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IDAHO PUBLIC
UTILITIES COMMISSION

Attorney for the Idaho Conservation League

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE)
COMMISSION'S REVIEW OF PURPA QF)
CONTRACT PROVISIONS INCLUDING)
THE SURROGATE AVOIDED) CASE NO. GNR-E-11-03
RESOURCE (SAR) AND INTEGRATED)
RESOURCE PLANNING (IRP))
METHODOLOGIES FOR CALULATING)
PUBLISHED AVOIDED COST RATES.)
)

Direct Testimony

Justin Hayes

May 4, 2012



1 Q. Please state your name, affiliation, and qualifications.

2 A. My name is Justin Hayes. I am the Program Director for the Idaho Conservation League. In
3 this role, I supervise all of ICL's programmatic work particularly issues involving water quality
4 standards, permitting, and enforcement. Before this, I worked for American Rivers on water
5 quality and hydropower issues. I hold a Bachelors of Arts in Human Biology, a Bachelor of
6 Science in Earth Systems, and a Masters of Science in Earth Sciences from Stanford University.
7 For more than a decade, I have provided substantive comments to the Environmental Protection
8 Agency (EPA) and Idaho Department of Environmental Quality (DEQ) on numerous permits,
9 certifications, state and federal regulations, guidelines and standards related to water quality.

10

11 Q. Please describe the scope of your testimony in this matter.

12 A. I address Idaho Power's assertion that, pursuant to Federal Energy Regulatory Commission
13 (FERC) licenses, the Company's "run-of-river" hydroelectric projects provide approximately 450
14 MW of "must run" resources. Idaho Power witness Tessia Park testifies on page 20: "Pursuant to
15 the FERC licenses Idaho Power has for its run-of-river hydroelectric projects, the Company is
16 obligated to take whatever generation flows through them; it does not have the ability to decrease
17 or increase the generation." Based on my review, these "run-of-river" FERC licenses do require
18 water to move downriver, but they allow Idaho Power to accomplish this movement by balancing
19 generation and releasing water from the dams within certain parameters. Also, I explain that
20 releasing water within certain parameters improves water quality, fish habitat, and aesthetics,
21 which are the primary public benefits the FERC licenses, seek to balance with hydropower
22 generation. I take no position on what the appropriate balance between generation and release
23 may be. Rather my testimony explains that pursuant to FERC licenses at certain dams Idaho
24 Power can, within certain parameters, balance generation with releasing water all the while
25 maintaining run-of-river operations.

1 Q. Please describe how FERC licenses and the Idaho DEQ water quality certifications interact.

2 A. FERC is empowered to regulate the construction and operation of hydroelectric facilities
3 through the issuance and conditioning of licenses. When exercising this power FERC must
4 ensure their actions comply with other federal laws including the Clean Water Act (CWA).
5 Under the CWA, Idaho establishes, and the EPA approves, standards to protect water quality.¹
6 Further, the CWA requires any applicant for a federal license to provide a certification from the
7 state the project will comply with all applicable water quality standards – known as a 401
8 certification.² The state can impose conditions on the FERC license to ensure compliance with
9 the water quality standards.³ Through this approach, FERC balances the operation of the
10 hydroelectric project with the protection of other public benefits including aesthetics, water
11 quality, and fish habitat.

12
13 Q. Please name the specific hydroelectric projects you will discuss.

14 A. My testimony covers only four projects located along the Mid-Snake River identified as “must
15 run” resources in Exhibit 1701, *Idaho Power’s Response to Exergy Development Group’s Production*
16 *Request No 19: Milner, Twin Falls, Bliss, and Lower Salmon Falls*. These are the four largest of the
17 “run-of-river” projects and combined provide 257.28 MW of capacity.

18
19 Q. Idaho Power alleges they do not have the ability to increase or decrease generation at the
20 Milner project pursuant to FERC license. Do you agree?

21 A. No. A complete reading of the Milner project license, sets a target flow level, but allows for
22 greater flows in order to benefit water quality and fish habitat. The Milner project diverts water

¹ 42 U.S.C. §1313.

² 42 U.S.C. § 1341.

³ *S.D. Warren Co. v. Maine Board of Environmental Protection*, 547 U.S. 370 (2006).

