however, would allow spring spillway surplus overflows that are too warm for salmonid spawning to enter the Henry's Fork.

FS, BR, FWS, IFG, HFF, and the GYC are concerned that the project would significantly increase or decrease the water temperature and adversely affect the Henry's Fork fishery. The FS section 4(e) condition requires that the water released from the project not be significantly higher or lower than the existing outlet water temperatures of current releases, and BR requires that the water released should not be a higher temperature than water released from the existing outlet at the dam.

Fall River's temperature monitoring shows that when BR releases warm water from the reservoir surface via the spillway during May (11.5 to 16°C) and June (13.1 to 17°C), these flows are in violation of the state standard for temperature in the Henry's Fork for salmonid spawning waters, which is 13°C or less with a maximum daily average no greater than 9°C (Ecosystems, 1988). Fall River's monitoring also showed that the temperature in Henry's Fork below the dam ranged from a low of 3.5 to a high of 17°C (Ecosystems, 1988).

Fall River's compliance with the FS and BR section 4(e) conditions requiring maintenance of existing temperatures would not ensure that state water temperature standards are maintained. Any license issued by the Commission must ensure, at a minimum, maintenance of the state water quality standards. Operating the project using deep level reservoir water with the following temperature limits, however, would maintain the state standard and enhance water quality and aquatic resources: (1) an upper limit of 13°C or less with a maximum daily average of no greater than 9°C during salmonid spawning, March 1 through June 30, and October 1 through November 30; and (2) at other times, a minimum limit of 3°C and a maximum limit of 17°C, which are the existing conditions and within the state standard. These measures are consistent with agency recommendations, agency 4(e) conditions, ECPA conservation provisions, and would improve water conditions as compared to the current BR project operation. Fall River, therefore, should implement the above requirements.

e. Minimum Flows

The proposed hydro project operation would not alter, increase, or decrease flows in the existing BR operation mode of the Island Park dam and reservoir. Under the proposed project operation, fish, wildlife, and visual resources, recreational use, and downstream mid-summer irrigational use would be unaffected, therefore, the status quo would be maintained.

There are opportunities to enhance the natural reources of the Henry's Fork downstream of the Island Park dam by increasing flows. The Commission, however, does not have the authority to require an increase in flows from dam to enhance the downstream environment because (1) BR has complete control over the releases from the dam and hyroelectric generation is secondary to irrigation; and (2) ECPA prohibits the Commission issuing a license that significantly alters flows from the project (see section IV.C). On August 15, 1988, staff met with BR, IFG, Fall River, and a representative from the office of the U.S. Senator, James A. McClure in Boise, Idaho, to discuss the possibility of BR providing the minimum flows recommended by the staff. BR did not believe it was necessary to alter their section 4(e) condition to provide for increased minimum flows. The following analysis is provided for information purposes only.

BR operates the Island Park dam with no continuous minimum flows, which results in the following adverse environmental impacts downstream on the Henry's Fork: (1) reductions in fish and wildlife habitat and aquatic vegetation; (2) increased ice formation; (3) losses of all life stages of trout; (4) losses of recreation opportunities; and (5) reductions in fish growth and reductions in fish year classes (Angradi and Contor, 1987, 1988; Ecosystems, 1988; personal communication, Dr. Jack Griffith and Mr. Craig Contor, Idaho State University, Pocatello, Idaho, April 20, 1988; and personal communication, Dr. M.R. Mickelson, Henry's Fork Foundation, Pocatello, Idaho, April 20, 1988).

Because of low winter flow releases the reservoir usually fills up in early spring resulting in high spring overflows of surplus water through the spillway (Ecosystems, 1988). These high spring surplus overflows result in the following adverse environmental impacts downstream on the Henry's Fork: (1) disruption of waterfowl nesting and the flooding of most nests; (2) water temperatures too high to meet the state water quality standard; and (3) overflows too high in dissolved gases such as nitrogen to meet the state water quality standard (Angradi and Contor, 1987, 1988; Ecosystems, 1988; personal communication, Dr. Jack Griffith and Mr. Craig Contor, Idaho State University, Pocatello, Idaho, April 20, 1988; and personal communication, Dr. M.R. Mickelson, Henry's Fork Foundation, Pocatello, Idaho, April 20, 1988).

FS is concerned about minimum flows to protect natural resources and water uses but offers no recommendations or section 4(e) conditions to deal with this issue. Interior is concerned with minimum flows to protect fish and wildlife resources and aquatic vegetation from

river icing but only addresses providing these flows on an "as needed" basis, insists that Fall River follow the BR release schedule, and does not address minimum flows in their BR section 4(e) conditions. FWS, IFG, HFF, and the GYC are also concerned that the project would adversely impact flows needed to protect natural resources from river icing, habitat loss, and fishing opportunities. IFG initially, recommended a 300 cfs minimum flow to protect fish and wildlife resources, but subsequently withdrew its recommendation (agency meeting, Boise, Idaho, August 15, 1988). The Idaho State Legislature, in March 1987, passed Concurrent Resolution No. 114, authorizing the Idaho Water Resource Board to apply for a permit to raise the minimum flows for Henry's Fork to 300 cfs from October 1 through March 31, and 1,000 cfs from April 1 through September 30.

Operation of the hydro project using surplus water normally spilled over in the spring as a continuous minimum flows could significantly enhance the BR project operation since this would result in enhancing the natural resources and recreational uses dependent on flow releases from the dam. The benefits of increasing minimum flows are discussed below.

Various flow studies have been conducted on the Henry's Fork in recent years. In 1978, the IFG used the wetted perimeter method to determine the instream flow needs in a low gradient area of Harriman State Park (figures 1 and 2) and recommended a minimum flow of 177 cfs to protect fisheries (Ecosystems, 1988). Another flow study in the park by Northwest Environmental Services was performed for Fall River (Roberts and Buck, 1986). This study evaluated flows of 50, 100, 300, and 500 cfs and found that a 500 cfs minimum flow best protected fish, wildlife, downstream water uses, and aquatic vegetation. Study results show that 500 cfs allowed more bank and shallow river edge habitat to remain ice-free and available for aquatic resources year-round, more aquatic vegetation growth, more use by all life stages of trout, and more use by trumpeter swans, other waterfowl, and foraging bald eagles.

IFG, in 1987, evaluated minimum flow in the park using the FWS's Instream Flow Incremental Methodology (IFIM) (Van Vooren, 1987). This study evaluated flows for support of rainbow trout and found that flows from 200 to 500 cfs best protected habitat of various trout life stages and found 400 cfs as the flow that best protected all life stages of rainbow trout in this reach of the river. The 300 cfs recommended by IFG for the project and the 400 cfs recommended by Van Vooren, however, would not provide as much year-round bank and shallow river edge habitat as the 500 cfs recommended by Roberts and Buck in 1986.

Continuing studies by the Idaho State University Cooperative Fish and Wildlife Research Unit (ICOOP) on the fishery resources from the Island Park dam to Hatchery Ford (figures 1 and 2) show that: (1) fish are more abundant and grow faster in the river section 3 to 4 miles below the dam than in the rest of the 12-mile study reach; and (2) river bank habitat is an important requirement of many fish life stages which would best be protected by at least a 500 cfs minimum flow (Angradi and Contour, 1987; 1988). As stated earlier, 500 cfs best protects trout, wildlife, aquatic vegetation, downstream uses, and recreation needs.

Based on the Tenant method, the Idaho Department of Parks and Recreation (DPR) has recommended to the Idaho Water Resource Board minimum flows of 300 cfs from October 1 through March 31, and 1,000 cfs from April 1 through September 30, for aesthetics and recreational purposes. While a flow of 1,000 cfs is desirable for larger boat use and looks pleasing, during April and May, this flow would flood most waterfowl nests and wash eggs downstream, and as stated above, these kinds of impacts from spring overflows are a regular seasonal occurrence.

