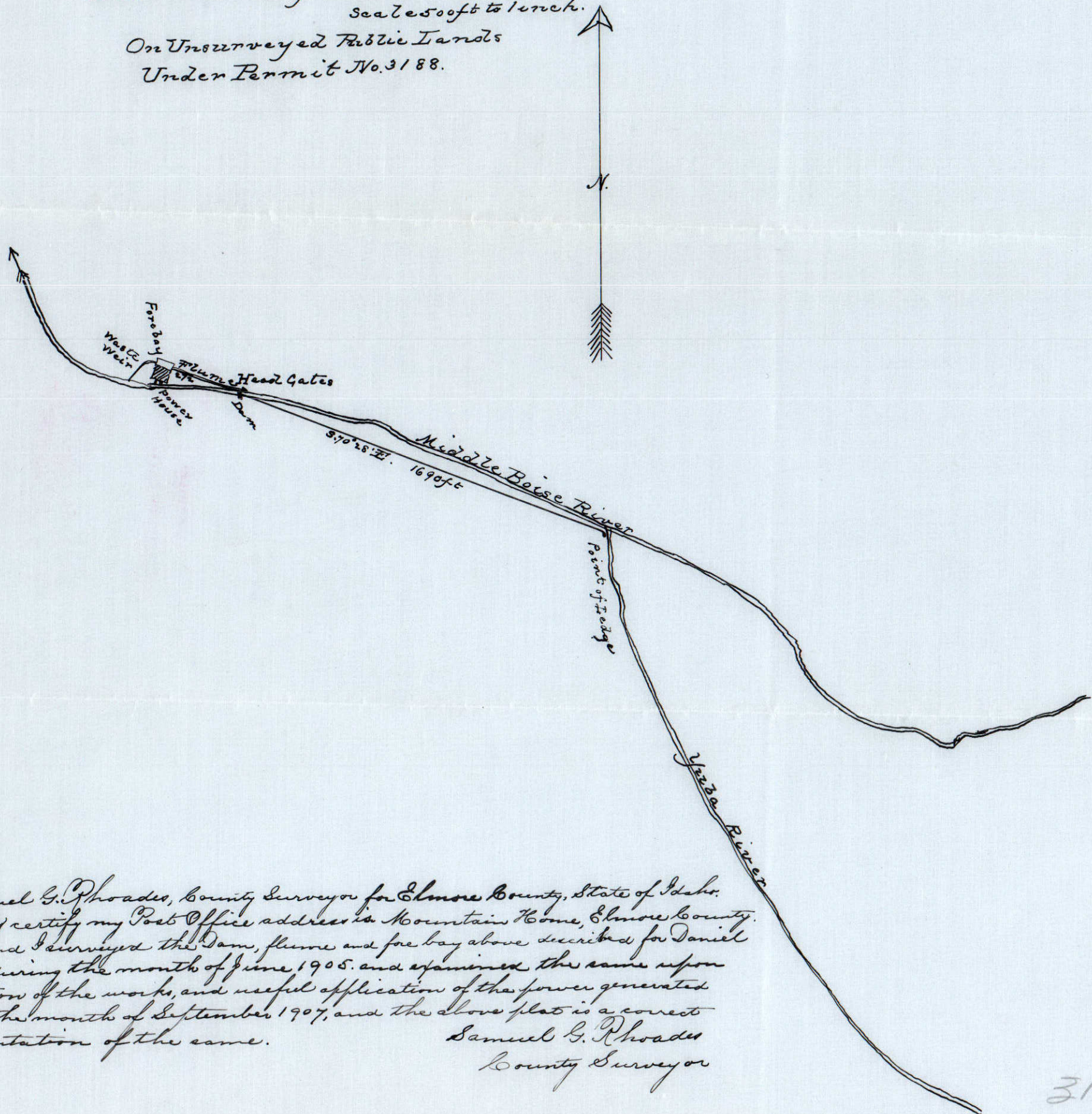


Plat of Daniel Kirby's Flume
 from
 Dam to Fore Bay at Power House 172 ft.
 scale 500 ft to 1 inch.
 On Unsurveyed Public Lands
 Under Permit No. 3188.



I, Samuel G. Rhoades, County Surveyor for Elmore County, State of Idaho,
 do hereby certify my Post Office address is Mountain Home, Elmore County,
 Idaho, and I surveyed the Dam, flume and fore bay above described for Daniel
 Kirby during the month of June, 1905, and examined the same upon
 completion of the works, and useful application of the power generated
 during the month of September, 1907, and the above plat is a correct
 representation of the same.

Samuel G. Rhoades
 County Surveyor

Elmore County *
Middle Boise River *
200 sec.ft. *
Mining & Milling *
Priority - 10-7-07 *

S T A T E O F I D A H O
Water License No. 3188.

WHEREAS, On the 7th day of October, A. D. 1907, DANIEL KIRBY, of Atlanta, County of Elmore and State of Idaho, duly made application (No.4447) to me for a permit to use 200 cubic feet per second of the waters of Middle Boise River, County of Elmore, State of Idaho, for mining and milling purposes; and -

WHEREAS, On the 12th day of October, A. D. 1907, Permit No. 3188 was issued to said applicant for the diversion of said water, and providing for the completion of the works of diversion therein described on or before the 12th day of October, A. D. 1908, and for the application to beneficial use of said water on or before the 12th day of October, A. D. 1909, and,

WHEREAS, On the 3rd day of June, A. D. 1908, the holder of said permit duly made proof of the completion of adequate works for the diversion of 200 cubic feet per second of said waters, as evidenced by my Certificate No. 3188, dated July 13, 1908, confirming the completion of works of sufficient capacity for diverting and conveying to the place of intended use 200 cubic feet per second of water, with date of priority of October 7, 1907, and,

WHEREAS, On the 3rd day of June, A. D. 1908, proof was duly made of the application to beneficial use of 200 cubic feet per second of said water;

NOW, THEREFORE, By virtue of the authority vested in me by the laws of the State of Idaho, I hereby grant and confirm to DANIEL KIRBY, of Atlanta, Idaho, the holder and owner of said Permit No. 3188, a perpetual right, dating from October 7, 1907, to the use of 200 cubic feet per second of the waters of Middle Boise River, in the County of Elmore and State of Idaho, or so much thereof as may be necessary for the purposes hereinbelow mentioned, to be diverted at a point North 70°28' West 1690 feet from point of steep lodge on left bank of river at confluence of Middle Boise and Yuba rivers, and conducted to power house 300 feet below dam, for the purpose of mining and milling, subject, however, to the laws of the State of Idaho applicable to a license for the use of the waters of the State; and subject, also, to the local or community customs, rules and regulations which have been or may be adopted from time to time by a majority of the users from a common source of supply, canal or lateral from which such water may be taken, when such rules and regulations have for their object the economical use of such water.

WITNESS, My hand and the seal of my office at Boise, Idaho,
this thirteenth day of July, A. D. Nineteen Hundred and eight.

Jas. Stephenson, Jr.
State Engineer.

(SEAL)

Recorded July 13, 1908.

63 2063
68 ~~2063~~

No. 4447. 63-2063

APPLICATION FOR PERMIT

To Appropriate the Public Waters of the State of Idaho

1. Name of applicant: Daniel Kirby.

Postoffice address: Atlanta.

County: Elmore State: Idaho.

II. The financial resources of the applicant are:

(a) Cash on hand: \$20,000.00

2. The quantity of water claimed is Two hundred cubic feet per second.

3. Source of water supply: Middle Boise River.

County of Elmore.

4. Location of point of diversion: N. 70° 28' W 1690 ft. from point of steep ledge on Left Bank of rivers at confluence of the Middle-Boise & Yuba rivers.

5. To be used for:

II. Mining, power, manufacturing or transportation purposes:

(a) To be used for: Mining, Electrical Power.

(b) Amount of power to be generated: 680 horse power.

(c) At what point: Power House, 300 ft. below the Dam, at point of diversion.

(d) Is water to be returned to any stream: Yes.

(e) If so name stream and locate point of return: Middle Boise River at the Power house 300 ft. Below the Point of diversion.

6. Estimated cost of works: Fifteen Thousand Dollars.

7. Description of works for diversion:

I. Kind of works: Dam and Flume & Iron Pipes.

II. Dimensions of works:

(a) Height of dam 40 feet, length of dam at top 125 feet, length of dam at bottom 30 feet. Material used in construction: Logs laid at right angles forming square cribs, filled with rock and earth to the top of crest.

(c) Size of headgate: Width 6 ft., height 10 feet.

(d) Conduit flume, width at bottom 6 feet, width at water line 6 feet, depth of water 6 feet. Diameter of 2 pipes: each 30 inches. Average grade is 15 ft. in 272 feet. Length of conduit is 272 ft. and it crosses the surveyed land to point described in 5 II (c) above which is the point of intended use.

8. Time required for the completion of the construction of such work is One year.

9. Time required for the complete application of the water to the proposed use in One additional year.

BE IT KNOWN That the undersigned hereby makes application for a permit to appropriate the public waters of the State of Idaho as herein set forth.

Daniel Kirby

Applicant.

By.....S. G. Rhoades.....Agent.

Remarks: Plans and specifications for the Dam were approved by the State Engineer. Oct. 6, 1905, and everything has been completed in accordance there with.

APPROVAL OF STATE ENGINEER.

The number of this permit is 3188.

Date of first receipt of application 9:00^{AM} October 7 1907.

Returned to applicant for correction October 7 1907.

Corrected application received October 10, 1907.

Recorded in Book 9 Page 3188 Approved October 12, 1907.

This is to certify that I have examined the within application for a permit to appropriate the public waters of the State of Idaho and hereby grant the same, subject to the following limitations and conditions:

Good and sufficient bond to be filed in the sum of \$1,000.00 on or before

One-fifth of the work above specified to be completed on or before April 12, 1908.

The whole of said work to be completed on or before October 12, 1908.

The time for proof of beneficial use of water appropriated in accordance herewith, to extend to October 12, 1909.

Witness my hand this 12 day of October 1907.

Jas. Stephenson. Jr.,

State Engineer.

Blank notice of proof of completion and beneficial use mailed applicant.

Notice received fixing June 3, 1908, as date and Atlanta, Idaho, as place of proof.

Notice for publication mailed The Mountainhome Republican April 29, 1908.

Deposition blanks mailed applicant April 29, 1908.

S. G. Rhoades authorized April 29, 1908, to make examination of works.

His report Received May 2, 1908.

Depositions received June 6, 1908.

~~Fees received June 15, 1908.~~

Affidavit received.

Certificate and license issued June 13, 1908.

Permit No. 3188

CERTIFICATE OF COMPLETION OF WORKS.

To All Whom it May Concern:

This is to certify that DANIEL KIRBY, of Atlanta, County of Elmore and State of Idaho, the holder of Permit No. 3188, issued upon Application No. 4447, bearing date of priority of October 7, 1907, authorizing the diversion of 200 second feet of the waters of Middle Boise River, County of Elmore, State of Idaho, for Mining & Milling purposes, has fully complied with the provisions of the laws of the State of Idaho relating to the proof of completion of the works of diversion set out and described in said Permit; that said works are adequate for diverting and conveying to the place of intended use 200 second-feet of the waters of Middle Boise River; that the point of diversion of said waters is North 70°28' West 1690 feet from point of steep lodge on left bank of river at confluence of Middle Boise and Yuba rivers, and that the place of use of said water is at Power House, 300 feet below the dam.

WITNESS My hand this 13th day of July, A.D. 1908.

Jas. Stephenson, Jr.

License issued for 200 second feet

State Engineer.