1 from Milner reservoir, sending it along an irrigation canal, and returns a portion of the diversion
2 through the powerhouse 1.6 miles downstream.⁴ This creates a “bypass” reach of river 1.6 miles
3 long where the river level is controlled only by releasing water from the dam. Idaho waived their
4 water quality certification authority by failing to submit within their one-year timeline.⁵ The
5 FERC license describes the negative impacts to water quality, specifically reduced dissolved
6 oxygen and increased temperatures, caused by reduced flows in the bypass reach.⁶ To avoid these
7 negative impacts, the license establishes a “target” flow of water released from Milner into the
8 bypass reach of 200 cubic feet per second (cfs).⁷ Since the primary reason for the Milner dam is
9 to divert irrigation water, this “target” is primarily applicable during the irrigation season. FERC
10 also imposes a limit on the “ramping rate” in the bypass reach to one foot per hour to protect fish
11 and recreationalists.⁸ Logically, and scientifically, decreasing generation and releasing more water
12 from Milner dam beyond this “target” flow, but within the ramping rate, further benefits water
13 quality and provides more flexibility for Idaho Power to integrate wind.

14 Maintaining an appropriate level of dissolved oxygen is an important water quality
15 standard for fish habitat. The growth and decay of aquatic plants reduces dissolved oxygen below
16 these levels. Reduced water velocity and warmer waters encourage aquatic plant growth. To
17 maintain adequate water velocity to prohibit plant growth and limit water warming thereby
18 maintaining an appropriate level of dissolved oxygen, FERC established, in Article 407, a target
19 flow in the bypass reach of 200 cfs.⁹ Importantly in terms of meeting dissolved oxygen standards,
20 this is a minimum level, not a maximum. FERC explains the “DEIS,” the environmental review
21 supporting the license, recommended flows in the bypass reach between 720 to 2190 cfs in order

⁴ See Exhibit 1702 at 1, Milner FERC License Project # 2899.

⁵ Id., at 3.

⁶ Id., at 4.

⁷ Id.; See Article 407 at p. 19.

⁸ Id., at 7 - 8; See Article 410 at 20.

⁹ Id., at 6 - 7; See Article 407 at p. 19.

1 to protect the fishery resource in the bypass reach.¹⁰ This recommendation reveals that water
2 quality and fish habitat will benefit if Idaho Power increases flows beyond the “target” in the
3 bypass reach by reducing generation.

4 The FERC license explains that low flows in the bypass reach harms the trout fishery by
5 increasing water temperature and sedimentation.¹¹ Further, reduced flows prevent fish from
6 moving downstream, which “is probably the primary mechanism by which trout populate the
7 bypassed reach.”¹² In setting a “target” flow of 200 cfs, FERC balanced fish protection with the
8 need to maintain irrigation flows in the canal, as well as generate electricity.¹³ Maintaining
9 irrigation levels is beyond the scope of my testimony. But I do want to make clear that decreasing
10 generation and releasing more than the “target” of 200 cfs will benefit the trout resource FERC
11 was concerned with. Doing so will increase water velocity in the bypassed reach, help maintain
12 cold water, reduce sedimentation, and increase trout recruitment from the reservoir into the
13 downstream fishery.

14 A complete reading of the Milner FERC license reveals that Idaho Power has the flexibility
15 to maintain a run-of-river operation by balancing generation and release from Milner dam
16 within certain parameters. The Company must maintain at least 200 cfs in the bypass reach, but
17 increasing this flow, within the one-foot per hour ramping rate, will benefit the water quality
18 standards that underlay this target while allowing Idaho Power to integrate variable energy
19 resources.

20
21 **Q. Idaho Power alleges they do not have the ability to increase or decrease generation at the**
22 **Twin Falls project pursuant to FERC license. Do you agree?**

¹⁰ Id.

¹¹ Id., at 18.

¹² Id at 19.

¹³ Id at 22.

1 A. No. Similar to the Milner project, the Twin Falls License establishes imposes license
2 conditions to maintain appropriate dissolved oxygen levels, water temperatures, and protect the
3 aesthetics of allowing water to flow over Twin Falls.¹⁴ The Twin Falls project diverts water from
4 flowing over the falls and sends it through a powerhouse located near the base.¹⁵ Unlike, the
5 Milner project, at Twin Falls there is no bypass reach into which spill flows; rather spill at Twin
6 Falls means allowing water to cascade over the falls as God intended. This difference in physical
7 layout means that water quality is affected through different mechanisms than Milner. But the
8 result is the same, decreased generation and increased spill will benefit the water quality
9 standards and other benefits that underlie FERC's license conditions.