Using surplus water as a continuous project minimum flow of 400 cfs from October 1 through May 31 combined with approximately at least 100 cfs from the Buffalo River, located downstream from the dam, would provide a 500 cfs minimum flow to the Henry's Fork (figures 1 and 2). This 500 cfs minimum flow would protect and enhance natural resources in the following ways: (1) provide a sufficient quantity of good quality water that ensures the state standards would be met; (2) provide for existing downstream water uses; (3) provide year-round bank and shallow river edge habitat for fishery resources and wildlife resources; (4) provide waterfowl feeding, wintering, and nesting habitat; (5) provide endangered and threatened species habitat; (6) provide shallow areas for growth of aquatic vegetation; (7) provide for aesthetics; and (8) allow most recreation and boating uses.

Flows over 500 cfs would allow larger boats access for recreation during April and May but would also result in the flooding of waterfowl nests, which presently occurs when spring overflows from the dam are greater than 500 cfs. A minimum flow of 900 cfs from June 1 through September 30 combined with at least 100 cfs from the Buffalo River downstream would provide a 1,000 cfs minimum flow to the Henry's Fork, which would adequately protect fish and wildlife resources, the above listed uses, recreation and aesthetics during the most heavy rec-

reation-use period of the year. Minimum flows of 400 cfs from October 1 through May 31 and 900 cfs from June 1 through September 30, would substantially enhance the natural resources and water uses listed above. These minimum flows, however, could be available only when the reservoir water budget assures that there would be no conflicts with future irrigation needs. The increased minimum flows would also result in the need for BR to coordinate yearly flow planning from April 1 through March 31 with Fall River, Fremont Madison Irrigation District, DHW, FS, FWS, IFG, Idaho Water Resource Board, HFE, and GYC and the need for Fall River to monitor flows in coordination with the aforementioned agencies and groups.

f. Ramping Rates

The proposed project operation would affect the ramping rates (the speed at which flow releases are increased or decreased as measured over a unit of time such as an hour or half an hour). Ramping rates that rapidly increase or decrease water levels downstream from the dam affect water quality, fish and other aquatic life, waterfowl, raptors and other wildlife, and aquatic vegetation.

BR operates the Island Park dam with no set ramping rates, which results in the following adverse environmental impacts downstream: (1) reductions in fish and wildlife habitat and aquatic vegetation; (2) increased ice formation; (3) losses of all life stages of trout; (4) losses of recreation opportunities; and (5) reductions in fish growth and reductions in fish year classes (Angradi and Contor, 1987, 1988; Ecosystems, 1988; personal communication, Dr. Jack Griffith and Mr. Craig Contor, Idaho State University, Pocatello, Idaho, April 20, 1988; and personal communication, Dr. M.R. Mickelson, Henry's Fork Foundation Pocatello, Idaho, April 20, 1988).

FS states that ramping rates are needed to protect recreational uses from water reductions, and to protect natural resources from habitat and population losses, and river icing, but offers no recommendations or section 4(e) conditions to deal with this issue. Interior is concerned about ramping rates causing river icing and fishery and waterfowl losses but does not address ramping rates in their BR section 4(e) conditions. FWS, IFG, HFF, and the GYC are also concerned that the project would adversely impact ramping rates and cause fishery and waterfowl population losses and losses in fishing opportunities. IFG recently requested ramping rates of 50 cfs per half an hour to protect fish and wildlife resources in their December 10, 1987, and February 25, 1988, letters to BR.

Ramping rates would enhance fishery resources in Henry's Fork. Research has shown that trout in the Henry's Fork hide along the shoreline during the daylight hours and come out of the shoreline areas during cover of darkness, and that when flows are reduced drastically, stranding and desiccation of juvenile trout, trout eggs, trout fry, and sometimes larger trout occur (Angradi and Contor, 1987; 1988). These research studies also recommend a ramping rate of no more than 50 cfs during a half an hour period and that down ramping only be conducted during hours of darkness. IFG, based on these studies, has recommended down ramping during hours of darkness and a ramping rate of no more than 50 cfs per half an hour to the BR to protect fisheries. Research studies estimate that at least 100,000 juvenile trout are jeopardized during every rapid-flow reduction at the Island Park dam Angradi and Contor, 1987; 1988).

The adverse environmental impacts of rapid increases or decreases in flows in the Henry's Fork have been observed and are well documented (Angradi and Contor, 1987, 1988; Ecosystems, 1988; personal communication, Dr. Jack Griffith and Mr. Craig Contor, Idaho State University, Pocatello, Idaho, April 20, 1988; and personal communication, Dr. M.R. Mickelson, Henry's Fork Foundation, Pocatello, Idaho, April 20, 1988). Operating the project with and a decreasing-flow ramping rate of 50 cfs over a half an hour restricted to 7 p.m. to 5 a.m., and a decreasing-flow ramping rate of 50 cfs over a half an hour would avoid adverse impacts of icing, stranding, and desiccation to fish, icing to wildlife and aquatic vegetation, and should adequately protect these resources. Fall River would be better able to control flow and provide appropriate ramping rates than BR because Fall River would employ a full-time operator. Therefore, Fall River should operate the project according to the above ramping rate schedule and should develop a ramping rate monitoring plan to ensure compliance with the recommeded ramping rates.

Unavoidable Adverse Impacts: During construction, some minor localized short-term increases in turbidity at the powerhouse site would be unavoidable.

3. Fishery Resources

Affected Environment: The Island Park Reservoir, upper Henry's Fork, and lower Henry's Fork downstream from the dam contain reproducing populations of rainbow trout (*Salmo gairdneri*), brook trout (*Salvelinus fontinalis*), cutthroat trout (*Salmo clarki*) rainbow-cutthroat hybrids, and mountain whitefish (*Prosopium williamsoni*). The Island Park Reservoir is stocked with kokanee salmon

(*Oncorhynchus nerka*) and coho salmon (*Onocorchynchus kisutch*) and some of these fish pass over the spillway and enter the lower Henry's Fork. Some of the results of recent ICOOP studies on game fish in the lower Henry's Fork are found in Table 2.

Table 2. Some game fish population data for Henry's Fork from Island Park dam to Hatchery Ford (approximately 12 miles) Spring 1986 through 1987 in the vicinity of FERC Project No. 2973, Idaho (Source: Angradi and Contor, 1987; 1988, modified by the staff).

Sample area name and location	*Fish species and estimated number*	*Density per 100 square meters*	*% of rainbow trout over 350 millimeters*
Box Canyon (from the dam downstream 3 to 4 miles)	27,947 rainbow trout	11.5	21
	7,110 mountain whitefish	2.9	
	2,383 brook trout	1.4	
Railroad Ranch (4 miles downstream from the dam)	3,534 rainbow trout	3.9	7
	5,464 mountain whitefish	6.0	
Pinehaven (7 miles downstream from Railroad Ranch)	6,846 rainbow trout	3.6	3
	11,834 mountain whitefish	6.2	
Cardiac Canyon (adjacent and downstream from Pinehaven)	26,904 rainbow trout	5.5	3

Surveys conducted by the IFG show that anglers prefer fishing the Lower Henry's Fork over the Upper Henry's Fork because of the larger and more abundant fish there. Because of these reasons, the Lower Henry's Fork is considered a "world class blue ribbon" wild trout stream. The Lower Henry's Fork fishery has an annual net economic value of $2.86 million dollars (Angradi and Contor, 1987; 1988).