Page 312

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Atlanta Power Company

Project No. 11541-001
Idaho

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL ASSESSMENT

(Issued: August 3, 2000)

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's (Commission) regulations, 18 CFR Part 380 (Order No. 486, 52 F.R. 47897), the Office of Energy Projects has reviewed the application for an original license for the Atlanta Power Station Hydroelectric Project, and has prepared a Draft Environmental Assessment (DEA). The operating project is located on the Middle Fork Boise River near the town of Atlanta (75 miles from the nearest populated area), in Elmore County, Idaho. Water to operate the run-of-river project is diverted at Kirby dam which is owned and operated by the U.S. Forest Service (FS). The project occupies about 3.3 acres of land within the Boise National Forest, administered by the FS. The DEA contains the staff's analysis of the potential environmental impacts of the project and concludes that licensing the project, with appropriate environmental protective measures, would not constitute a major federal action that would significantly affect the quality of the human environment.

Copies of the DEA are available for review in the Public Reference Room, Room 2A, of the Commission's offices at 888 First Street, N.E., Washington, D.C. 20426. This filing may also be viewed on the web at <http://www.ferc.fed.us/online/rims.htm> please call (202)208-2222 for assistance).

Any comments should be filed within 30 days from the date of this notice and should be addressed to David P. Boergers, Secretary, Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426. For further information, contact Gaylord Hoisington, Project Coordinator, at (202) 219-2756.

David P. Boergers
Secretary

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C.
(August 3, 2000)

File
63-02063

To the Agency/Party Addressed:

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's regulations, 18 CFR Part 380 (Order No. 486, 52 F.R. 47897), Office of Energy Projects staff have reviewed the application for, and prepared the enclosed Draft Environmental Assessment (DEA) on the licensing of the Atlanta Power Station Hydroelectric Project. The operating project is located on the Middle Fork Boise River near the town of Atlanta (75 miles from the nearest populated area), in Elmore County, Idaho. Water to operate the run-of-river project is diverted at Kirby dam which is owned and operated by the U.S. Forest Service (FS). The project occupies about 3.3 acres of land within the Boise National Forest, administered by the FS. The DEA contains the staff's analysis of the potential environmental impacts of the project and concludes that licensing the project, with appropriate environmental protective measures, would not constitute a major federal action that would significantly affect the quality of the human environment.

Enclosure: Draft Environmental Assessment

Flannery BPF
Saxton ✓
Please review
WU

DRAFT ENVIRONMENTAL ASSESSMENT FOR HYDROPOWER LICENSE

Atlanta Power Station Hydroelectric Project

FERC Project No. 11541-000

Idaho

**Federal Energy Regulatory Commission
Office of Energy Projects
Division of Environmental and Engineering Review
888 First Street, NE
Washington, D.C. 20426
August 2000**

TABLE OF CONTENTS

Section	Page
SUMMARY	iv
I. APPLICATION	1
II. PURPOSE OF ACTION AND NEED FOR POWER	1
A. Purpose of Action	1
B. Need for power	3
III. PROPOSED ACTION AND ALTERNATIVES	3
A. Atlanta Power's Proposal	3
1. Project Facilities and Operation	3
2. Proposed Environmental Measures	4
3. Federal Land Management Conditions	4
B. Staff's Preferred Alternative	7
C. No-Action Alternative	7
IV. CONSULTATION AND COMPLIANCE	7
A. Agency Consultation	7
B. Interventions	8
C. Scoping	8
D. Water Quality Certification	9
E. Section 18 Fishway Prescription	9
F. Columbia Basin Fish and Wildlife Program	11
V. ENVIRONMENTAL ANALYSIS	12
A. General Description of the Upper Snake River Basin	12
B. Cumulative Effects	13
1. Geographic Scope	13
2. Temporal Scope	13
C. Proposed Action and Action Alternatives	14
1. Aquatic Resources	14
2. Threatened and Endangered Species	27
3. Cultural Resources	29
VI. DEVELOPMENTAL ANALYSIS	30
VII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE	34
VIII. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES	37
XI. CONSISTENCY WITH COMPREHENSIVE PLANS	37
X. FINDING OF NO SIGNIFICANT IMPACT	38
XI. LITERATURE CITED	38
XII. LIST OF PREPARERS	39

LIST OF FIGURES

Figure	Page
1. Project location and facilities for the Atlanta Power Station Hydroelectric Project, FERC No. 11541-001	2
 Table	
1. Cost of Staff's Recommended Alternative	33

SUMMARY

On February 26, 1999, Atlanta Power Company, Inc., filed an application with the Federal Energy Regulatory Commission, to license the existing 187-kilowatt (kW) Atlanta Power Station Hydroelectric Project. The project is located on the Middle Fork Boise River near the town of Atlanta (75 miles from the nearest populated area), in Elmore County, Idaho. Water to operate the project is diverted from Kirby dam which is owned and operated by the U.S. Forest Service. The project occupies about 3.3 acres of land within the Boise National Forest, administered by the Forest Service.

The project, having operated since 1907, on the Middle Fork of the Boise River, was originally constructed to generate power for local mining operations. The dam and power plant were operated by a private company. Today the project serves a 10 square mile area which includes the small, remote community of Atlanta, Idaho, consisting of approximately 65 residents. The original Kirby dam failed in the early 1990's and was rebuilt by the U.S. Bureau of Reclamation in 1992, under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601 et seq., to retain contaminated sediments behind the dam. These sediments contain high levels of arsenic and mercury, which could have significant adverse effects on water quality or environmental resources if they are released to portions of the lower Middle Fork.

Atlanta Power proposes to operate the project run-of-river and to subordinate a portion of its water right to Idaho Department of Fish and Game to operate the fish passage facility at Kirby dam. Staff's additional recommended environmental protective and mitigative measures are: (1) to maintain a continuous 7.2 cubic-feet-per-second flow in the fish ladder at Kirby dam; (2) to construct and operate a downstream fish passage facility; (3) to develop a final design plan for the downstream fish passage facility; (4) to develop an operation and maintenance plan for the upstream and downstream bypass facility; (5) to develop and implement a plan for evaluating the effectiveness of the upstream and downstream fish passage facilities; (6) to develop a construction mitigation plan for the construction of the downstream fish passage facility; (7) to provide access to the fish passage facilities; and (8) to protect any archeological or historic sites discovered during project operation and maintenance. Our analysis shows that the best alternative for the project would be to issue an original license for the project, as proposed by Atlanta Power, with our recommended modifications.

On the basis of our independent analysis, we conclude that issuing an original license for the project, with the environmental measures that Atlanta Power proposes and staff's recommended environmental protective and mitigative measures, would be the best

alternative for the project, and would not be a major federal action significantly affecting the quality of the human environment.

DRAFT ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION OFFICE OF ENERGY PROJECTS

**Atlanta Power Station Hydroelectric Project
FERC No. 11541-000-Idaho**

I. APPLICATION

On February 26, 1999, Atlanta Power Company Inc., (Atlanta Power) filed an application with the Federal Energy Regulatory Commission (Commission) to license the existing operating 187-kilowatt (kW) Atlanta Power Station Hydroelectric Project (project). The operating project is located on the Middle Fork Boise River (Middle Fork) near the town of Atlanta (75 miles from the nearest populated area), in Elmore County, Idaho (figure 1). Water to operate the run-of-river project is diverted at Kirby dam which is owned and operated by the U.S. Forest Service (FS). The project occupies about 3.3 acres of land within the Boise National Forest, administered by the FS.

II. PURPOSE OF ACTION AND NEED FOR POWER

A. Purpose of Action

The Commission must decide (1) whether to issue a license to Atlanta Power, and if so, (2) what, if any, conditions should be placed on that license to protect or enhance existing environmental resources and/or to mitigate for any adverse environmental impacts that would occur due to operation and maintenance of the project.

In deciding whether to issue a license for a hydroelectric project, the Commission must determine that the project will be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued (e.g., flood control, irrigation and water supply), the Commission must give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

In this draft environmental assessment (DEA), we, the Commission staff, assess the effects of operating the project as proposed by Atlanta Power, and operating the

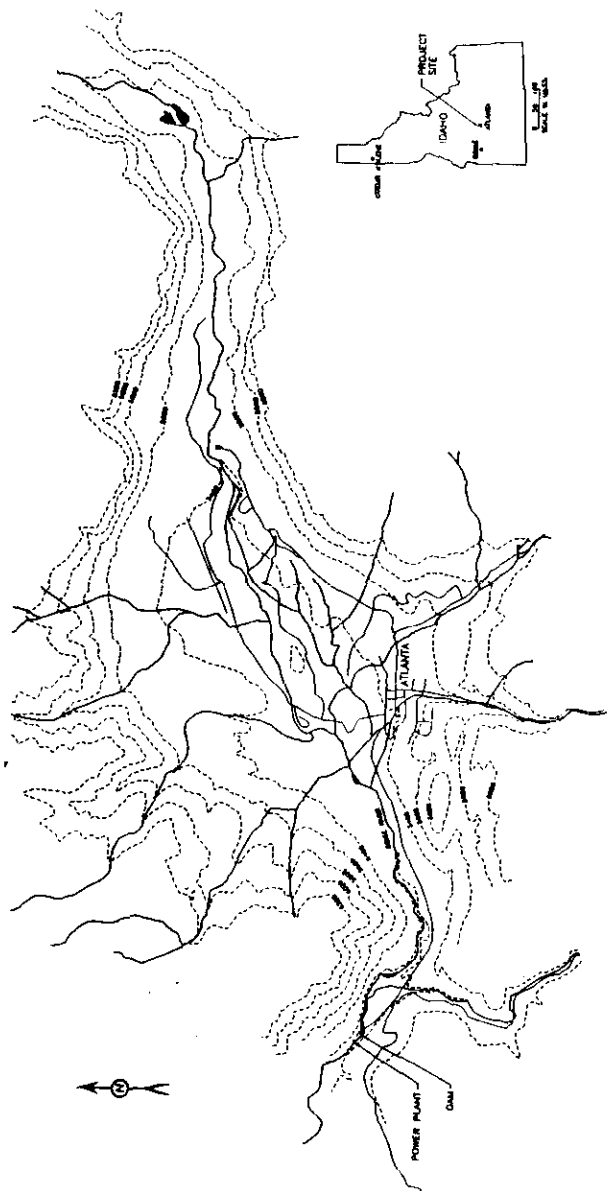


Figure 1. Project location and facilities for the Atlanta Power Station Hydroelectric Project, FERC No. 11541-001

2

project as proposed by Atlanta Power with staff's mitigative and enhancement measures. The main issue addressed in this environmental assessment is fish passage. We also consider the effects of the no-action alternative.

B. Need for Power

The project has operated since 1907. Originally the project provided electrical power to mining operations in the area, however, since the demise of the mining activity, the project has been serving the small, remote mountain community of Atlanta, Idaho that consists of about 65 residences and a few small businesses.

Atlanta Power Station is isolated from major power producing centers and thus not connected to a power grid. The applicant looked into the feasibility of building a transmission line to the nearest point on the power grid, about 23 miles in mountainous terrain, and estimates that it would cost at least \$8,000,000 to build. The applicant, with a limited customer base and annual revenues of about \$60,000, does not have the financial resources to fund the construction of the transmission line.

If a license is not issued for the project, the community would have to rely on the existing 200-kW back-up diesel generators. In the Developmental Analysis Section of this DEA, we look at diesel generation as the alternative source of power for the community of Atlanta.

If licensed, the project would continue to displace some fossil-fueled electric power generation, and thereby conserve nonrenewable fossil fuels and reduce the emission of noxious byproducts caused by the combustion of fossil fuels. To generate the 1,314 megawatt hours (MWh) of electricity, about 300 tons of diesel fuel would have to be used. The continued operation of the project would benefit air quality and the environment because the need for fossil fuel generation would be minimized.

III. PROPOSED ACTION AND ALTERNATIVES

A. Atlanta Power's Proposal

1. Project Facilities and Operation

Atlanta's existing unlicensed project consists of: (1) a penstock intake structure; (2) a powerhouse with one Francis generating unit having a total installed capacity of 187 kW; and (3) appurtenant facilities.