10 FERC imposes a minimum average of flow 300 cfs over the Twin Falls cataract to protect
11 it's aesthetic value.¹⁶ In doing so FERC recognized that this requirement will reduce generation
12 revenue from the project.¹⁷ Whether this concern holds true for Idaho Power today is beyond the
13 scope of my testimony. However, reducing generation and increasing flows will benefit the
14 aesthetics of Twin Falls while providing the Company additional flexibility to integrate variable
15 energy. While FERC requires a minimum flow over Twin Falls, the license also empowers the
16 Company to increase these levels for operational constrains or by agreement with the Bureau of
17 Land Management, Idaho Department of Parks and Recreation, and the Idaho State Historic
18 Preservation Officer.¹⁸ As agencies concerned with protecting the aesthetics of Twin Falls, I
19 imagine they share my position that more spill over the falls is more aesthetic.

20 Diverting water around Twin Falls and through the powerhouse reduces aeration and
21 thus the level of dissolved oxygen in the Snake River.¹⁹ These water quality concerns and license

¹⁴ Exhibit 1703, Twin Falls License FERC Project # 18.

¹⁵ Id., at 1.

¹⁶ Id., at 3; See Article 410 at p. 11.

¹⁷ Id.

¹⁸ Id., See Article 410 at p. 11.

¹⁹ Id., at 2.

1 conditions arose from the Idaho water quality certification issued before the FERC license.²⁰ To
2 avoid violating water quality standards Article 404 of the license requires Idaho Power to monitor
3 dissolved oxygen levels and either reinject air at the powerhouse or “release water over the falls
4 rather than through the project turbines” to maintain water quality.²¹

5
6 **Q. Idaho Power alleges they have no ability to increase or decrease generation at the Bliss or
7 Lower Salmon projects. Do you agree?**

8 **A.** Not completely. While the current FERC licenses do impose run-of-river operations, Idaho
9 Power has a request currently pending before FERC to operate both projects as load following
10 resources.²² These projects had traditionally been operated as load following resources.²³ When
11 Idaho Power applied for a relicense, state and federal agencies sought to limit these operations to
12 protect a variety of Snake River snails listed under the Endangered Species Act (ESA).²⁴ A six-
13 year study of the impacts on the snails appears to show that resuming load following operations,
14 within sideboards, is “not likely to jeopardize the continued existence of the species” – the term
15 of art that triggers ESA based restrictions.²⁵ The US Fish and Wildlife Service, Idaho Department
16 of Fish and Game and Idaho DEQ support this request.²⁶ Further Idaho DEQ indicates that
17 changing to load following operations complies with their existing water quality certifications.²⁷
18 While I await the final outcome of the consultation process under the ESA and FERC’s decision

²⁰ Id.

²¹ Id., See Article 404 at pp. 9 – 10.

²² Exhibit 1704, FERC Notice of IPC’s Application to Amend the Bliss and Lower Salmon Falls Licenses and Exhibit B from IPC’s FERC Application Containing Support Letters from U.S. Fish and Wildlife Service, and Idaho Department of Fish and Game, and IPC’s FERC Submittal of Idaho Department of Environmental Quality’s Support Letter.

²³ Id., at 6.

²⁴ Id.

²⁵ Exhibit 1705 at 17, Biological Assessment for the Snake River Physa Submitted by IPC to FERC for the Bliss and Lower Salmon Falls License Amendments.

²⁶ Exhibit 1704 at 12.

²⁷ Id.

1 on Idaho Power's request, but it appears the Company is on a path towards greater flexibility to
2 operate these dams than they have represented to this Commission so far.