The spawning season for salmonid species in Henry's Fork varies as follows: rainbow and rainbow-cutthroat hybrid trout, March through April; cutthroat trout, April through June; brook trout, October through November; and mountain whitefish, November through December. Because the rainbow, rainbow-cutthroat, and cutthroat trout are spawning together, pure rainbow and cutthroat trout species are rare in the lower Henry's Fork (personal communication, Mr. Craig Contor, Idaho State University, Pocatello, Idaho, April 20, 1988; and personal communication, Mr. Steve Elle, Idaho Department of Fish and Game, Idaho Falls, Idaho, April 20, 1988).

Environmental Impacts and Recommendations: As discussed in the previous section on water resources, the FS, BR, FWS, IFG, HFF, and GYC state that project construction and operation impacts on water turbidity, reservoir drawdown levels, DO levels, TDG levels, water temperature, minimum flows, and ramping rates would adversely affect fisheries. These concerns were discussed and reduced or eliminated by design changes and mitigation proposed to enhance fisheries in the previous water resources section. This mitigation would result in the only minor short-term increases in water turbidity from project construction that would not greatly affect the downstream fishery.

FS, BR, FWS, IFG, HFF, and GYC state that the project would entrain fish from the reservoir through the siphon intake and FS and BR have submitted section 4(e) conditions that provide for their final approval of the intake design. The intake has been redesigned, however, with its location on the bottom of the reservoir using a "well screen" with 3/8-inch openings. Since DO levels on the reservoir bottom are low most of the year salmonids are precluded from being in this intake area (Ecosystems, 1988). In addition, the 3/8-inch opening would only allow small fry-sized salmonids to go into the siphon and these fish life stages are not found in this bottom area of the reservoir because of low DO levels (Ecosystems, 1988). The staff concludes that the proposed location and intake design adequately protects the fisheries.

Unavoidable Adverse Impacts: During construction, some minor localized short-term increases in turbidity at the powerhouse would be unavoidable.

4. Vegetation

Affected Environment: Lodgepole pine (*Pinus contorta*) forests dominate the area around the Island Park reservoir. The forest

contains many dead and dying trees because of a mountain pine beetle infestation. These forests are relatively open and support on understory of low shrub and perennial herbaceous vegetation dominated by arnica (*Arnica cordifolia*), littleleaf huckleberry (*Vaccinum scoparium*), and low sedge (*Carex geyeri*). Forest openings contain dense stands of mule's ears (*Wyethia amplexicaulis*).

The ravine below the dam contains numerous seepage areas and a more humid environment which supports Douglas-fir (*Pseudotsuga menziesii*) and subalpine fir (*Abies lasiocarpa*). Shrub vegetation includes chokecherry (*Prunus virginiana*), wild rose (*Rosa nutkana*), resin birch (*Betula glandulosa*), and dwarf juniper (*Juniperus communis*). Low, wet areas below the dam are dominated by riparian species including trembling aspen (*Populus tremuloides*), narrow-leaved cottonwood (*P. angustifolia*), and willows (*Salix spp.*). Aquatic vegetation in the shallow areas of the reservoir include water-milfoil (*Myriophillum exalbescens*), elodea (*Elodea canadensis*), and pondweeds (*Potamogeton spp.*). Shallows created by sedimentation in the eastern portion of the reservoir are dominated by sedges (*Carex spp.*). The land southwest of the reservoir is dominated by sagebrush (Artemisia triadentata). The area surrounding the proposed hydroelectric project has been disturbed by the recent construction activity associated with rehabilitation of the dam and spillway by BR.

Environmental Impacts and Recommendations: The 700-foot-long penstock would be buried along the existing dam embankment which has been disturbed by the rehabilitation of the dam. The powerhouse, aeration tailrace, and transformer yard are also within recent construction areas and additional clearing would be minimal. Access would be via existing roads and would require an additional 200 feet of clearing. In total, approximately 0.5 acre of lodgepole pine forest would be cleared for the construction of these facilities.

The transmission line would be buried along the existing dike and existing roads for most of its length. The interconnection would involve clearing a 15-foot-wide right-of-way from the road to the existing transmission line, would remove about 2 acres of lodgepole pine, which is very common in the project area. Fall River proposes to reseed disturbed areas with native species and landscape in accordance with FS and BR section 4(e) conditions. These measures would adequately mitigate the 2 acre loss of lodgepole pine.

Unavoidable Adverse Impacts: Approximately 2.5 acres of lodgepole pine forest would be cleared for the construction of the proposed facilities.

5. Wildlife Resources

Affected Environment: Species in the project area include elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), moose (*Alces alces*), black bear (*Urus americanus*), and bighorn sheep (*Ovis canadensis*). Pronghorn antelope (*Antilocapra americana*) occupy the sagebrush-grasslands in the area. Mammals found along the streams and area wetlands include mink (Mustela vison), muskrat (*Ondatra zibethica*), and otter (*Lutra canadensis*). The reservoir and surrounding wetlands provide habitat for waterfowl. Canvasbacks (*Aythya valisineria*), redhead ducks (*A. americana*), Canada geese (*Branta canadensis*), great blue heron (*Ardea herodias*), snipe (*Capella gallinago*), and spotted sandpipers (*Actitis maculeria*) nest at Island Park Reservoir. Other bird species in the reservoir area include blue grouse (*Dendragapus obscurus*), ruffed grouse (*Bonasa umbellus*), sharp-tailed grouse (*Pedioecetes phasianellus*), mourning dove (*Zenaida macroura*), and osprey (*Pandion haliaetus*). Wildlife habitat management for the reservoir is a cooperative effort between the Targhee National Forest and the IFG.

A population of trumpeter swans (*Cygnus buccinator*) also winters in the area. The trumpeter swan is considered a National Species of Special Emphasis by FWS and a Species of Special Concern by the IFG. According to FWS (letter from John P. Wolfin, Field Supervisor, Boise Field Office, Boise, Idaho, September 23, 1986), there are currently about 10,000 trumpeter swans in North America. Roughly 1,600 trumpeters make up the Rocky Mountain population, which breeds in Montana, Idaho, Wyoming, and Canada. A significant portion (up to 600 censused on a single day) of the population winters along the Henry's Fork feeding on elodea, water-milfoil, and pondweeds, in the slow-moving sections in the river. The principal winter feeding area is Harriman State Park, which is one of the three major wintering sites for this population (Shea, 1978).

Winter flow releases from the Island Park dam 4 miles upstream directly affect the feeding habitat for these wintering swans. The reservoir is normally filled during the fall and winter for the next summer irrigation season by reducing flow releases from the dam. In the past, low flow releases (less than 300 cfs) have reduced the feeding areas by narrowing the channel and increasing the amount of ice on the river. In recent years, officials at Harriman State Park, during the daylight hours, have notified BR when additional flow releases were needed to open up feeding areas for trumpeter swans during adverse weather conditions. One

of the goals of the Migratory Bird National Resource Plan for the Rocky Mountain Population of Trumpeter Swans is to maintain a minimum wintering population of 300 to 400 adult trumpeter swans on the Henry's Fork (U.S. Fish and Wildlife Service, Office of Migratory Bird Management, 1985).

Environmental Impacts and Recommendations: Construction activities would be primarily confined to the area that was previously disturbed during the rehabilitation of the dam. The exception is the transmission line, which would utilize existing roads and involve clearing approximately 2 acres of lodgepole pine. The long-term loss of 2 acres of lodgepole pine would not be significant because it is a very common tree in the area. The disturbance to wildlife due to human presence and construction activities would be minor and short-term. Lowering the reservoir during construction would have the potential to affect reservoir wetlands and associated wildlife; however, proposed construction would not require additional reservoir drawdown and BR's section 4(e) condition restricts the drawdown elevation level to 6,289 m.s.l.