3

The original dam failed in the early 1990's and was rebuilt by the U.S. Bureau of Reclamation (BOR) in 1992, under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601 et seq., to address serious concerns about further toxic sediment release (arsenic and mercury from historical mining activity). The rebuilt Kirby dam is owned, operated and maintained by the FS. The dam is a concrete earth spillway with no gates to control or change the flow. The hydraulic capacity of the generating facility is approximately 90 cubic-feet-per-second (cfs). Flows in excess of those needed for project generation flow over the spillway or through the fishway.

2. Proposed Environmental Measures

Atlanta Power proposes to: (1) continue to operate the project run-of-river; and (2) convey a portion of its water rights to operate Idaho Department of Fish and Game's (IDFG) fish ladder at Kirby dam.

3. Federal Land Management Conditions

Because the project occupies lands within the Boise National Forest, the FS has the authority to impose mandatory conditions under section 4(e) of the Federal Power Act (FPA).¹ In addition, Section 4(e) of the FPA prohibits the Commission from licensing a project that interferes or is not consistent with the purposes for which the National Forests were created or acquired. In a letter dated April 28, 2000, the FS submitted to the Commission preliminary conditions under Section 4(e) of the FPA. The preliminary conditions are listed below.

Condition No. 1 - Requirement to Obtain a FS Special-Use Authorization.

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

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

¹ 16 U.S.C. § 797(c).

Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands within the project boundaries shall be managed by the FS under the laws, rules, and regulations applicable to the National Forest System. The terms and conditions of the FS special-use authorization are enforceable by the FS 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 FS. In the event there is a conflict between any provisions of the license and FS special-use authorization, the special-use authorization shall prevail on matters which the FS deems to affect National Forest System resources.

Condition No. 2 - FS Approval of Final Design.

Before any construction of the project occurs on National Forest System land, the licensee shall obtain the prior written approval of the FS for all final design plans for project components which the FS 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 FS special-use authorization. As part of such prior written approval, the FS may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the FS, the Commission, or the licensee to be a substantial change, the licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or 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.

Condition No. 3 - Approval of Changes After Initial Construction.

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

Condition No. 4 - Consultation.

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

Condition No. 5 - Fish Passage

A. Upstream Passage. The licensee shall in cooperation and consultation with the U.S. Fish and Wildlife Service (FWS), FS, and IDFG, insure the effective operation of the Kirby dam fish ladder and provide safe and timely upstream fish passage at the project by maintaining continuous, daily, operational flows of 3-12 cfs within the fish-way from April 15 to August 31, annually. The above fish passage operation requirements may be modified as determined most effective by monitoring and documentation by the FWS and IDFG.

B. Downstream Passage. The licensee shall in cooperation and consultation with the FWS, FS, and IDFG, design, construct, operate, and monitor fish screens at the penstock intake structure adequate to prevent entrapment and entrainment of all downstream migrating fish. The penstock will be screened within two years of license issuance and shall meet fish-screen design criteria established by the FWS and IDFG.

The licensee shall, within 6 months of license issuance, complete and submit final functional fish screen design details to the FWS, FS, and IDFG, for final review and approval prior to being filed for approval by the Commission.

Conditions 1 through 4 of the FS's preliminary Section 4(e) conditions are primarily administrative and would have no direct, indirect, or cumulative effects on environmental resources; therefore, these conditions were not evaluated as part of the environmental analysis presented in this document. The environmental effects of Condition 5 are evaluated in section V (Aquatic Resources) of this DEA. Decisions regarding the adoption of these 4(e) conditions will be addressed by the Commission in any license order that is issued for this project.

B. Staff's Preferred Alternatives

Based on agency and other comments that have been filed in this proceeding, and our analysis in Sections V. 1, 2, and 3, the Commission staff recommends the following additions to Atlanta Power's proposed project enhancements: (1) maintain a continuous 7.2-cubic-feet-per-second flow in the fish ladder at Kirby dam; (2) construct and operate a downstream fish passage facility; (3) develop a final design plan for the downstream fish passage facility; (4) develop an operation and maintenance plan for the upstream and downstream bypass facility; (5) develop and implement a plan for evaluating the effectiveness of the upstream and downstream fish passage facilities; (6) develop a construction mitigation plan for the construction of the downstream fish passage facility; (7) provide access to the fish passage facilities; and (8) protect any archeological or historic sites discovered during project operation and maintenance.

C. No-Action Alternative

Under the no-action alternative, Atlanta Power would continue to operate the project as it does now and no new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish the baseline environmental condition for comparison with other alternatives.

IV. CONSULTATION AND COMPLIANCE

A. Agency Consultation

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

When the Commission issues a notice that the application is ready for environmental analysis (REA), formal comments may be submitted by concerned entities in accordance with section 4.34(b) of the Commission's regulations under the FPA. The comments provided by concerned entities are made part of the record and are considered during the review process of the proposed project.

The following agencies commented in response to the September 13, 1999, REA notice.

Idaho Rivers United	November 12, 1999
U.S. Department of the Interior	November 12, 1999
U.S. Forest Service	March 20, 2000
U.S. Forest Service	May 11, 2000

B. Interventions

In addition to filing comments, organizations and individuals may petition to intervene and become a party to the licensing proceedings. The following agencies filed a petition to intervene to become a party to the licensing proceedings but not in opposition to the project.

State of Idaho Natural Resources Division	June 21, 1999
Idaho Rivers United	July 13, 1999
U.S. Department of the Interior	December 1, 1999

C. Scoping

We issued Scoping Document 1 (SD1) on June 24, 1999, to enable appropriate federal, state, and local resource agencies, Indian tribes, other nongovernmental organizations, and individuals to participate in the identification of issues, concerns, and opportunities associated with this proposed action. Specifically, we requested the entities to forward written information that they believed would assist the Commission in conducting an accurate and thorough analysis of the site-specific as well as the cumulative effects of the proposed licensing of the project. No one responded to the SD1.

D. Water Quality Certification

By letter dated June 2, 1997, Atlanta Power Company applied to the Idaho Department of Environmental Quality (IDEQ) for water quality certification for the project, as required by Section 401 of the Clean Water Act. In a letter to the applicant dated June 5, 1997, IDEQ indicated they had received the application and granted water quality certification with no conditions.

E. Section 18 Fishway Prescription

Section 18 of the Federal Power Act (FPA), 16 U.S.C. §811, states that the Commission shall require construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of Commerce and the Secretary of Interior through the FWS. By letter dated November 10, 1999, FWS provided the following recommendations under Section 18 of the FPA:

General Prescription for Fishways

1. The Department reserves authority to modify these prescriptions for fishways at any time before license issuance, as well as any time during the term of the license, after review of new information or for other pertinent reasons.

2. The licensee shall keep the fishways in proper order and shall keep fishway areas clear of trash, sediment, logs, debris, and other material that would hinder passage. Anticipated maintenance shall be performed in sufficient time before a migratory period such that fishways can be tested and inspected and will operate effectively prior to and during the migratory periods.

3. The licensee shall, in consultation with the FWS, FS, and IDFG, develop a fishway operation and maintenance plan describing anticipated operation, maintenance, schedules, inspections, and contingencies. The operation and maintenance plan shall be submitted to the FWS, FS, and IDFG for final review and approval within 6 months of license issuance. Upon approval by the FWS, FS, and IDFG, the licensee shall submit the plan to the Commission for approval and incorporation as a part of the project license.

4. To insure that project operations do not impair future restoration of fish populations in the upper Middle Fork of the Boise River, the licensee shall develop plans for and conduct fishway effectiveness evaluations in cooperation with the FWS, FS, and IDFG. The plans and results, including data, if requested, of the effectiveness studies shall be submitted to the FWS, FS, and IDFG for review and comment prior to being filed for approval by the Commission. Based on the results of such studies, the licensee shall

implement any operational or physical changes required to minimize migratory delay, prevent injury to fish, and otherwise insure the effective, safe, and timely operation of the project's fishways.

5. The licensee shall provide personnel of the FWS, and other Service designated representatives, access to the project site and to pertinent project records for the purpose of inspecting the fishways to determine compliance with the fishway prescription.

Prescription for Upstream Fishways

6. The licensee shall, in cooperation with the FWS, FS, and IDFG, insure the effective operation of the Kirby dam fish ladder and provide the safe and timely upstream passage of fish at the project by maintaining continuous, daily, operational flows of 7.2 cubic-feet-per-second (cfs) year-round within the fishway.

Prescription for Downstream Fishways

7. The licensee shall, in cooperation with the FWS, FS, and IDFG, design, construct, operate, and monitor at its own expense, downstream fishways at the project including fish screens and appropriate downstream fishway bypass facilities. Installation of all downstream fishway features shall be completed within two years of license issuance, shall meet fish screen and fishway design criteria established by the FWS and IDFG.

8. The licensee shall, within 6 months of license issuance, complete and submit final functional design details and plans of the downstream fishway, including fish screens and bypass facilities, to the FWS, FS, and IDFG for final review and approval prior to being filed for approval by the Commission.

9. The licensee shall develop and complete, in cooperation and consultation with the FWS, FS, and IDFG, an evaluation of the effectiveness of the downstream fishway, including fish screens and bypass facilities, to verify that approach velocities are uniform over the wetted screen surface for the full range of project operating conditions and to insure that fish pass downstream without delay or injury. The licensee shall complete the evaluation no later than 6 months after construction of the fish screens and bypass facilities is completed and, based on the result of the evaluation, implement any operational or physical changes that will be required to minimize migration delay and prevent injury to fish. The facilities will be re-evaluated by the licensee at five-year intervals to assure continued compliance with screening and bypass performance criteria. Lastly, the FWS reserved the opportunity to amend, modify, or add to their

recommendations and prescriptions, if resource conditions change, project plans are altered, or new information is developed.

We evaluate the environmental effects of FWS's Section 18 prescriptions in Section V (Fisheries Resources) of this EA. Administrative portions of FWS's prescriptions, such as the timing of actions, will be addressed in any license order that would be issued for the project.

F. Columbia Basin Fish and Wildlife Program

Under section 4(h) of the 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 the fish and wildlife resources associated with development and operation of hydroelectric projects within the Columbia River Basin. Section 4(h) states that responsible federal and state agencies should provide equitable treatment for fish and wildlife resources, in addition to other purposes for which hydropower is developed, and that these agencies should take into account to the fullest extent practicable, the program adopted under the Pacific Northwest Power Planning and Conservation 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 [Section 12.1A.1 and 12.1A.2]. The Commission's regulations require applicants to initiate pre-filing 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 also states that authorization for new hydroelectric projects should include conditions to mitigate the impacts of the project on fish and wildlife resources (sections 12.1A.1 and 12.1A.2). The specific provisions of sections 12.1A.1 and 12.1A.2 that apply to the proposed project call for: (1) specific plans for flows and fish facilities prior to construction; (2) the best available means for aiding downstream and upstream passage of anadromous and resident fish; (3) assurance that all fish protection measures are fully operational at the time the project begins operations; and (4) the collection of data needed to monitor and evaluate the results of the fish protection efforts.

Our recommendations, which include providing a continuous 7.2-cfs fish ladder flow, installing fish screens and constructing a downstream fish bypass facility, developing a final design plan for the downstream fish passage facilities, developing a plan for the operation and maintenance of the upstream and downstream passage

facilities, developing a plan to evaluate the effectiveness of the upstream and downstream passage facilities, developing a construction mitigation plan, and to the extent possible, providing the fish and wildlife agencies with access to the upstream and downstream fish passage facilities, are discussed in Section V. Fisheries Resources of this DEA. Our recommendations are consistent with applicable provisions of the Program listed above. Further, a condition of any license issued would reserve to the Commission the authority to require future alterations in project structures and operations to take into account, to the fullest extent practicable, the applicable provisions of the program.