3

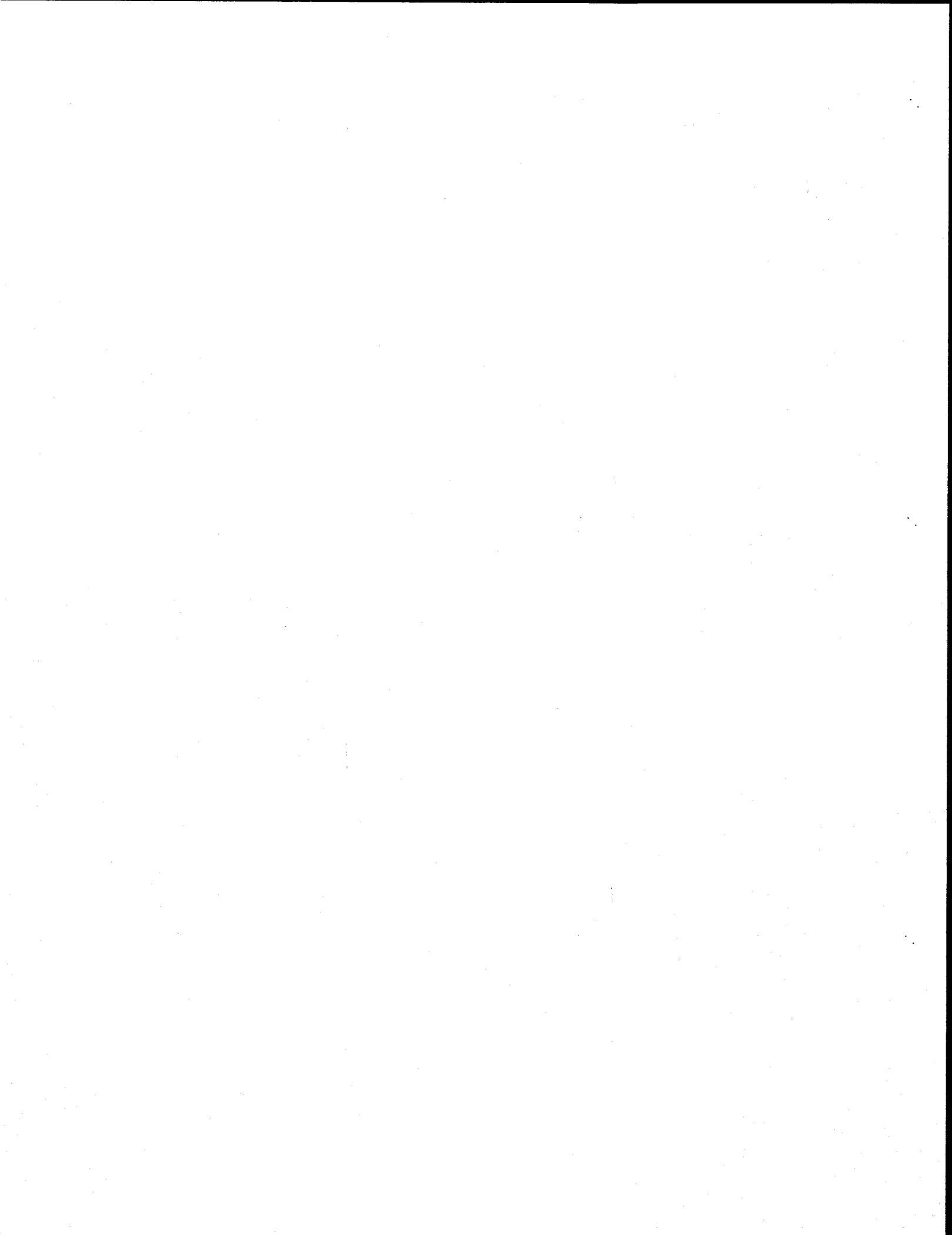
4 Q. Please summarize your testimony.

5 A. Idaho Power alleges they cannot increase or decrease generation in their run-of-river hydro
6 projects due to environmental constraints to protect water quality, fisheries, and endangered
7 species. This simply is not true. A complete and fair reading of the FERC documents for the four
8 projects described above reveal Idaho Power has far more flexibility while still protecting these
9 other environmental values.

10

11 Q. Does this conclude your testimony as of May 4, 2012?

12 A. Yes.



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Direct Testimony

Justin Hayes

EXHIBIT 1701

**IDAHO POWER'S RESPONSE TO EXERGY DEVELOPMENT GROUP PRODUCTION
REQUEST NO. 19**

May 4, 2012



REQUEST FOR PRODUCTION NO. 19: Reference the Direct Testimony of Tessia Park, p. 20, stating, "Pursuant to FERC licenses Idaho Power has for its run-of-river hydro electric projects, the Company is obligated to take whatever generation flows through them; it does not have the ability to decrease or increase the generation."