Because of the effects of flow releases from the dam on wintering trumpeter swan population downstream, there has been much agency and public concern over providing adequate winter minimum flow releases to fill the channel and keep it free of ice. The FWS and BR have entered into an agreement for the operation of the reservoir to begin storage of water in the fall for winter release to protect trumpeter swan feeding habitat downstream. Fall River proposes operating on the release regime determined by the BR. Fall River states that an improved winter release management regime would benefit the project as well as trumpeter swans. In addition, Fall River has committed to aid funding a trumpeter swan study, conducted by FWS, BR, and Harriman State Park, to determine the water releases needed to protect swan wintering habitat. This agreement, however, as stated in the water resource section, does not provide any fixed minimum flows to prevent river icing or protect wildlife and aquatic habitat. An instream flow study found that a continuous flow of 500 cfs best protected trumpeter swan feeding habitat, other waterfowl, and aquatic vegetation by preventing river icing (Roberts and Buck, 1986). In addition, this study found that flows above 500 cfs, during April and May, would flood geese nesting habitat. If flows were allowed to increase in the future, the release of 500 cfs could provide more protection to wildlife and wildlife habitat than the current BR flow regime, as discussed in section V.B.2.

6. Threatened and Endangered Species

Affected Environment: The FWS (letter from Charles S. Polityka, Regional Environmental Officer, Pacific Northwest Region, U.S. Department of the Interior, Portland, Oregon, December 30, 1985) has determined that the bald eagle (*Haliaeetus leucocephalus*) federally listed as endangered and grizzly bear (*Ursus arctos horribilis*), federally listed as threatened, may be present in the area.

The Island Park area has been designated a key area of the Greater Yellowstone Bald Eagle Ecosystem. Two active bald eagle nests have been reported in the area and a population of approximately 50 bald eagles winter in the Island Park area (Fall River Rural Electric Cooperative, Inc., 1986). FWS does not report any endangered fish or plants in the project area, but lists four Category 2 candidate plant species as possibly occurring in Fremont County (letter from Charles S. Polityka, referenced above). Category 2 species are candidates for listing that currently lack sufficient data on biological vulnerability and threat(s) to support listing. None were found during biological surveys of the area (Fall River Rural Electric Cooperative, Inc., 1986).

Environmental Impacts and Recommendations: Bald eagles nest and winter in the project area. Above ground transmission lines would pose potential electrocution and collision hazards to eagles and other raptors. FWS recommends that Fall River bury the transmission line rather then using an above-ground design. Fall River proposes to do so. The burying of the transmission, which is required by FS section 4(e) conditions, would ensure that eagles are protected.

Secondary impacts currently occur to wintering bald eagles from impacts to their food source (fish) or from icing of the river below the dam, which restrict eagles from taking fish. These impacts could be avoided if increased flows are provided in the future, as discussed in the water resources section (section V.B.2).

Although the project area is within grizzly bear habitat, no grizzly bears have been reported in the immediate project area, which makes man-bear conflicts unlikely. Further, the project area has been subjected to human disturbance during the rehabilitation of the dam and spillway. The FS section 4(e) conditions require Fall River to comply with management situation No. 3 of the "Guidelines for the Management Involving Grizzly Bears in the Greater Yellowstone Area." The guidelines would require Fall River to implement the following measures: (1) initiate consultation procedures with the FWS; (2) identify grizzly-human conflict and recommend measures to minimize conflict potential; (3) regulate contractors so no food source will be available to

grizzlies, require the storage of garbage in sufficient bear-proof containers with daily pickup and removal and include these measures in written contracts; (4) allow no overnight construction camps in the project area; and (5) prohibit guns or pets such as dogs in the construction area, and resolve any grizzly-human conflicts in accordance with the guidelines.

Since bears are unlikely to use the project area, and the above guidelines would be implemented, most man-bear conflicts would be prevented and this would ensure that the grizzly bear is protected.

Unavoidable Adverse Impacts: None.

7. Visual Resources

Affected Environment: The proposed project area has a natural character with very beautiful views of mountains, forests and rivers. The proposed project site has been under construction for many years with the development of the dam, reservoir, and recreation facilities. When construction is complete, the site would assume a more natural appearance in keeping with the adjacent recreational development and high visibility of the area. The portion of the Henry's Fork from Big Springs to the confluence with Warm River is part of the National Rivers Inventory. Although this section is very beautiful in appearance, it has been listed primarily for its recreational resources and fishery.

Environmental Impacts and Recommendations: Fall River has proposed mitigation to blend the proposed project facilities with the surrounding area. Proposed mitigative measures include burying the penstock and transmission line and using colors and building materials similar to those existing in the area. The FS manages the area for retention of the very beautiful scenery and also to protect those values inherent in a high-use recreation area. This recreational area includes a potential portion of a Wild and Scenic River, and a possible National Recreational Water trail.

Fall River's proposed mitigation described above would adequately maintain the visual quality of the area and would ensure that the proposed facilities adequately fit into the proposed plan of the dam and other facilities presently under construction.

The release of increased flows from the Island Park dam in the future could enhance visual quality downstream of the dam, as discussed in section V.B.2.

Unavoidable Adverse Impacts: None.

8. Cultural Resources

Affected environment: A cultural resources survey of the project area has been conducted. No properties have been identified in the area as listed on or eligible for listing on the *National Register of Historic Places* (letters from Dr. Thomas Green, State Archeologist, State Historic Preservation Office (SHPO), Idaho Historical Society, Boise, Idaho, December 4, 1985; and John Burns, Forest Supervisor, Forest Service, Targhee National Forest, St. Anthony, Idaho, December 2, 1985; and Robert Barbo, Regional Supervisor, Bureau of Reclamation, Pacific Northeast Region, Boise, Idaho, December 13, 1985).

Environmental Impacts and Recommendations: Land-clearing and land-disturbing activities could adversely affect archeological and historic properties not previously identified in the project area. Therefore, if the licensee encounters such properties during the development of the project works or related facilities, the licensee should stop land-clearing and land-disturbing activities in the vicinity of the properties and should consult with the SHPO, the FS, and BR on the eligibility of the properties and design such measures as may be necessary to avoid or mitigate effects on the properties. In addition, before beginning land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, the licensee should consult with the SHPO, the FS, and BR about the need to conduct an archeological or historical survey and the need for avoidance or mitigative measures. In these instances, 60 days before starting such land-clearing or land-disturbing activities, the licensee should file a plan and a schedule for conducting the appropriate studies along with a copy of the SHPO'S the FS's, and BR's written comments concerning the plan and the schedule. Prior to starting to excavate or to remove any archeological resource located on National Forest System or BR lands, the licensee should secure a permit from the FS authorizing such excavation or removal. The licensee should not start land-clearing or land-disturbing activities, other than those specifically authorized in this license, or resume such activities in the vicinity of an archeological or historic property discovered during construction, until informed that the requirements discussed above have been fulfilled.

Unavoidable Adverse Impacts: None.

9. Recreation and Other Land and Water Uses

Affected Environment: Recreational activities in the project area include fishing, hunting, non-white water river boating, camping, picnicking, sightseeing, snowmobiling, and cross-county skiing. Recreational use occurs year-round, but the primary recreation season is from Memorial Day to Labor Day. In 1986, visitation to the Island Park area was 398,595 recreation visitor days (one visitor day equals

one visit per person for any part of a 12-hour period) with most of the use coming from residents of Idaho, California, and Utah (personal communication, Tim Kimble, Recreation Land Assistant, Island Park Ranger District, Targhee National Forest, Idaho, March 10, 1987).