The project is located within a protected area designated under section 12.2A of the Program. It has been designated as a protected area because of its value to resident fish. Protected areas are those areas where the Council believes that new dam development would have major negative impacts that could not be avoided. Because the project has been in existence since 1907, it is not affected by the protected areas designation. The program specifically excludes from its protected area requirements hydroelectric developments licensed or exempted before August 10, 1998, and relicenses of existing projects (see Section 12.2A of the program). Even so, the Commission is expected, to the fullest extent possible, to consider the protection of fish and wildlife resources located in protected areas and provide suitable protection and mitigation for such resources in the event that a license or exemption is approved. We have done so through the recommendations identified above and discussed in Section V. Fisheries Resources of this DEA.

V. ENVIRONMENTAL ANALYSIS

In this section, we first describe the general environmental setting of the project area. We then discuss the site-specific and cumulative effects on the resources affected by the project, including the effects of the proposed action and action alternatives.

A. General Description of The Upper Snake River Basin

The project is located on the Middle Fork in the Upper Snake River Basin (Upper Snake). The Upper Snake comprises an area of about 70,000 square miles drained by the Snake River and tributaries from its headwaters in Wyoming at Yellowstone National Park downstream to Weiser, Idaho. There are 32 existing hydroelectric projects in the Upper Snake with a wide range in size from the 187-kW Atlanta Project, to the 114,000-kW Pallsades Project. Of the 32 projects, 16 are on the Snake River with the remaining 16 located on tributaries. The Middle Fork, where the project is located, is one of those tributaries. The project is the only hydroelectric facility located on the Middle Fork. There are no other applications for license pending for constructed or un-constructed projects on the Middle Fork.

B. Cumulative Effects

According to the Council on Environmental Quality's regulations for implementing NEPA (§1508.7), an action may cause cumulative impacts on the environment if its impacts overlap in time and/or space with the impacts of other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

Based on the Staff's review of Atlanta Power's license application and agency and public comments, we have identified bull trout as having the potential to be cumulatively affected by the project and consequently have included this resource as part of our cumulative effects analysis.

Past, present, and future effects of mining, logging, land development, and road building in combination with the effects of the Atlanta Project may cumulatively affect bull trout. Mining, logging, land development, and road building can modify stream temperatures or increase sedimentation rates thereby affecting bull trout or their habitat. Operations, maintenance, and construction at the Atlanta Project may also affect stream temperatures and sedimentation rates, in addition to delaying migration or resulting in turbine injuries or mortality.

1. Geographic Scope

Our geographic scope of analysis is defined by the physical limits or boundaries of: (1) the proposed action's effects on the bull trout, and (2) contributing effects from other activities within the Middle Fork. Based on information gathered from the license application and comments received during scoping, we concluded that the geographic scope for analysis should be the Middle Fork from Arrowrock Reservoir (approximately 30 miles downstream of Kirby dam) to the upstream extent of bull trout migrations (includes approximately 56 miles of bull trout spawning habitat upstream of Kirby dam).

2. Temporal Scope

The temporal scope of the analysis includes a discussion of the past, present, and future actions and their effects on bull trout. Based on the possible term of the proposed license, we looked 30 to 50 years into the future, concentrating on the effects on bull trout from reasonably foreseeable future actions. Our discussion of historical events will, by necessity, be limited to the amount of available information. We've identified the

Additionally, the agreement specifies that the fishway shall be operated annually from April 15 to August 15. Both bull trout and rainbow trout were reported to be using the fishway during the summer of 1999. Currently, fish moving downstream through the project area can pass Kirby dam via the spillway, turbine, or the recently constructed fishway during periods when it is operational. No estimates of survival for each of these passage routes are available.

Environmental Impacts and Recommendations

Upstream Fish Passage

As part of an agreement between Atlanta Power and IDFG, Atlanta Power proposes to perform minor day-to-day maintenance of the recently constructed fish ladder at Kirby dam and subordinate a portion of its water right to IDFG to ensure that water is available to operate the fishway during low flow periods. IDFG and Atlanta Power also agreed that the fishway should be annually operated from April 15 to August 15 with a minimum flow of 3 cfs and a maximum flow of 12 cfs. As part of the agreement, IDFG indicated it would be responsible for most other aspects of the fishway including its funding, construction, ownership, operation, maintenance, and repair.

As part of its Section 4(e) conditions, the FS specified that Atlanta Power should be required to annually operate the fishway from April 15 to August 31 with a flow of 3 to 12 cfs.

In a letter filed November 12, 1999, Idaho Rivers United (IRU) indicated that in addition to the terms of the agreement described above, that Atlanta Power should be required to operate the fishway year-round and should be required to install devices to measure flow in the stream channel and discharge through the fishway.

As part of its Section 18 prescriptions, FWS has specified that Atlanta Power should be required to keep the fishway in proper order and keep the fishway clear of trash, sediment, logs, debris, and other material that would hinder passage. FWS has also specified that the applicant should be required to maintain a continuous, daily flow of 7.2 cfs within the fishway year-round. Other measures specified by FWS would require Atlanta Power to develop and implement an operation and maintenance plan, develop and implement fishway effectiveness studies, and provide FWS personnel with access to the project site and project records for the purpose of determining compliance with the fishway prescriptions.

Staff Analysis

In regard to the period of operation for the upstream fishway, IDFG and Atlanta Power have proposed to operate the ladder from April 15 to August 15 each year, primarily for the purpose of providing upstream passage for migrating bull trout. However, the agreement between IDFG and Atlanta Power contains language which implies that both parties considered the possibility that this period of operation may require modification. In letters filed with the Commission, both IRU and FWS state that the bull trout migration period is likely to extend beyond August 15; therefore, the proposed period of operation may be inadequate for this species. Additionally, both IRU and FWS indicate that other fish species in the Middle Fork migrate or display upstream movements throughout the year and would benefit from a year-round operation of the fishway.

While the proposed period of operation may encompass the majority of the bull trout migration, FWS has indicated that bull trout upstream spawning migrations typically continue until August 31. Therefore, the proposed operation period for the upstream fishway is likely to miss a portion of the spawning run of the target species, bull trout. The period of operation specified by the FS in their Section 4(e) conditions would encompass this later portion of the bull trout spawning run. However, the period for migrations or movements of other species such as rainbow trout, do not completely coincide with peak bull trout movements and may not be adequately addressed by the flows proposed by Atlanta Power, IDFG, or the FS. Rainbow trout spawning migrations would occur during the spring and may begin prior to the April 15 start date. Year-round operation of the fishway would not only provide passage for the entire bull trout spawning run, but it would also provide passage for spawning runs of other species such as rainbow trout and it would provide passage for non-spawning-related movements which may be triggered by habitat saturation or natural species dispersal-related movements.

Based on the discussion above, we conclude that year-round operation of the fishway would ensure that upstream passage would be provided for bull trout throughout their entire spawning migration and that upstream passage would be provided for other species (e.g. rainbow trout) that do not migrate during the same periods as bull trout. We discuss the costs of providing year-round passage in the Developmental Analysis section. Our final recommendations concerning the need for year-round operation of the fishway are discussed in the Comprehensive Development and Recommended Alternative section.

In regard to flow through the fishway, IDFG and Atlanta Power have agreed to provide a minimum of 3 cfs and a maximum of 12 cfs through the fishway during periods of operation. The FS's Section 4(e) condition addressing upstream passage also specifies

present resource conditions based on the license application, comprehensive plans, and comments received during scoping.

C. Proposed Action and Action Alternatives

In this section, we discuss the effects of the project alternatives on environmental resources. For each resource, we first describe the affected environment, which is the existing condition and baseline against which we measure effects. We then discuss and analyze the specific environmental issues.

Only the resources that would be affected, or about which comments have been made by interested parties, are included in detail in this DEA and discussed in this section. We have not discussed geology and soils, aesthetics, recreation, and land use resources in this DEA for the following reasons: (1) the only land-disturbing activities proposed are those associated with the installation of a downstream fish passage structure and a fish screen, which are discussed in detail in the aquatics resource section of this DEA; (2) when Kirby dam was rebuilt it was done so under the guidance of the FS's visual quality guidelines; and (3) the recreation opportunities in the area are adequate.

1. Aquatic Resources

Affected Environment

Water Quantity

Discharge in the Middle Fork fluctuates greatly by season and water year and is highly related to precipitation and the annual snow pack in the Middle Fork Basin upstream of Kirby dam. Generally peak stream flow in the Middle Fork occurs in May and June and flows decline significantly during the summer through the early fall.

Middle Fork flows near the project site were estimated from flow records for the U.S. Geologic Survey (USGS) Gage No. 13185000. This gage is located on the Boise River about 13 miles upstream of the Arrowrock dam and about 27 river miles downstream of the project. Discharge measurements from this gage indicate that stream flows in the Middle Fork are generally highest in May and June and lowest in September and October. The estimated average annual flow for the Middle Fork at Kirby dam is about 980 cfs with a mean monthly flow for May of approximately 1,300 cfs. The mean monthly flow for October, which is when the lowest flows typically occur, is about 150 cfs. Between 1949 and 1996, the lowest recorded flow near Arrowrock reservoir was 123 cfs on November 28, 1976.

Water Quality

Water quality in the Middle Fork near the project is good. The State of Idaho has identified the Middle Fork as a Class I stream, supporting its status as a valuable fishery and promoting its management to protect water quality. Dissolved solids are typically low in the project area and dissolved oxygen is high due to stream turbulence, low temperatures, and light organic loads. Pathogenic conditions for the Middle Fork in the project area are not well described; however, giardia is likely to be present in the stream. The sediments of the Kirby dam impoundment are primarily mine tailings from upstream areas. These sediments are contaminated with elevated levels of arsenic and mercury. Kirby dam was specifically designed and constructed to retain these contaminated sediments and prevent their transport to downstream portions of the Middle Fork.

Fisheries Resources

The Middle Fork supports several species of fish including cutthroat trout, brook trout, rainbow trout (redband variety), bull trout, mountain whitefish, northern pikeminnow, and largescale sucker. Fishing pressure in the Middle Fork is relatively high compared to other local streams such as the North Fork of the Boise River. In order to maintain the Middle Fork trout fishery, IDFG stocks the Middle Fork with hatchery rainbow trout.

Little information is available describing the existing condition of the fish populations within the Middle Fork Boise River; however, in a letter dated October 30, 1996, IDFG indicated that the existing bull trout population and their habitat within the Middle Fork Boise River are relatively healthy. Additionally, IDFG suggested that the most significant factor influencing bull trout populations within the Middle Fork Boise River was the fragmented migratory corridor, primarily resulting from the effects of Atlanta dam on fish movements. Subsequent to IDFG's comments, an upstream fish passage facility was constructed at the dam (see below).

Many of the species occurring in the Middle Fork, such as bull trout, cutthroat trout, rainbow trout, and mountain whitefish, display annual migrations or movements between over-wintering habitat in downstream areas and spawning, rearing, and foraging habitat in upstream areas. The historic and reconstructed Kirby dam has blocked access to upstream portions of the Middle Fork from 1907 to July 1999 when IDFG completed construction of a fish ladder at Kirby dam. As part of the construction of the upstream fish passage facility, IDFG and the applicant entered into an agreement whereby the applicant agreed to subordinate a portion of their water right in order to ensure that flow remains available to IDFG for operation of the fishway. According to the agreement, flows through the fishway can vary between a minimum of 3 and a maximum of 12 cfs.

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flows ranging from 3 to 12 cfs. FWS has specified that Atlanta Power should be required to maintain 7.2 cfs in the fishway at all times.