(a) Please identify each of the run-of-river hydro plants and provide the capacity of each.

(b) Please provide the FERC license for each project (in electronic format if available).

(c) Please identify the provision (page number, section number, as applicable) in each FERC license that Idaho Power relies on to determine it does not have the ability to decrease or increase the generation.

(d) For each plant, please explain whether the plant has the operational capability to spill water without generating electricity, and any restrictions on Idaho Power's ability to do so.

RESPONSE REQUEST FOR PRODUCTION NO. 19:

(a) Following are the run-of-river hydro plants and their capacity:

Milner – 59.45 MW
Twin Falls – 52.74 MW
Shoshone Falls – 12.5 MW
Upper Salmon Falls A – 18 MW
Upper Salmon Falls B – 16.5 MW
Lower Salmon Falls – 60 MW
Upper Malad – 8.27 MW
Lower Malad – 13.5 MW
Bliss – 75 MW
Swan Falls – 25 MW

(b) Electronic versions of the licenses identified above are provided in the non-confidential CD.

(c) Milner. A complete reading of the Milner license shows that the Milner project is designed to generate with flows that are not used for irrigation as they pass through the project (run-of-river).

Twin Falls. A complete reading of the Twin Falls license shows that the Twin Falls project is designed to generate with flows as they pass through the project (run-of-river).

Shoshone Falls. A complete reading of the Shoshone Falls license shows that the Shoshone Falls project is designed to generate with flows as they pass through the project (run-of-river). See Article 401.

Upper Salmon Falls A. A complete reading of the Upper Salmon Falls license shows that the Upper Salmon Falls project is designed to generate with flows as they pass through the project (run-of-river). See Article 401.

Upper Salmon Falls B. A complete reading of the Upper Salmon Falls license shows that the Upper Salmon Falls project is designed to generate with flows as they pass through the project (run of river). See Article 401.

Lower Salmon Falls. A complete reading of the Lower Salmon Falls license shows that the Lower Salmon Falls project is designed to generate with flows as they pass through the project (run-of-river). See Article 401.

Upper Malad. A complete reading of the Malad license shows that the Malad project is designed to generate with flows as they pass through the project (run-of-river). See Article 401.

Lower Malad. A complete reading of the Malad license shows that the Malad project is designed to generate with flows as they pass through the project (run of river). See Article 401.

Bliss. A complete reading of the Bliss license shows that the Bliss project is designed to generate with flows as they pass through the project (run-of-river). See Article 401.

Swan Falls. A complete reading of the Swan Falls license shows that the Swan Falls project is designed to generate with flows as they pass through the project (run-of-river).

In addition, the non-confidential CD contains a copy of a Settlement Agreement between Idaho Power and the U.S. Fish and Wildlife Service which contains certain environmental provisions that place constraints around how the Company operates the Mid-Snake hydro projects (e.g.), Shoshone Falls, Bliss, Upper Salmon, and Lower Salmon).

At run-of-river projects, generation increases as flow increases and generation decreases as flow decreases.

(d) Each licensed facility has the physical capability to spill water without generating electricity. The proposed operations in the applications for FERC licenses and state water quality certifications did not include spill except when flows exceeded plant capacity or when generators tripped off-line in emergency situations. To the contrary, operations may require an amendment to the FERC licenses and/or state water quality certifications.

The response to this Request was prepared by Lewis Wardle, Senior Biologist, Idaho Power Company, in consultation with Donovan E. Walker, Lead Counsel, Idaho Power Company.