The primary recreational activity in the project area is sportfishing. The Henry's Fork immediately below Island Park Dam is internationally renowned for its fine trout fishing. The IFG states that the 0.4-mile stretch of river from Island Park Dam downstream to the confluence with the Buffalo River has the highest use of any wild fish stream in the state of Idaho. The use rate is 14,500 hours fished per mile with a success rate of 1.3 fish per hour (Fall River Rural Electric Cooperative, Inc., 1985). Some of this fishing pressure is from tourists travelling through the area to nearby Yellowstone National Park (figure 1).

Recreational facilities in the project area consist of two parking areas for public access; one is located to the west of the dam adjacent to the Harriman Wildlife Refuge, and the other is located to the east, just downstream of the dam. The BR in cooperation with the FS has completed minor upgrading and relocation of the road to the east dam site known as the Box Canyon boat launch. This area is the only public access site for a 4-mile-long stretch downstream from the dam and is used heavily by commercial outfitters as a float-boat launching point. Other recreational facilities close to the project area are a boat ramp on the reservoir one-half mile northeast of the dam and the Box Canyon and Buffalo Creek campgrounds on Buffalo Creek. All facilities are owned and operated by the FS.

The Henry's Fork from Big Springs downstream to the confluence with the Warm River, excluding Island Park Dam and reservoir, is listed on the Nationwide Rivers Inventory for its outstanding values of recreation, geology, fish, and wildlife. The Targhee National Forest staff is studying this same section of the Henry's Fork for possible designation as a wild and scenic river. The Act as amended by the ECPA includes a provision restricting further development of hydropower projects on portions of the Henry's Fork but allowing the licensing of the Island Park Dam Project so long as the Commission determines that significant and permanent alteration of streamflow, habitat, water temperature, and water quality would not occur as a result of the project (*see* section IV.C.).

In addition to recreation, land in the project vicinity is used for timber production and vacation homes. The primary water use, besides recreation, is mid-summer irrigation, but other water uses include human consumption, wildlife and fisheries habitat, and power generation.

Environmental Impacts and Recommendations:

A. Construction Impacts

During construction, the noise from machinery, the presence of construction vehicles using the access roads, and the intrusion on visual quality would disturb recreationists using the area. Angler access to the Henry's Fork would be restricted during construction of the penstock and powerhouse and traffic would be limited to one lane for about 2 weeks during burial of the transmission line along the access road. Fall River proposes to construct these facilities during a 4-month period beginning late September when the prime recreation season is over and visitor use of the project area has decreased. The HFF states that the fishing season extends to November 30 in the Box Canyon area and that 11 outfitters are licensed to float and guide fishermen on the river during that time. Scheduling construction after the prime recreation season should satisfy recreational needs in the project area. Fall River should consult with the FS, BR, and DPR in scheduling construction activities.

B. Effects on Sportfishing

Project operation could impact sportfishing in the project area. The outstanding trout sportfishery is dependent upon water quality, water quantity, and maintenance of the fishery. Mitigation of impacts to these resources would mitigate impacts to recreation, as discussed in the previous sections 2 and 3, Water Resources and Fishery Resources, respectively. If increased minimum flows from Island Park dam were provided in the future, the existing fishery resources and boating opportunities could be enhanced, as discussed in section V.B.2.

C. Recreational Development

Construction and operation of the proposed project offers the opportunity for enhancement of public access and recreational facilities at the project. Fall River proposes to: (1) reconstruct the parking area at the Box Canyon boat launch area; (2) install rest-room facilities and provide a trail from the parking area to the boat launch; (3) construct a trail along the river from the boat launch area to the powerhouse; and (4) provide a fishing access walkway between the powerhouse and the river. The FS and the BR support construction of these facilities and section 4(e) conditions require that Fall River consult further with the agencies and file a plan detailing the development of these facilities. The FS further recommends that because of the potential for the

Henry's Fork becoming a wild and scenic river, these facilities should be carefully designed and built since they would be the first view many visitors have of the river. Fall River agrees to consult with the agencies on recreational facilities development at the project and is committed to constructing the recreational facilities that would provide for the current recreational needs at the project. Fall River, therefore, should consult with the FS, BR, and the DPR to determine the final design and location of the recreation facilities; FS section 4(e) condition no. 5 requires such a plan.

D. Brimstone Ski Trail

The location of project facilities and winter access to the project area for operation and maintenance could adversely affect recreational use of the Brimstone cross-country ski trail. The FS recommends that the applicant relocate the Brimstone trail if it is affected by the construction of project facilities. FS also recommends that snowmobiles or cross-country skis be used as access to the project during the winter so that the access road would not need to be plowed. Fall River agrees to use snowmobiles, except during emergencies, for project operation and maintenance in the winter. Relocating areas of the Brimstone ski trail that would be adversely affected by project construction and Fall River's proposal to use only snowmobiles for access during winter would ensure that cross-country skiing is not disturbed.

E. Wild and Scenic River Designation

While the immediate project area is not proposed for designation as a wild and scenic river, the proposed project is upstream of and could impact a segment of the Henry's Fork that is being studied for potential wild and scenic designation. The HFF and the GYC are concerned that licensing the project would adversely affect those values for which the Henry's Fork is being studied. The FS and the BR state that the area must be managed so as not to impede its potential designation as a wild and scenic river and state that construction and operation of the project would not affect the eligibility of the Henry's Fork for the wild and scenic river system. Mitigation measures proposed by Fall River, the agencies, and the staff would ensure that the recreational, geological, and fish and wildlife values for which the Henry's Fork is being studied for designation as a wild and scenic river are maintained.

F. Future Recreational Needs

As a result of improved recreational access and facilities and potential designation as a wild and scenic river, visitation to the project area may increase. The FS provided a section 4(e) condition that requires the licensee to consult annually with the FS to ensure the protection and development of the natural resource values, including recreation, in the project area. The HFF requests that the Commission retain the authority to require expansion of recreational facilities in the future. Fall River is expected to monitor recreational use at the project and any license issued would require the licensee to provide additional recreational facilities during the term of the license, should a need be demonstrated.

Unavoidable Adverse Impacts: Construction activities would restrict access to portions of the project area, increase noise, dust, exhaust emissions, and vehicular traffic, and reduce visual quality resulting in a temporary disturbance to recreationists using the project area.

C. Alternative of No Action

Implementation of the no-action alternative would not change the existing physical or biological components of the area, but would preclude the use of the renewable water resources of the Island Park reservoir for generating electricity.

D. Recommended Alternative

The proposed project is the recommended alternative for two reasons: the environmental effects of building and operating the project would be minor; and the electricity generated from a renewable resource would be sold to Fall River's utility customers, thus increasing profits to Fall River's cooperative members.

VI. Finding of No Significant Impact

Project construction would cause minor, short-term increases in erosion, sedimentation, turbidity, and pollutants, and would temporarily disturb local wildlife, fishing opportunities, and adversely affect aesthetic values. Project operation would cause minor long-term benefits to water, fishery, vegetation, wildlife, visual, and recreation resources. Implementing the mitigative recommendations of Fall River, the agencies, and staff would ensure that the adverse environmental effects of project construction and operation would be insignificant.

This environmental assessment was prepared for the proposed Island Park Dam Project in accordance with the National Environmental Policy Act of 1969. On the basis of the staff's independent environmental analysis, issuance of a license for this project would not constitute a major federal action significantly affecting the quality of the human environment.