In a design memorandum dated January 1998, IDFG indicates that the Kirby dam fishway was designed around flows between 5 and 7.2 cfs with a 8.5 to 9 inch drop per pool. IDFG assumed that 5 cfs would be the minimum flow needed to attract fish to the fishway entrance and that this flow would also provide the minimum depth within the fishway to allow passage. IDFG design specifications also suggest that the maximum design depths for the fishway would be exceeded at flows above 7.2 cfs. No information is currently available to indicate if the fishway operates as designed; however, for this analysis we have assumed that the depths and energy dissipation in the constructed fishway at flows of 5 and 7.2 cfs reasonably approximate the design estimates.

In regard to the minimum fishway flow of 3 cfs proposed in the agreement between IDFG and Atlanta Power, Commission staff are concerned that this flow may not provide adequate attraction to the fish ladder and it may increase the drop per pool above 9 inches possibly reducing the effectiveness of the fishway. In regard to the 12-cfs fishway flow, we expect that this flow may actually increase attraction to the fishway, which could be important during the periods of high flow when this is likely to occur, but it may also create excessive velocities or unfavorable energy dissipation characteristics within the fishway which could reduce passage success and increase fallback. Based on the assumption that the fishway operates as designed, Commission staff concludes that operating the fishway at flows below 5 cfs and above 7.2 cfs could reduce fishway passage effectiveness.

FWS has specified that 7.2 cfs should be maintained within the fishway at all times. This flow would be within the range of design flows for the fishway and may provide better attraction to the fishway entrance than lower design flows (i.e. 5 cfs).

Based on the assumption that the fishway operates as designed, Commission staff concludes that maintaining a 7.2-cfs flow would provide adequate attraction to the fishway entrance and favorable conditions within the fishway for effective upstream fish passage. We discuss the costs of providing a continuous 7.2-cfs flow in the fishway in the Developmental Analysis section. Our final recommendations concerning the need for a continuous 7.2-cfs flow in the fishway are discussed in the Comprehensive Development and Recommended Alternative section.

The agreement between IDFG and Atlanta Power states that to the extent that flow measuring devices are necessary for monitoring flows associated with fishway operation, IDFG agrees to fund, construct, own, and operate any such devices. IRU has stated that

Atlanta Power should be required to install devices to measure flow in the stream channel and discharge through the fishway.

Under the terms of the agreement between IDFG and Atlanta Power, fishway flows would vary between 3 and 12 cfs and the quantity of flow passing through the fishway would be based on the discharge of the Middle Fork at Kirby dam. Under this scenario, it would be useful to have estimates of flow within the stream channel and the fishway. The estimates of streamflow would be used to determine the appropriate fishway flows and both estimates could also be used to determine compliance with the terms of the agreement or any license that may be issued.

FWS has indicated that flows through the fishway should be maintained at a continuous 7.2 cfs. Under this scenario, there would be little value to measuring flows within the stream channel or the fishway, except for occasional checks to ensure that the appropriate flow is being released through the fishway. Continuous measuring devices or installation of permanent stream gaging equipment would not be necessary to perform occasional compliance checks for fishway flows.

Based on the discussion above, Commission staff finds no need to require Atlanta Power to gage flow in the stream channel or the fishway. Gaging would be unnecessary to monitor continuous flows and the agreement between IDFG and Atlanta Power provides that IDFG would fund, construct, own, and operate any gaging devices to the extent that flow measuring devices become necessary for monitoring flows associated with fishway operation.

Under the terms of the agreement between Atlanta Power and IDFG, Atlanta Power would be responsible for minor day-to-day maintenance of the fish ladder such as debris removal and clearing blockages. IDFG would be responsible for all other concerns related to the maintenance, repair, or replacement of the fish ladder. FWS has specified that Atlanta Power should be required to keep the fishway in proper order and keep the fishway clear of trash, sediment, logs, debris, and other material that would hinder passage. Additionally, FWS has specified that Atlanta Power should develop and implement an operation and maintenance plan for the fishway.

Providing day-to-day maintenance for the fishway would ensure that it would continue to operate effectively and efficiently. Failure to remove debris from fishway pools or entrances to the fishway could cause changes to flows, velocities, and energy characteristics within the fishway and result in delays, increased fallback, or complete blockage of upstream passage. Atlanta Power's proposal to perform the minor, day-to-day maintenance at the project would ensure that circumstances such as debris blocking the fishway entrances or collecting in the fishway pools would be prevented or remedied

in a timely manner. This proposal by Atlanta Power appears to be consistent with the level of effort contemplated by FWS in their recommendation. More significant maintenance of the fishway such as damage from flooding or long-term wear-and-tear would be addressed by IDFG.

Based on the discussion above, Commission staff recommends that Atlanta Power develop and implement an operation and maintenance plan to ensure that minor, day-to-day maintenance of the fishway is performed in a timely and effective manner. This plan should be developed in consultation with FWS, FS, and IDFG.

FWS has specified that Atlanta Power should be required to perform effectiveness studies to ensure that the upstream passage facilities provide safe and effective passage. Atlanta Power is not proposing to conduct upstream effectiveness studies.

While we have assumed throughout this analysis that the newly constructed fishway performs consistent with its design specifications, without collecting any hydraulic data there is no certainty that this is the case. Additionally, even if the fishway is operating hydraulically as it was designed, there is no certainty that the fishway is providing safe and effective upstream passage. Factors such as attraction of fish to the downstream entrance of the constructed fishway are often confounded by factors that cannot be fully anticipated during project design and development. Commission staff conclude that it would be prudent for Atlanta Power to perform some level of monitoring and effectiveness studies at the newly constructed fishway. Therefore, Commission staff recommends that Atlanta Power consult with FWS, FS, and IDFG and develop a study plan for evaluating the efficiency of the upstream fish passage facilities.

FWS has specified that Atlanta Power should be required to provide FWS personnel with access to the project site and project records for the purpose of determining compliance with the fishway prescriptions. Atlanta Power does not own the dam nor the upstream fishway; therefore, they are not proposing nor apparently capable of excluding anyone from these areas.

The occasional inspection of fish passage facilities by fish and wildlife agency personnel serves to provide additional assurance that fish passage facilities are properly maintained and operating effectively and that the licensee's actions are consistent with the terms of the Section 18 conditions. Requiring licensees to provide access to these facilities is not uncommon at Commission licensed hydropower projects. However, in this case, the FS owns the dam and according to the terms of the agreement, IDFG owns the fishway; therefore, Atlanta Power's ability to restrict access, if it were so inclined, is limited. In spite of the apparent lack of the Atlanta Power's ability to control access to the upstream fish passage facilities, Commission staff recommends that, Atlanta Power

should not inhibit the access of the fish and wildlife agencies to the upstream fish passage facilities and should provide the agencies with project records pertinent to the operation of the upstream fish passage facilities.

Downstream Fish Passage

Under the applicant's proposal, downstream fish passage would occur via the penstock, the spillway, or the upstream fish passage facilities during periods when it is operating.

In a letter filed November 12, 1999, IRU indicated that Atlanta Power should be required to install a screen or other device over the penstock to prevent fish from entering the penstock.

As part of its Section 4(e) conditions, the FS specified that Atlanta Power should be required to design, construct, operate, and monitor fish screens at the penstock intake structure of the project. Additionally, the FS specified that the applicant should be required to develop a final design plan for the fish screens in consultation with the FWS, the FS, and IDFG.

As part of its Section 18 prescriptions, FWS has specified that Atlanta Power should be required to design, construct, operate, and monitor a downstream fish passage facility at the project. Additionally, FWS has specified that the applicant should be required to develop a final design plan for the downstream fish passage facilities, develop and conduct fishway effectiveness studies, develop and implement an operation and maintenance plan, and provide FWS personnel with access to the project site and project records for the purpose of determining compliance with the fishway prescriptions.

Staff Analysis

Under the current conditions, fish moving downstream past the Kirby dam have three possible routes which include, passing over the spillway, passing through the penstock and turbine, and passing through the upstream passage facilities. Under various circumstances (i.e. various combinations of stream discharge and project operations), any one or more of these routes may be available. Survival rates for passage over the spillway are likely to be relatively high assuming that adequate plunge depth is available and that few obstacles or sharp edges occur on the spillway. Survival through the upstream fish passage facilities is also likely to be relatively high since this facility was specifically designed to pass fish, albeit in the opposite direction. However, survival rates for adult and juvenile fish passing through the penstock and turbine are less certain. No project-specific estimates of turbine mortality rates are available for the project;

however, based on a study by Turbak et al. (1981), FWS speculates that mortality rates through the project could be as high as 100 percent. A more recent report (EPRI 1992) summarizes a wide array of mortality studies with Francis turbines and suggests that turbine mortality rates for salmonids through Francis turbines may be about 20 percent. Regardless, of whether turbine mortality rates for salmonids at the project are 20 or 100 percent, it is clear that some percentage of the fish moving downstream past Kirby dam would pass through the penstock and turbine and be killed or injured. FWS has indicated that for the federally listed threatened bull trout, any turbine losses that could be prevented would be unacceptable. Other species being protected and managed by IDFG, such as redband rainbow trout, would also experience some level of turbine mortality at the project. Based on this information, it appears that a downstream fish passage facility at the project may be warranted.

IRU and the FS have recommended screening the penstock intake of the project. This measure would likely reduce turbine-related mortalities and injuries, but other problems such as impingement or migration delay could result from the lack of providing an efficient means (i.e. a bypass system) for fish to continue moving downstream. If only a screen is provided, fish would be forced to locate other downstream passage routes (i.e. the spillway and fish ladder) or remain upstream of the dam. It is unclear if fish moving downstream would be attracted to or able to locate these other passage routes and during periods of extreme low flows, it is possible that these routes would be unavailable or highly inefficient. Therefore, we conclude that screening alone could serve to protect fish moving downstream but this measure would not necessarily provide efficient and adequate passage to areas downstream of Kirby dam.

FWS specified that the downstream passage facilities for the project should include a penstock screen and downstream bypass system. As part of this type of system, the screen would function to prevent turbine entrainment and the bypass facilities would serve to provide an efficient route for fish to continue movements downstream without requiring the fish to locate or pass through the spillway or fish ladder. FWS has indicated that any downstream passage facilities that would be constructed at the project should comply with the juvenile fish screen criteria established by the National Marine Fisheries Service (NMFS). NMFS criteria define various design and operation specifications for downstream passage facilities including structure placement, approach velocities, sweeping velocities, screen materials, civil works and structural features, bypass layout, bypass entrance, bypass conduit design, bypass outfall, and operation and maintenance. In describing these criteria, NMFS suggests that in general, downstream fish passage facilities that are constructed to these specifications would provide safe and effective passage although NMFS also states that site-specific characteristics may require some design modifications and/or post-construction monitoring. We conclude that any downstream fish passage facilities constructed at the project to NMFS specifications

would significantly improve downstream passage survival for juvenile and adult bull trout and other fish species moving downstream past Kirby dam. We discuss the costs of constructing a downstream passage facility for the project in the Developmental Analysis section. Our final recommendations concerning the need for a downstream passage facility are discussed in the Comprehensive Development and Recommended Alternative section.

Aside from suggesting that the facility be designed to NMFS criteria, FWS did not provide specific recommendations regarding design of the downstream fish passage facilities. However, FWS did recommend that the applicant develop final design plans for the downstream fish passage facilities in consultation with FWS, FS, and IDFG. We agree with this approach and recommend that the applicant develop a design plan in consultation with the agencies for any downstream fish passage facilities that Atlanta Power may construct at the project.

Activities associated with construction of the downstream fish passage facilities could result in adverse effects on fisheries or other environmental resources in the project area, primarily through increased sedimentation, disturbance of contaminated sediments, oil and grease spills, noise pollution, or fugitive dust emissions. In order to limit the potential effect of these impacts, we recommend that Atlanta Power develop, in consultation with FWS, FS, and IDFG, a construction mitigation plan for any downstream fish passage facilities that may be constructed by the applicant at the project. We conclude that significant adverse effects from the construction of the fish bypass are unlikely but the implementation of the recommended plan would ensure that the effects of any increased sedimentation, disturbance of contaminated sediments, oil and grease spills, noise pollution, and fugitive dust emissions would be minor and short-term.