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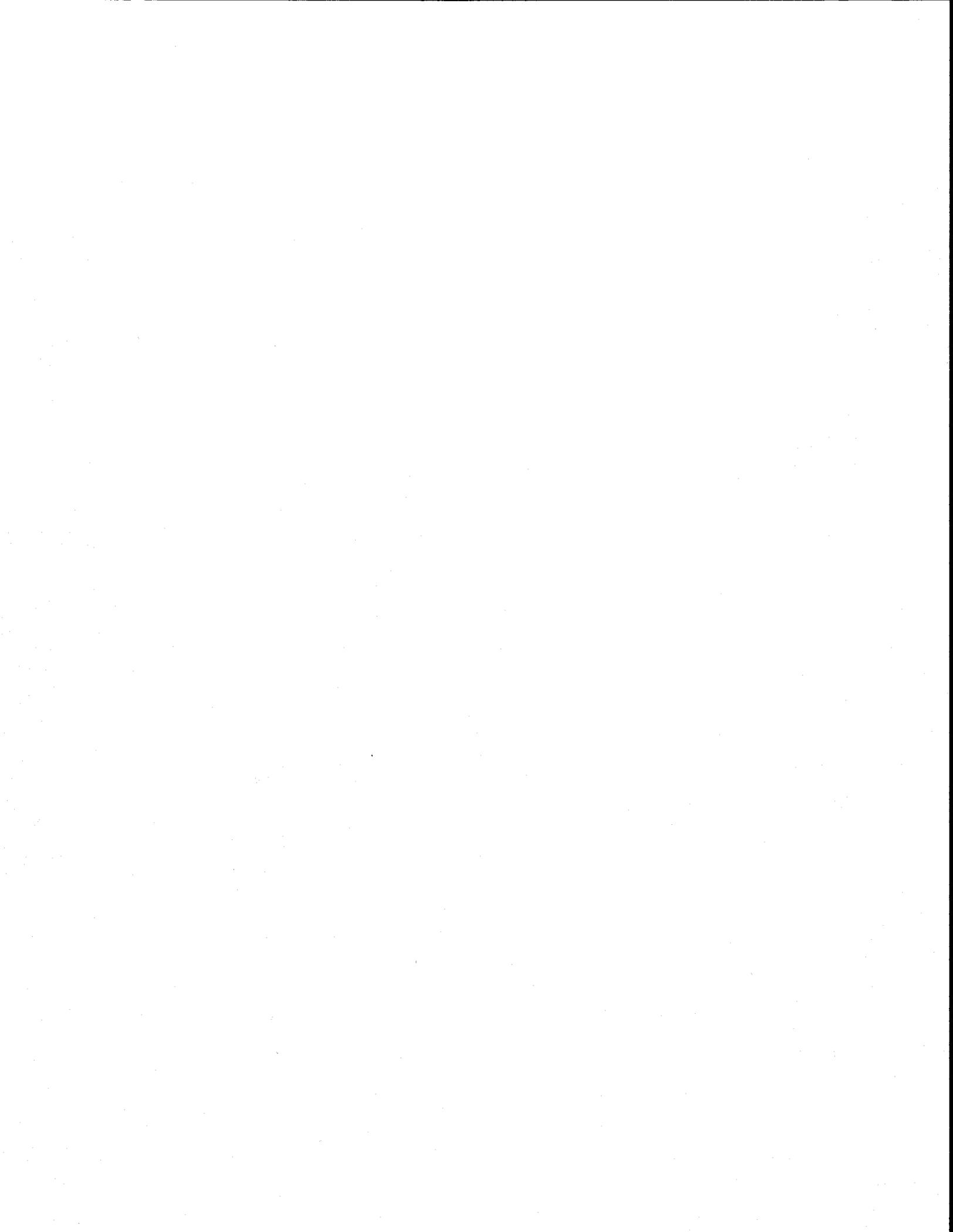
Direct Testimony

Justin Hayes

EXHIBIT 1702

MILNER PROJECT FERC LICENSE

May 4, 2012



UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Martha O. Hesse, Chairman;
Charles G. Stalon, Charles A. Trabandt,
Elizabeth Anne Moler and Jerry J. Langdon.

Twin Falls Canal Company) Project No. 2899-003
North Side Canal Company, Ltd.)

ORDER ISSUING LICENSE
(Major Project)

(Issued December 15, 1988)

On July 27, 1984, the Twin Falls Canal Company and the North Side Canal Company, Ltd. (CC) filed a joint application for license under Part I of the Federal Power Act (FPA) to construct, operate, and maintain the Milner Hydroelectric Project No. 2899, to be located at the existing Milner Dam and Twin Falls Main Canal on the Snake River in Twin Falls, Cassia, Jerome, and Minidoka Counties, Idaho. Parts of the project would occupy lands of the United States managed by the Bureau of Land Management (BLM) of the Department of the Interior. The project would consist of the Milner Dam and Reservoir, modifications to 6,500 feet of the Twin Falls Main Canal to increase its capacity, a control structure on the canal that would divert the additional flow into a forebay, a penstock, a powerhouse located on the irrigation canal 1.6 miles downstream of the dam and containing a single generating unit rated at 43,650 kilowatts, and a 1.4-mile-long transmission line.