VII. Literature Cited

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VIII. List of Preparers

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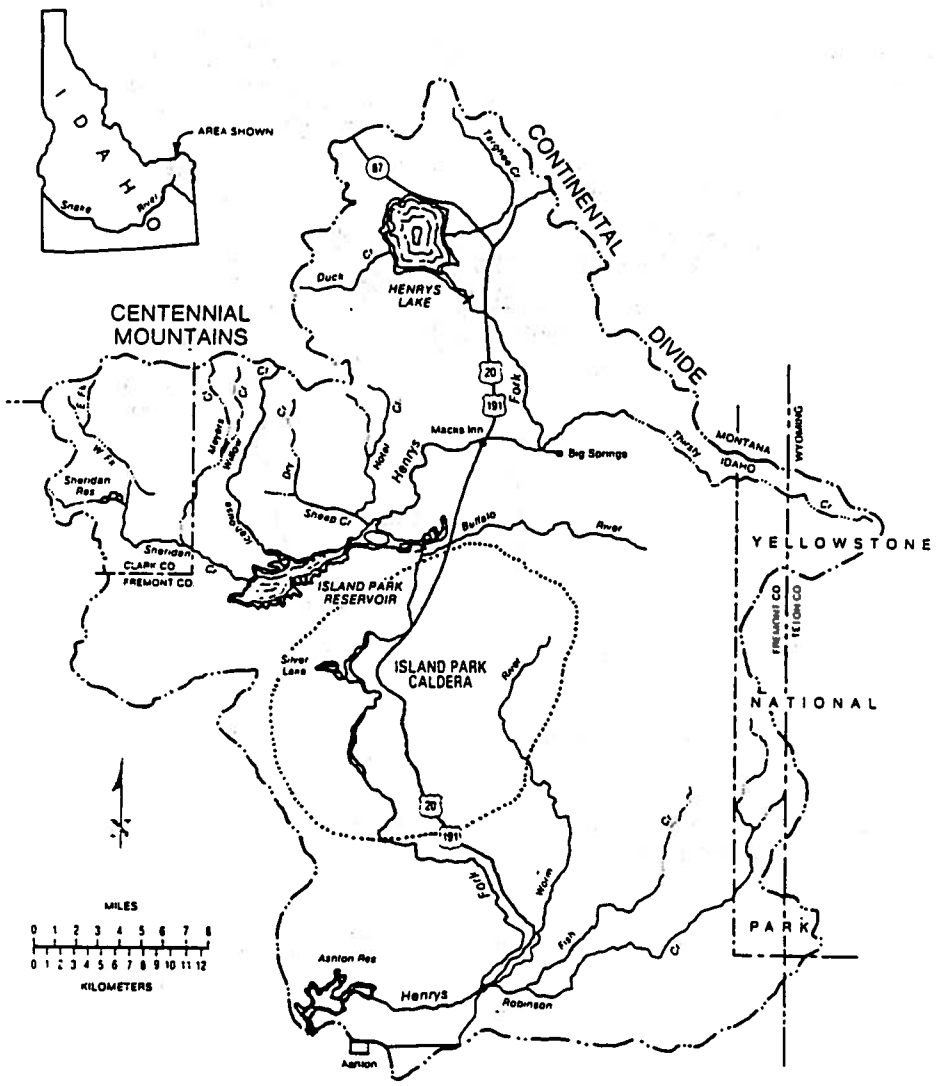

Figure 1. Location map of the proposed Island Park Dam Project, FERC Project No. 2973, Idaho (source the staff).

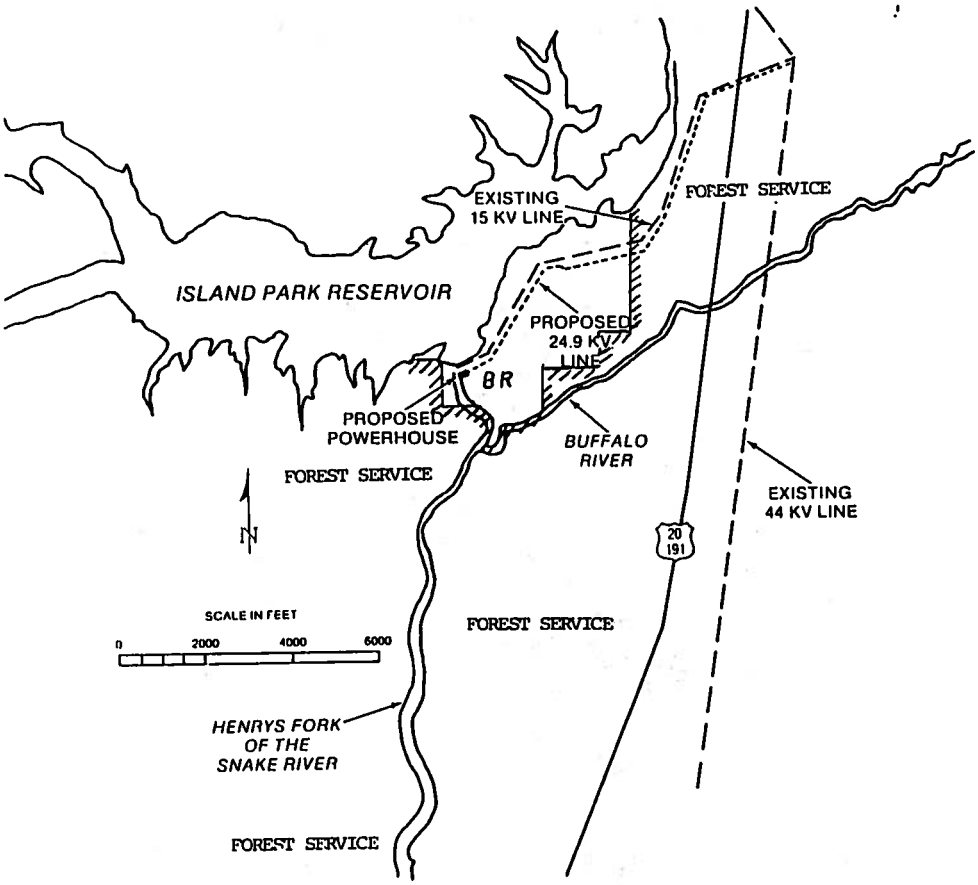

Figure 2. Existing and proposed transmission line routes of the Island Park Dam Project, FERC Project No. 2973, Idaho (source the staff).