As indicated above, even if a downstream fish passage facility is constructed at the project to NMFS specifications, it is possible that the facility may require modification or fine tuning in order to perform as designed. To determine the effectiveness of the downstream passage facilities and identify any possible modifications that would improve the performance of the facility, FWS has recommended that Atlanta Power conduct effectiveness studies. Several types of studies could be performed during peak migration periods to evaluate the efficiency of a bypass. These studies might include monitoring the upstream edge of the screens to determine if significant impingement is occurring, netting at the upstream penstock opening to determine if fish are getting through the screens, and netting at the lower end of the bypass to determine if fish are being injured or killed during passage through the bypass. We recommend that Atlanta Power consult with the FWS, FS, and IDFG and develop a study plan for evaluating the efficiency of any downstream fish passage facilities constructed by the applicant at the project.

FWS recommends that Atlanta Power develop and implement a plan for operation and maintenance of the downstream passage facilities. Long-term wear could result in failure of bypass components if they are not maintained appropriately. Additionally, damage from flooding or debris clogging could dramatically reduce the effectiveness of the downstream fish passage facilities. To ensure that the downstream fish passage facilities continue to operate effectively over the term of the license and to define measures for emergency situations we recommend that Atlanta Power develop an operation and maintenance plan in consultation with FWS, FS, and IDFG for any downstream fish passage facilities constructed by the applicant at the project.

FWS specified that the applicant should be required to provide FWS personnel with access to the project site and project records for the purpose of determining compliance with the fishway prescriptions. A conventionally designed downstream fish passage facility would consist of a screen system located at the penstock intake or somewhere along the penstock upstream of the turbine. The bypass system may or may not be integral with the dam. As stated above, the applicant does not own the dam; therefore, their ability to limit access to this area would be limited. However, the applicant does own, operate, and at least to some extent control access to the intake and penstock portions of the project. Therefore, in order to allow FWS to confirm compliance with the Section 18 prescriptions, we recommend that the applicant provide FWS with access to the portions of the project and any project records that may be related to operation of the fishway.

Bypassed Reach Flows

In a letter filed February 16, 1999, IRU states that the draft license application for the project did not contain enough information to evaluate the project's effects on flows in the bypassed reach; however, IRU indicates that adequate flows should be provided to that reach year-round.

The applicant has not proposed to provide any flows to the bypassed reach.

Staff Analysis

Based on drawings in the license application, the length of the bypassed reach (i.e. distance from the base of the newly constructed dam to the upstream end of the powerhouse) appears to be slightly more than 150 feet. Commission staff from the Portland regional office have visited the project site and have indicated that flows from the tailrace backwater slightly upstream into the lower portion of the bypassed reach (personnel communication Richard Taug, Federal Energy Regulatory Commission) thereby reducing the length of the dewatered portion of the stream channel to less than

150 feet. Additionally, the upstream fish passage facilities release flows into the bypassed reach approximately 90 to 100 feet downstream from the toe of the dam suggesting that the maximum length of dewatered stream channel would be less than 100 feet. The license application does not indicate whether any leakage from the dam seeps into the bypassed reach; however, it is probable that any leakage is relatively minor and does not provide significant aquatic habitat.

Based on a review of project drawings contained in the license application, it appears that the hydropower facilities and the FS dam do not currently contain any structures or facilities which could serve to provide flows to the upper portion of the bypassed reach. At additional cost, separate structures could be constructed to provide minimum flows to the upper portion of the bypassed reach or these flows could be provided as part of any downstream fish passage facilities that may be constructed. However, providing flows to the upper end of the bypassed reach would require a design that ensures that the toe of the rockfill dam or portions of the upper end of the bypassed reach are not exposed to erosive flows which over the long-term could affect the integrity of the dam.

In addition to engineering concerns, the environmental benefits of providing flow to the bypassed reach are unclear. The length of the dewatered section of the stream channel is less than 100 feet and the value of this habitat has not been measured. Portions of this area were significantly disturbed during construction of the dam which required some excavation of the stream channel and redistribution of sediments. While providing flows to this area is technically feasible, the benefits of this action appear to be minor and we recommend that flows continue to be routed downstream via the three existing routes and possibly a downstream fish passage facility, if constructed.

Contaminated Sediments

In a motion to intervene, filed July 13, 1999, IRU stated that the Middle Fork has a "very high heavy metal load" and that any license issued for the project should contain measures that adequately address the project's water quality impacts.

The applicant is not proposing any measures that would affect transport of contaminated sediments trapped behind Kirby dam.

Staff Analysis

Kirby dam was primarily constructed to retain contaminated sediments that had accumulated behind the historic timber-crib dam. These sediments contain high levels of arsenic and mercury, which could have significant adverse effects on water quality or

environmental resources if they were disturbed or released to portions of the lower Middle Fork. Based on information presented in the license application and other filings in the Commission's record, we conclude that the newly constructed dam is performing as intended and has prevented the release of these contaminated sediments to downstream areas. Additionally, based on our understanding of hydropower operations at the project, we conclude that the applicant's current and proposed activities would not result in the disturbance or release of contaminated sediments into the lower portions of the Middle Fork. However, construction of a downstream fish passage facility, which has been proposed by FWS (see discussion above), could involve working in the river upstream of the dam and has the potential to result in some disturbance of sediments retained behind the dam. While we would suggest that any such disturbance would only result in the short-term flushing of small amounts of contaminated sediments into the areas downstream of the project and would likely have little or no significant adverse environmental consequences, we conclude that it would be prudent for the applicant to develop and implement a construction mitigation plan to ensure that any effects are minimized. Therefore, we recommend that Atlanta Power, in consultation with the FWS, FS and IDFG, develop a construction mitigation plan.²

Decommissioning Fund

In a motion to intervene, filed July 13, 1999, IRU stated that the Commission should consider a decommissioning fund for any license that is issued for the project.

The applicant is not proposing any action or measures regarding the potential future decommissioning of the project.

Staff Analysis

The Commission would address the need for a decommissioning fund in any order that is issued for this project; however, there are several points in regard to the environmental effects of decommissioning that should be made at this time. Under these circumstances, decommissioning would be defined only as removal of generating facilities and would not include dam removal. The dam is owned by the FS and would not be part of any project license issued by the Commission. Additionally, dam removal would likely require disturbance and removal of contaminated sediments which would be costly and probably result in more environmental damage than benefit.

²This recommendation is consistent with the construction mitigation plan we recommend as part of the downstream fish passage analysis above. We envision that one plan would adequately address the concerns raised in each of these analyses.

Removal of the generating facilities would primarily consist of removal of the turbine and penstock facilities and permanent closure of the intake structure. Aside from the recovery of a small amount of terrestrial habitat in an already disturbed area, the primary benefits of this action would be to eliminate turbine-related mortalities and injuries to fish. FWS has prescribed a downstream fish passage facility for the project that, if constructed, would likely result in downstream fish passage survival near 100 percent. Therefore, if the downstream passage facility is constructed, the comparative benefit of decommissioning the project would be minor and perhaps, negligible. When compared to the project without downstream fish passage facilities, decommissioning would possibly increase downstream fish passage survival by 20 to 100 percent.³

Unavoidable Adverse Impacts

Incidental passage of fish through the turbines, impingement on intake screens, or any delay locating the upstream fish ladder entrance could result in unavoidable adverse impacts. Additionally, there could be some minor and unavoidable sedimentation impacts associated with the construction of the downstream fish bypass facilities and fish screen. These effects would be short-term and we are recommending the applicant develop a construction mitigation plan to minimize these effects.

2. Threatened and Endangered Species

Affected Environment

The following federally listed species may occur in the project area: the endangered (experimental/non-essential population) gray wolf (*Canis lupus*) and the threatened bull trout (*Salvelinus confluentus*) (letter from Haas, Supervisor, Snake River Basin Office, FWS, Boise, Idaho, March 10, 2000).

Gray Wolf: The FWS began reintroducing gray wolves into central Idaho in January 1995—one of three wolf recovery areas identified in the Northern Rocky Mountain Wolf Recovery Plan. The purpose of the reintroduction plan is to reestablish a viable wolf population in central Idaho, an area in which reproducing populations of wolves were not known to occur at the time of the reintroduction (FWS 1994). Wolf occurrence in the vicinity of the project is not known, but they have been recorded in the Boise National Forest.

³ These percentages were used above as possible estimates of turbine-related mortality at the project.

Bull trout: Columbia River Basin bull trout, which occur in the project area, were listed as threatened under the Endangered Species Act on June 10, 1998. In the license application, Atlanta Power indicates that IDFG has previously suggested that the Boise River component of the Columbia River Basin bull trout population is relatively healthy.

Both migratory and resident forms of Columbia River Basin bull trout occur in the project area. Research by IDFG has shown that bull trout populations downstream of the dam make substantial upstream and downstream migrations annually. IDFG suggests that approximately 57 miles of suitable bull trout habitat exists upstream of the dam, which was inaccessible until the recent completion of the fish ladder.

Under the Endangered Species Act, Interior is responsible for directing the recovery of Columbia River Basin bull trout and in regard to the project, FWS has endorsed repopulation of bull trout in areas upstream of Kirby dam and construction of the new fish ladder. As part of its Section 18 prescriptions, Interior has also specified that Atlanta Power should be required to construct and operate a downstream fish passage facility at the project. Bull trout enhancement and recovery in the Boise River is a high priority for the FS and the State of Idaho.

Environmental Impacts and Recommendations

In a letter filed June 7, 1999, Interior suggested that the Commission initiate informal consultation under Section 7 of the ESA for bull trout.

No formal or informal consultation between Interior and the Commission has been initiated to date.

Staff Analysis

Gray wolf: We have no information suggesting that gray wolf occur in the immediate project area; however, if gray wolf are present, we conclude that licensing the project would not affect the gray wolf because no land-disturbing activities or changes or modifications are being proposed that would alter existing habitats, food (primarily ungulates) availability, or behavioral patterns essential for the wolves. Consequently, our actions would not pose a threat to the recovery effort of this species or the continued existence of the gray wolf.

Bull trout: Our analysis in Section V., Fisheries Resources, suggests that licensing the project with staff's recommended measures would provide substantial benefits to bull trout occurring in the project area. However, even with the staff recommended mitigation and enhancement measures, continued operation of the project could result in various

forms of take including mortality, harm, and harassment. Incidental passage of bull trout through the project turbines or impingement of fish on intake structures or any installed fishway screens could result in some injuries and mortalities. Sedimentation associated with the construction of the downstream fish bypass facilities and fish screen may disrupt bull trout feeding behavior or habitat use. Additionally, inadequate attraction of fish to the upstream fish ladder entrance could result in some migratory delays. Based on these project-related effects, we conclude that licensing the project as proposed may adversely affect the federally-listed threatened bull trout and as a result we will seek formal consultation with Interior under Section 7 of the Endangered Species Act.

Unavoidable Adverse Impacts

No unavoidable adverse impacts to the gray wolf would result from licensing the project. However, incidental passage of bull trout through the turbines, impingement on intake screens, or any delay locating the upstream fish ladder entrance could result in unavoidable adverse impacts. Additionally, there could be some minor and unavoidable sedimentation impacts associated with the construction of the downstream fish bypass facilities and fish screen. These effects would be short-term and we are recommending the applicant develop a construction mitigation plan to minimize these effects.

3. Cultural Resources

Affected Environment

The State Historic Preservation Officer (SHPO) says no cultural resources listed or eligible for inclusion in the National Register of Historic Places are known in the project area and that the project would have no effect on such resources (letter from Susan Pengilly, Deputy SHPO and Compliance Coordinator, Idaho State Historical Society, Boise, Idaho, January 11, 1999).