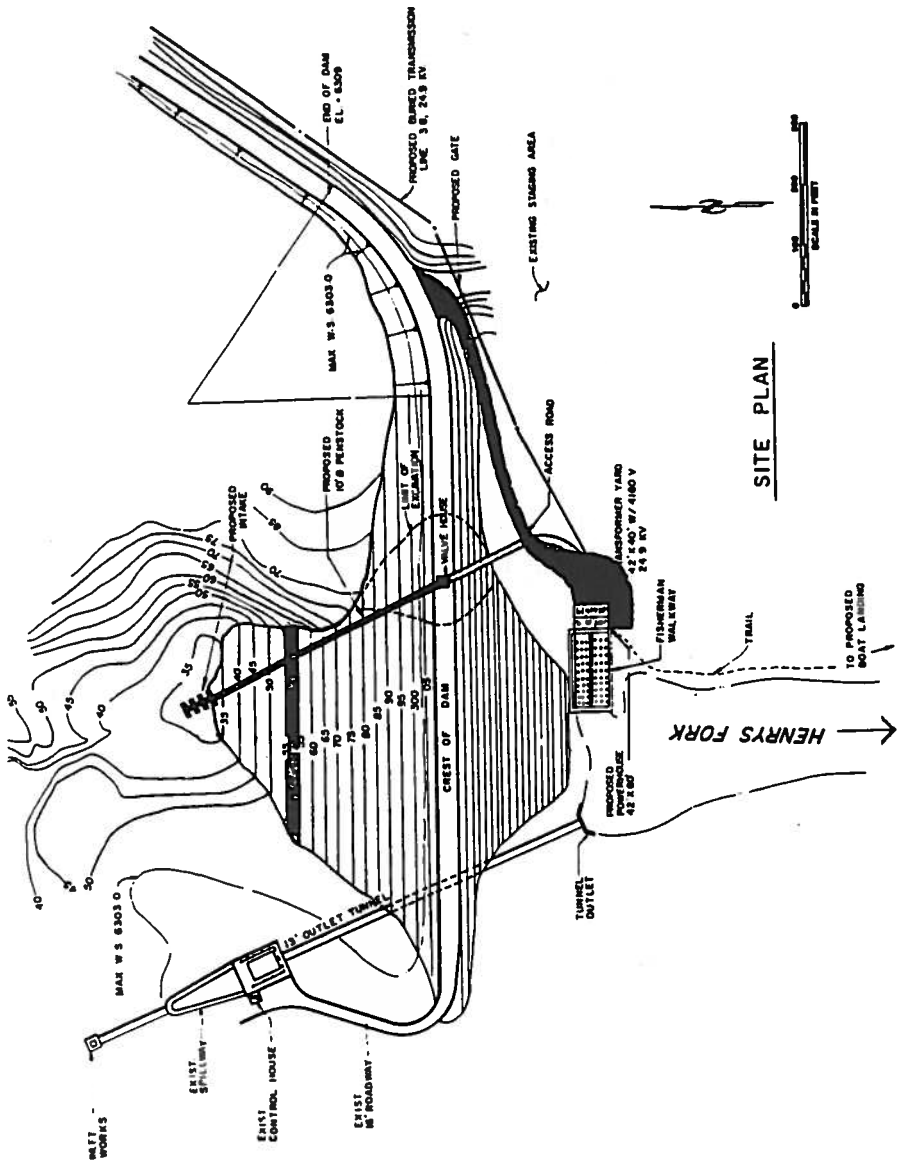

Figure 3. Proposed facilities for the Island Park Dam Project, FERC Project No. 2973, Idaho (source the staff).

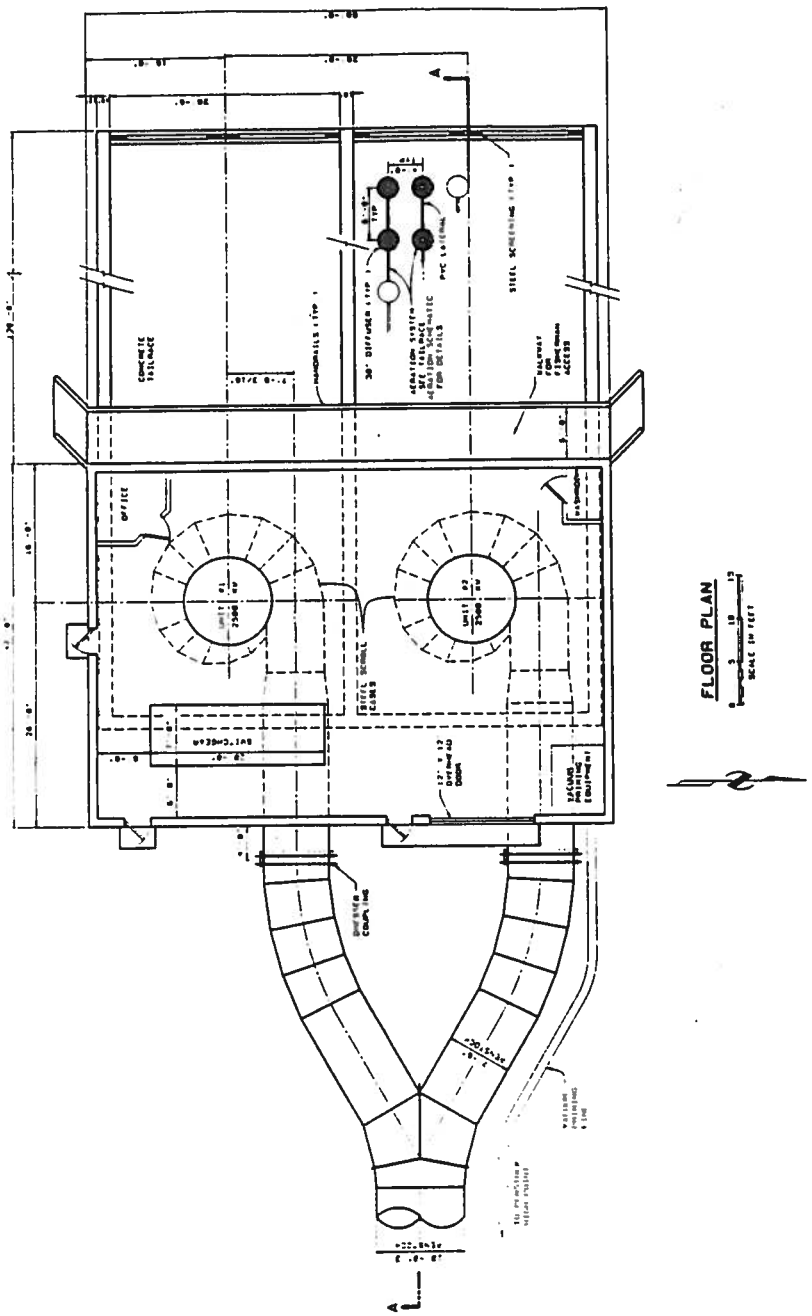

Figure 4. Proposed powerhouse and aeration facility for the Island Park Dam Project, FERC Project No. 2973, Idaho (source the staff).

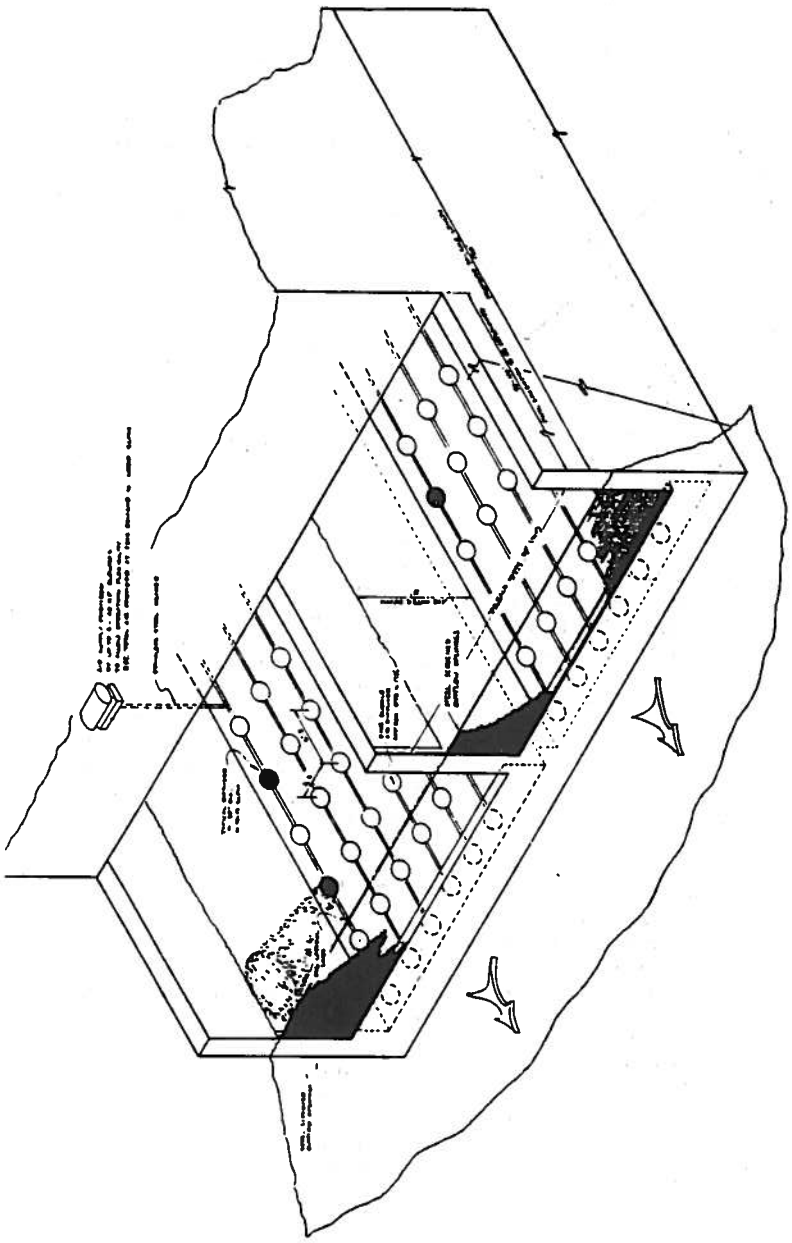

Figure 5. Proposed aeration facility for the Island Park Dam Project, FERC Project No. 2973, Idaho (source the staff).