Environmental Impacts and Recommendations

If archeological or historic sites are discovered during project operation, Atlanta Power should: (1) consult with the SHPO and the FS about the discovered sites; (2) prepare a site-specific plan, including a schedule to evaluate the significance of the sites and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places; (3) base the site-specific plan on recommendations of the SHPO and the FS and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation; (4) file the site-specific plan for Commission approval, together with the written comments of the SHPO and FS; and (5) take the

necessary steps to protect the discovered archeological or historic sites from further impact until notified by the Commission that all of these requirements have been satisfied.

The Commission may require cultural resources work and changes to cultural resources management plans based on the filings. Atlanta Power would not be allowed to implement a cultural resources management plan or begin any land-clearing or land-disturbing activities in the vicinity of any discovered sites until informed by the Commission that the requirements have been fulfilled.

Unavoidable Adverse Impacts

None.

VI. DEVELOPMENTAL ANALYSIS

In previous sections of this EA, we assess the effects of continued operation of the project on the environment. In this section, we look at the effect proposed environmental measures would have on the project's power benefits and summarize the cost of environmental and developmental measures considered in our analysis.

A. Power and Economic Benefits of the Project

The project, with an installed capacity of 187 kW, generates an average of 1,314 megawatt-hours annually to provide electricity for the small, remote mountain community of Atlanta, Idaho (65 residences). Atlanta, is not connected to any distribution or transmission grid and Atlanta Power is not proposing to do so. For this reason, the economic benefits are limited to Atlanta Power's cost savings compared to the cost of power generated by a reasonable alternative source (diesel in this case). In making its decision, the Commission considers the power benefits of Atlanta Power's proposed project and the power benefits of the proposed project with staff's modifications and additions.

We base our estimate of project benefits on Atlanta Power's current cost of running its back-up diesel fueled generators. These costs are: (1) \$1.60/gal for the diesel fuel; (2) \$450/kW to replace the 200-kW back-up diesel generators every 15 years; and (3) \$40,000 annually in diesel generation O&M expenses.

B. Cost of Environmental Enhancement Measures

Any measures proposed or recommended by the applicant, agencies, or staff could affect project economics as a result of the cost of these measures or their effect on power generation.

As discussed in the Aquatic Resources section of this DEA, we consider the following measures that could affect the economic benefits of continuing to operate the project: (1) providing a continuous 7.2-cfs fish ladder flow; (2) installing fish screens and constructing a downstream fish bypass facility; (3) developing a final design plan for the downstream fish passage facilities; (4) developing a plan for the operation and maintenance of the upstream and downstream passage facilities; (5) developing a plan to evaluate the effectiveness of the upstream and downstream passage facilities; (6) developing a construction mitigation plan; and (7) to the extent possible, providing the fish and wildlife agencies with access to the upstream and downstream fish passage facilities. The measure and any capital cost is listed below (see table 1 for annual cost).

1. Provide a Continuous 7.2-cfs Flow to the Upstream Fish Passage Facilities

Interior prescribes that the applicant provide a continuous 7.2 cfs flow to the upstream fish passage facilities. Because the hydraulic capacity of the project is 90 cfs and flows below 97.2 cfs would rarely occur at the project site, we estimate that these flows would essentially never result in reduced generation and this measure would have no cost.

2. Install Fish Screens and Downstream Bypass System

Interior prescribes a fish screen and downstream fish bypass facility to prevent fish from entering the project turbine. We estimate that this measure would cost \$50,000 to build.

3. Develop Final Design Plans for the Downstream Fish Passage Facilities

Interior prescribes that Atlanta Power develop final design plans for the downstream fish bypass; we estimate this would cost about \$3,000.

4. Develop an Operation and Maintenance Plan for the Upstream and Downstream Fish Passage Facilities

Interior prescribes that Atlanta Power develop an operation and maintenance plan for the upstream and downstream fish passage facilities; we estimate this plan would cost about \$3,000.

5. Develop and Implement a Plan to Evaluate Effectiveness of the Upstream and Downstream Fish Passage Facilities.

Interior prescribes that Atlanta Power develop and implement a plan to evaluate the effectiveness of upstream and downstream fish passage facilities; we estimate this plan and the study would cost about \$20,000.

6. Develop a Construction Mitigation Plan

We recommend that Atlanta Power develop and implement a construction mitigation plan; we estimate this plan would cost about \$3,000.

7. Provide Agency Access to the Upstream and Downstream fish Passage Facilities

Interior prescribes that Atlanta Power provide access to the downstream fish passage facilities for inspection; this measure would have no cost.

C. Cost of Proposed Project

Our evaluation of the proposed project takes into consideration Atlanta Power's zero net investment (the project is fully depreciated), the annual hydro operation and maintenance cost of \$40,000, and the applicable taxes, insurance and dam user fee.

The project, as proposed by Atlanta Power, would have an annual cost of \$53,400 (40.6 mills/kWh). The current annual value of power for the proposed project would be \$219,000 (166.8 mills/kWh). To determine whether the existing project is currently economically beneficial, we subtract the project cost from the value of the project power. We find that this project would cost about \$165,800 (126.2 mills/kWh) less than the current cost of the alternative source of power.

D. Cost of Staffs Recommended Alternative

The Commission staff recommends the following measures be included in any license issued for the project: (1) provide a continuous 7.2-cfs fish ladder flow; (2) install fish screens and construct a downstream fish bypass facility; (3) develop a final design

plan for the downstream fish passage facilities; (4) develop a plan for the operation and maintenance of the upstream and downstream passage facilities; (5) develop a plan to evaluate the effectiveness of the upstream and downstream passage facilities; (6) develop a construction mitigation plan; (7) to the extent possible, provide the fish and wildlife agencies with access to the upstream and downstream fish passage facilities; and (8) protect any archeological or historic sites discovered during project operation and maintenance. We estimate the total capital cost of these measures would be \$79,000.

None of these enhancements would affect project generation or significantly change the cost of operation and maintenance. We estimate the total capital cost of these measures would be \$79,000.

Table 1. Cost of Staffs Recommended Alternative

Recommended Alternative	Estimated Capital Cost	Estimated Annual Cost
Provide a continuous 7.2 cfs for fish ladder flow	0	0
Install fish screens and downstream bypass facility	\$50,000	\$5,800
Develop final design plans for downstream fish bypass	\$3,000	\$350
Develop a plan for the operation and maintenance of the upstream and downstream fish passage facility	\$3,000	\$350
Develop a plan to evaluate the effectiveness of the upstream and downstream passage facility	\$20,000	\$2,300
Develop a construction and mitigation plan	\$3,000	\$350
Provide fish and wildlife agencies access	0	0
Protect any archeological or historic sites discovered during project operation and maintenance	0	0

The levelized annual cost of the staff recommended alternatives would be about \$9,150 over a 30-year period of analysis and using an interest rate of 10 percent.

The total annual cost of the project with the staff recommended measures would be about \$62,600 (47.6 mills/kWh). Subtracting the annual project cost from the value of the project power - \$219,100 (166.8 mills/kWh) - we find that this project would have positive economic benefits over the license term of about \$156,500 (119.2 mills/kWh) compared to alternative power.

VII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which the project is located. When the Commission reviews a hydropower project, the recreational, fish and wildlife, and other nondevelopmental values of the involved waterway are considered equally with its electric energy and other developmental values. In determining whether, and under what conditions, to license a project, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

Following is the basis for, and a summary of, our recommendations to the Commission licensing the project.

A. Recommended Alternative

Based on our independent review and evaluation of the existing project and its proposed operation, and the project with our additional recommended environmental measures, we have selected the project with our additional recommended environmental measures as the preferred alternative.

We recommend this alternative because: (1) issuance of an original hydropower license would allow Atlanta Power to operate the project as a dependable source of electric energy for the community of Atlanta; (2) the project would eliminate the need for an equivalent amount of fossil-fuel derived energy and capacity, which helps conserve nonrenewable energy resources and reduce atmospheric pollution; and (3) the recommended environmental enhancement measures would protect aquatic and any newly discovered cultural resources.

In addition to Atlanta Power's proposal to continue to operate the project run-of-river and convey a portion of its water rights to operate IDFG's fish ladder we recommend that any license issued by the Commission for the project require Atlanta Power:

- (1) to maintain a continuous 7.2 cfs in the fish ladder at Kirby dam;
- (2) to construct and operate a downstream fish passage facility;
- (3) to develop a final design plan for the downstream fish passage facility;

- (4) to develop an operation and maintenance plan for the upstream and downstream bypass facility;
- (5) to develop and implement a plan for evaluating the effectiveness of the upstream and downstream fish passage facilities;
- (6) to develop a construction mitigation plan;
- (7) to provide access to the fish passage facilities, to the extent they are capable of controlling access; and
- (8) protect any archeological or historic sites discovered during project operation and maintenance.

The total cost estimate for these measures is \$79,000 (equivalent to about \$9,150 annually).

Measures 2 through 6 listed above under staff's recommended alternative would affect the economics of the project because implementation of these measures would add to the costs of the applicant's proposal. We discuss the benefits of these measures below.

Construct and Operate a Downstream Fish Passage Facility

We recommend that Atlanta Power construct and operate a downstream fish passage facility at the Atlanta Project. This facility would reduce or eliminate turbine-related injuries and mortality at the project and provide a safe and effective means for fish to migrate to areas downstream of the Kirby dam. Therefore, we find that this measure would be worth its estimated cost of \$50,000 (about \$5,800 annually over a 30-year period of analysis).

Fish Passage Facility Design Plan

We recommend that Atlanta Power develop final design plans for the downstream fish passage facility in consultation with IDFG, FS, and the FWS. This plan would ensure that the final design of the downstream bypass system would comply with fish and wildlife agency criteria and that the facility would provide adequate protection for juvenile bull trout and other salmonids moving through the project area. Therefore, we find that this measure would be worth its estimated cost of \$3,000 (about \$350 annually over a 30-year period of analysis).

Fish Passage Facility Operation and Maintenance Plan

We recommend that Atlanta Power develop and implement an operation and maintenance plan for the upstream and downstream fish passage facilities. This plan would ensure that minor, day-to-day maintenance, such as debris removal from the intake screens or the upstream fish ladder would be performed in a timely manner. Additionally, for the downstream fish passage facility, this plan would ensure that damage or poor facility operation from natural wear or catastrophic events would be remedied or repaired in a timely manner. Therefore, we find that this measure would be worth its estimated cost of \$3,000 (about \$350 annually over a 30-year period of analysis).

Fish Passage Effectiveness Study

We recommend that Atlanta Power prepare and implement a fish passage effectiveness study to determine the effectiveness of the upstream and downstream fish passage facilities. The results of these studies could be used to identify any design or operational modifications that would improve the efficiency of these facilities. Therefore, we find that this measure would be worth its estimated cost of \$20,000 (approximately \$10,000 per study, or about \$2,300 annually over a 30-year period of analysis).

Construction Mitigation Plan

We recommend that in order to limit adverse effects from construction of the downstream fish passage facility, Atlanta Power should develop a construction mitigation plan in consultation with IDFG, FS, and FWS. Measures included in the plan would ensure that construction-related effects such as increased sedimentation, disturbance of contaminated sediments, oil and grease spills, noise pollution, or fugitive dust emissions would be minimized and there would be no significant construction-related impacts to aquatic or other resources. Therefore, we find that this measure would be worth its estimated cost of \$3,000 (about \$350 annually over a 30-year period of analysis).

B. Conclusion

Based on our independent analysis of the project, we conclude that continued operation of the project with our recommended protection, mitigative, and enhancement measures would improve environmental conditions in the project area and would continue to be a beneficial use of the resources.

VIII. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

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

Section 10(j) of the FPA states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

No state or federal fish and wildlife agency provided 10(j) recommendations.

IX. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, and conserving waterways affected by the project. Under Section 10(a)(2), federal and state agencies filed 39 plans that address various resources in Idaho. We identified 3 federal and 5 state plans that address resources relevant to the project.⁴ We

⁴ U.S. Fish and Wildlife Service. Undated. Fisheries U.S.A.: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C. 11 pp.

U.S. National Park Service. 1982. The nationwide rivers inventory. Department of the Interior, Washington, D.C. January 1982. 432 pp.

U.S. Forest Service. 1990. Boise National Forest land and resource management plan. Department of Agriculture, Boise, Idaho. April 1990. 673 pp and appendices.

Idaho Department of Fish and Game. 1986. Idaho fisheries management plan, 1986-1990. Boise, ID. January 1986. 274 pp.

Idaho Department of Fish and Game. Bonneville Power Administration. 1986. Pacific Northwest rivers study. Final report: Idaho. Boise, ID. 12 pp. and appendices.

Idaho Department of Health and Welfare. Division of Environment. 1985. Idaho water quality standards and wastewater treatment requirements. Boise, Idaho. January 1985. 72 pp. and appendices.

Idaho Water Resource Board. 1986. State water plan. Boise, Idaho. December 1986.

Idaho Water Resource Board. 1992. Comprehensive state water plan: Upper (continued...)

conclude that, with the inclusion of our recommended environmental measures, the proposed project would not conflict with any of these plans.

X. FINDING OF NO SIGNIFICANT IMPACT

We've prepared this environmental assessment for the project pursuant to the National Environmental Policy Act of 1969. Implementing the protection, mitigation, and enhancement measures described in this environmental assessment would ensure that the environmental effects of the project would remain insignificant.

Incidental passage of fish through the turbines, impingement on intake screens, or any delay locating the upstream fish ladder entrance could result in unavoidable adverse impacts. Additionally, there could be some minor and unavoidable sedimentation impacts associated with the construction of the downstream fish bypass facilities and fish screen. These effects would be short-term and we are recommending the applicant develop a construction mitigation plan to minimize these effects.

Based on this analysis, issuing an original license for the project would not be a major federal action significantly affecting the quality of the human environment. With our recommended measures, aquatic resources, and cultural resources (known and unknown) would be protected.

XI. LITERATURE CITED

Duke Engineering & Services. 1999. Application for License for Atlanta Power Station Hydroelectric Project (FERC Project No. 11541). February 1999.

Electric Power Research Institute. 1992. Fish entrainment and turbine mortality review and guidelines. EPRI TR-101231. September 1992.

Turbak, Susan C., D. R. Reichle, and C. R. Shiner. 1981. Analysis of Environmental Issues Related to Small-Scale Hydroelectric Development IV: Fish Mortality Resulting From Turbine Passage. Oak Ridge National Laboratory. Publication No. 1597. 112pp.

Federal Power Commission Bureau of Power. 1967. Planning Status Report Upper Snake River Basin (Wyoming-Idaho-Utah-Nevada-Oregon) January 1968.

⁴(...continued)

Boise River Basin. Boise, Idaho. December 1992. 63 pp. and appendices.

U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants: establishment of a nonessential experimental population of gray wolves in central Idaho and southwestern Montana: Final Rule. 59 Federal Register 60266-60281. Tuesday, November 22, 1994.

XII. LIST OF PREPARERS

Gaylord W. Hoisington – Project Coordinator – Cultural Resources, Aesthetics, Recreation, Geology and Soils, and Land Use Resources (Soil Conservationist; B.S., Recreation).

Robert S. Easton – Aquatic Resources and Threatened and Endangered Species (Fisheries Biologist; B.S., M.S., Fisheries Biology).

John Ramer-- Aquatic Resources and Threatened and Endangered Species (Fisheries Biologist; B.S., M.S., Fisheries Biology).

Sergiu Serban - Need for Power and Developmental Analysis (Civil Engineer; M.S., Civil Engineering).

David Turner – Terrestrial Resources and Threatened and Endangered Species (Wildlife Biologist; M.S., Zoology).

James Fargo – Need for Power (Supervisory Civil Engineer; M.S., Civil Engineering).

RECEIVED

JUN 23 1968

CONVERSATION MEMORANDUM

Department of Water Resources

DATE 6/19/68

FILE _____

NAME OF PARTY Phil Tjepson IDFG Engr. (Bur chief?)

EMPLOYEE R

RE: NEW APPL. & Kirby (Atlanta) Dam

① TOTALLY in stream - passage over face of Kirby dam for full front enhancement.

② Has special use permit of F.S.

③ " special agreement of Atlanta Power Co. & use of dam

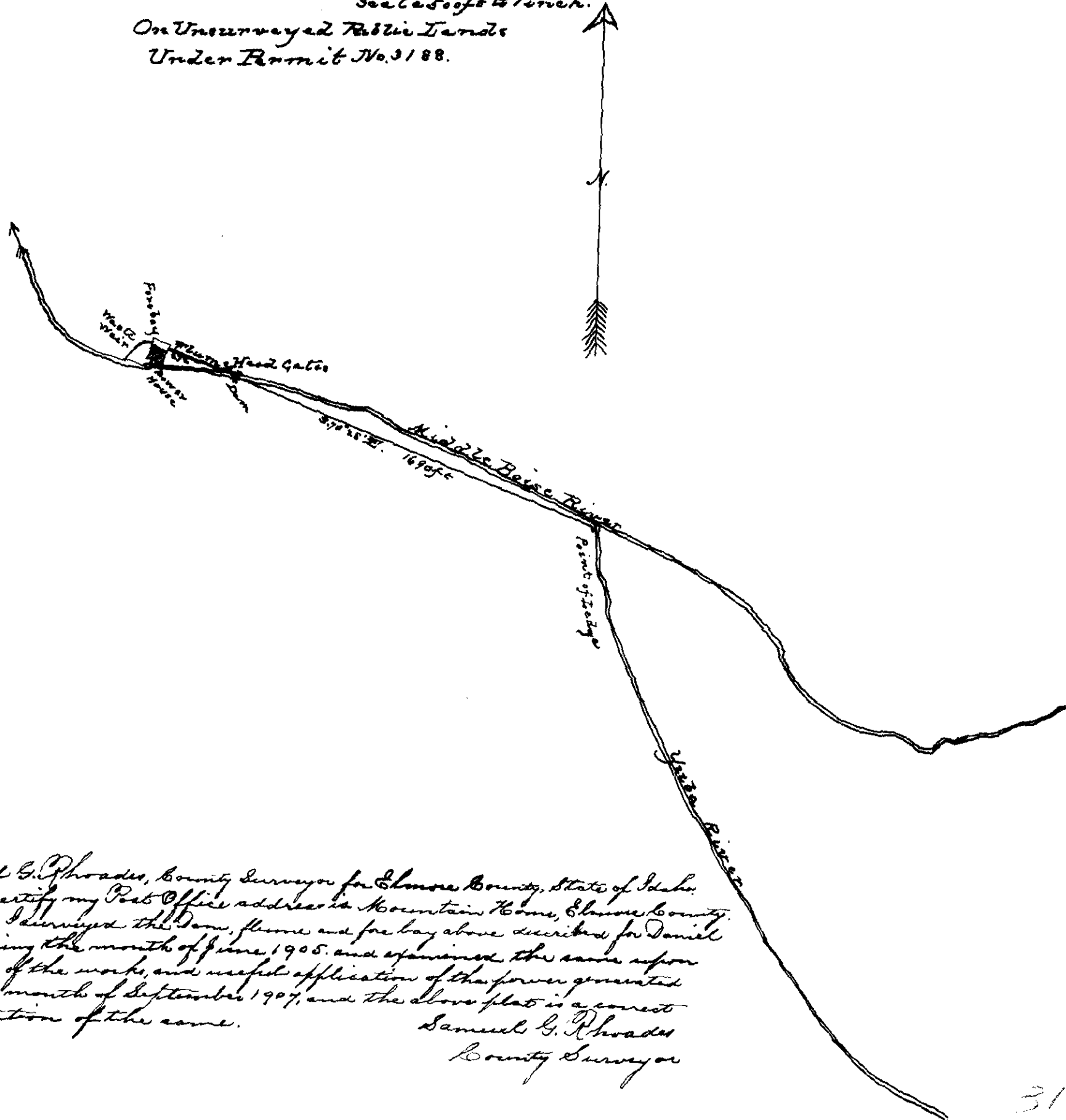
④ I told him that SRAS claim not filed to protect w.r. 63-02063 for power generation & dam. He will talk to owners of dam & that. *

Said that dam owners have agreed to subordinate 1st 12 cfs > 90 cfs in the 200 cfs license.

* not problem in short run but is serious problem in the long run Re 63 new p/s reporting schedule.

cc: 63-02063

Plat of Daniel Kirby's Flume
 from
 Dam to Fore Bay at Power House 175 ft.
 Scale 250 ft to 1 inch.
 On Unsurveyed Public Lands
 Under Permit No. 3188.



I, Samuel G. Rhoades, County Surveyor for Blaine County, State of Idaho,
 do hereby certify my Post Office address is Mountain Home, Blaine County,
 Idaho, and I surveyed the Dam, flume and fore bay above described for Daniel
 Kirby during the month of June 1905, and examined the same upon
 completion of the work, and useful application of the power generated
 during the month of September 1907, and the above plat is a correct
 representation of the same.

Samuel G. Rhoades
 County Surveyor

3188

Permit No. 3188.

Report of Samuel G. Rhoades, County Surveyor of Elmore County, Idaho, on Daniel Kirby Dam across the Middle Boise River, Flume and Fore bay & Pipes to Power Plant. Also the useful Application of the Power generated.

Hon. Jas. Stephenson Jr.
State Engineer
Dear Sir,

I have examined the Dam constructed by Daniel Kirby, across the Middle Boise River, under Permit No. 3188, also the Flume to the Fore bay above the Power House, and find everything to be made in first class manner and according to the plans and specifications on file in your office.

The Dam is constructed of logs laid crosswise of the stream, and the ends bedded into the solid ledge on each side of the stream in the cañon, and logs laid at right angles up and down the stream; forming cribs which are well bolted together, and all filled with stone, gravel and earth. A Spillway 80 ft. wide, 4 ft. deep over an apron of plank in the middle of the Dam, and extra Aprons on the lower side, sloping so as to break the force of the water in falling over the Dam.

The Head Gates to the Flume are on the Right Bank of the Stream, and are 6 ft. wide, 10 ft. high, made of 3" plank.

The Flume is 6 ft. wide, 6 ft. high, made of 2" plank with broken joints and battens over the cracks. Set on cross ties every 4 ft. in length, and cross pieces across the top, with upright side pieces mortised into the top and bottom pieces, and all made of 6" x 6" timber, and all laid on 6" x 6" Stringers. This Flume is 272 ft. long from Head Gates to Fore bay, with a grade of 1.5 ft. in that distance and will carry 200 second ft. of Water.

The Fore bay is 12 ft wide, 10 ft. high, 62 ft. long, made of 3" plank, and 6" x 6" timber, same dimensions as in the flume. From the lower end of Fore bay is a Waste Weir 6 ft wide, 6 ft. high, and 50 ft. long to where the water drops over the solid ledge to river.

From the Fore bay the Water flows through two 30" iron pipes to four turbine wheels, each of which will generate 170 Horse Power: 680 H.P.

These Turbines are connected with dynamos generating electricity which furnishes Light & Power for the Mines and Mills, and light for Atlanta.

3188

Everything in connection with the Dam and Power Plant is running smoothly, and the Power generated has been applied for beneficial use as above stated, and also in running the Tramway from the Mines to the Mill, and is now in use running the Power at the Mines and Mill.

Samuel G. Rhoades
County Surveyor.