Safety and Design Assessment
Island Park Dam Hydroelectric Project
FERC Project No. 2973-003, ID

Dam Safety

The proposed project would be located at the Bureau of Reclamation's (BR) Island Park dam. The Island Park dam and reservoir are features of the BR's Minidoka Project, located on Henry's Fork of the Snake River.

Dam safety is the responsibility of the BR. Special articles are recommended to be included in the license to protect the BR's interest in the Island Park dam.

The hydroelectric project structures would not impound water and failure of the structures would not endanger downstream life or property. The project would be safe if constructed in accordance with the license articles and with sound engineering practices.

Project Description

The mitigated project would consist of a siphon conduit, a valve house, a powerhouse containing two turbine generating units with a total installed capacity of 4,800 kW, an aeration facility located in the powerhouse tailrace, and a 24.9-kV underground transmission line. The project would generate power with irrigation releases from the Island Park dam.

Consideration of Council's Power Plan

The staff reviewed the Northwest Power Planning Council's Northwest Conservation and Electric Power Plan to determine if the project is consistent. In the Plan, the Council envisions meeting the growing regional energy requirements in the most economical manner with environmentally acceptable resources. The Council considers any environmentally acceptable resource that is less expensive than coal-fueled steam electric generation as an acceptable resource for development before the development of coal-fueled power plants (the Council's planned marginal resource).

The staff developed life-cycle costs of energy from the Council's planned generic coal plant, assumed to be needed in the year 2002 under the Council's medium-high load growth assumption, for determining if proposed hydroelectric projects are consistent in the long term with the Council's Plan, as required by section 10(a)(2) of the Act.

The staff found that the life-cycle levelized cost of the proposed project is less, as of its projected on-line date, than the levelized life-cycle cost of the least-cost or marginal long-term alternative included in the Plan, and concluded that the project as proposed is not inconsistent with the Council's Plan and is economically feasible within the long term objectives of the Plan.

Water Resource Planning

The project's two vertical Francis turbines would have a total installed capacity of 4,800 kW. The turbines would be capable of utilizing a maximum total flow of 960 cfs. The project's hydraulic capacity would be exceeded approximately 25 percent of the time. The average annual reservoir release is estimated to be 704 cfs.

The applicant estimates that the average annual generation of the project would be 26.9 GWh. The staff recommends the cessation of project operation from June 1 through September 30 for the protection of instream resources. Based on the staff's recommendation, the proposed project would generate an estimated 11.8 GWh of electrical energy. The project is adequately sized to develop the potential of the site.

The staff's review of state and federal agency comments shows that the project does not conflict with any existing or planned water resource developments in the basin. No specific comments or recommendations were received addressing flood control, irrigation or water supply requirements for Henry's Fork.

In summary, the staff's analysis shows that the project is properly designed to develop the hydropower potential of the Island Park dam and would not conflict with any existing or planned water resource developments in the basin.

Economic Evaluation

A proposed project is economically beneficial so long as its levelized cost is less than the long-term levelized cost of alternative energy to any utility in the region that can be served by the project.

The staff calculated the 50-year projected levelized alternative energy cost in the region to be 76.3 mills per kWh. This is the levelized unit cost of energy from coal-fueled steam electric plants. The cost includes only the fuel and the operation and maintenance expense of a coal plant from the projected on-line date, of 1992 to the year 2002. From 2002 until the end of the license period, the alternative energy cost includes the capital expense of new coal plant construction as well as fuel and variable expenses. The staff proposes mitigation that includes the cessation of project operation from June 1 through September 30 and the construction of an aeration facility in the tailrace of the powerhouse. The projected levelized unit cost of energy from the mitigated project, coming on-line in 1990, is estimated to be approxi-

mately 71.1 mills per kWh, and therefore the project would be economically beneficial.

Exhibits

Exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations and are approved and made a part of any license issued.

Exhibit A: Table A-2 of the application, filed on July 1, 1985.

Exhibit	*FERC Drawing No.*	*Showing*
F-1	2973-15	Site Plan Revised 8/19/87
F-2	2973-16	Penstock Profile/Intake Details Revised 2/26/87
F-3	2973-17	Powerhouse Section Revised 8/18/87
F-4	2973-18	Powerhouse Floor Plan Revised 8/18/87
F-6	2973-19	Tailrace Aeration Schematic Revised 9/30/87

[¶ 62,042]

Gaynor L. Bracewell, Project No. 3102-004

Order Amending License

(Issued October 20, 1988)

J. Mark Robinson, Dir., Division of Project Compliance and Administration.

On February 29, 1988, the licensee for the High Shoals Project filed an application for amendment of the license for Project No. 3102.[1] The licensee proposes to temporarily modify the mode of project operation by using flows from the Lower Dam on the Apalachee River in Walton, Morgan, and Oconee Counties, Georgia. Upon completion of construction, the project will use flows from the Upper Dam on the Apalachee River, as licensed.

The licensee states that the proposed modification will allow the project to begin generation before the end of 1988, which will facilitate additional financing to complete the project.

No modification to the structural features of the project will be required. Water will be released from the Lower Dam impoundment through an existing gate.

The licensee also requested approval for the installation of a 27-kilowatt (kW) generator in addition to the licensed 1,000-kW generator. The small unit will provide partial minimum flows and will make use of low-flow periods.

By letter dated July 20, 1988, the U.S. Fish and Wildlife Service (FWS) proposed conditions for the temporary mode of operation to protect fish and wildlife resources. The conditions provide for a minimum flow release of 18 cubic feet per second (cfs), a minus 3-foot limit on water level fluctuations in the lower reservoir, the installation of gages to measure reservoir inflow and minimum flow releases, and performance of the instream flow study required by article 20 of the license. The licensee agrees to the FWS conditions. The Georgia Department of Natural Resources (GDNR) has no objections to the proposed project modification or FWS conditions.

The licensee's implementation of the FWS July 20, 1988 conditions would provide adequate protection for fish and wildlife resources in the Apalachee River during the temporary mode of operation. Therefore, the license is being amended to require the licensee to abide by these conditions. Further, the filing requirement of article 20 of the license is being extended by one year.

Based on the information contained in the application, the Director finds that the proposed modification would not result in adverse environmental impacts other than those identified in the order issuing license. This amendment does not constitute a major federal action significantly affecting the quality of the human environment.

The Director orders:

(A) Ordering Paragraph (B)(2) of the Order Issuing License for Project No. 3102 is amended as follows:

The powerhouse description is revised to read, "a powerhouse with an installed generating capacity of 1,027 kW;"

(B) The deadline for complying with the requirements of article 20 of the license is extended to one year from the date of issuance of this order.

[1] 16 FERC ¶ 62,030 (1981).