Notice of the application has been published. The Idaho Department of Fish and Game (IDFG) and the Idaho Department of Water Resources (IDWR) became intervenors in the proceeding. The motions to intervene and comments filed by agencies and individuals have been fully considered in determining whether to issue this license. The issues raised by the intervenors are discussed below.

I. Dam Safety and National Environmental Policy Act Compliance

The Commission currently is in the process of preparing an environmental impact statement (EIS) assessing, inter alia, the potential cumulative impacts of the Milner Project No. 2899 and three other proposed hydroelectric projects on the environmental resources of the Snake River Basin. A draft EIS (DEIS) was

Project No. 2899-003

-2-

issued in November 1987. ¹ Due to new circumstances and new information received after the DEIS was issued, a Notice of Intent to Prepare a Supplement to the DEIS and to hold public meetings was issued on July 15, 1988; public meetings were held in Twin Falls, Idaho, on August 19, 1988. At these meetings, CC informed the Commission that there was a serious concern for the structural integrity of the 85-year-old Milner Dam and that failure of the dam during the irrigation season could result in near total crop failure on the 440,000 acres served by the dam. ²

Following a meeting with CC and an inspection of Milner Dam, the Commission's Division of Dam Safety and Inspections concluded that there is a high risk of failure at the Milner Dam in the event of a seismic event (earthquake). A complete dam failure could lead to partial or total crop failure, since such a failure would prevent diversion of water into the irrigation canal.

CC intends to use the revenues from the sale of electric power to be generated by the project to obtain the funds necessary to strengthen Milner Dam and upgrade its spillway. CC states that, absent these revenues, funding repair of the dam would result in severe economic hardship to many of the 7,500 CC shareholders who depend on irrigation waters from Milner Dam for their livelihood. According to CC, having the shareholders bear the total cost of repairs could cause some shareholders to lose their farms and would cause significant adverse impacts to a local economy that is already suffering the effects of the general economic problems of the farming industry.

The final EIS (FEIS) for the four projects on the Snake River is not expected to be completed until late summer or early fall of 1989. Thus, waiting for completion of the FEIS before action on the license application for Project No. 2899 could cause a delay of up to two years in starting the repair of Milner Dam, during which time there would be a risk of dam failure. If a license for the Milner Project is issued at this time, the necessary financing and other arrangements could be made so as to complete the dam repairs in one year or less.

¹ Draft Environmental Impact Statement for the Twin Falls (FERC No. 18), Milner (FERC No. 2899), Auger Falls (FERC No. 4797), and Star Falls (FERC No. 5797) Hydroelectric Projects on the Mainstem Snake River, Idaho, Federal Energy Regulatory Commission, Washington, D.C., November 1987.

² See the attached Safety and Design Assessment (S&DA) for a more detailed description of the dam safety concerns regarding this project.

Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of the National Environmental Policy Act (NEPA) state that, where emergency circumstances make it necessary to take an action with significant environmental impacts without following CEQ regulations (e.g., without first preparing an FEIS), the agency taking the action should consult with CEQ regarding alternative arrangements. Such arrangements are to be limited to actions necessary to control the immediate impacts of the emergency. 3 Pursuant to CEQ's regulations, the Commission consulted with CEQ and requested concurrence with a plan to proceed with the licensing of the Milner Project prior to completion of the FEIS on the four projects on the Snake River. 4 Consistent with the emergency provisions CEQ's regulations, the CEQ approved the Commission's plan to license the hydroelectric facility at the Milner Dam prior to completion of the FEIS. 5

II. Comprehensive Water Block

Commission staff has proposed development of a Comprehensive Water Block (CWB) for the four projects in the Snake River Basin included in the DEIS. As described in more detail in the Scoping Document Supplement (Supplement) prepared for this proceeding in October 1988, 6 the objective of the CWB is to provide target flows at the projects when water is available in excess of irrigation needs. The CWB represents the combined amount of water needed to provide target flows for protection and enhancement of environmental resources associated with the four projects addressed in the DEIS. Under the CWB proposal, each of the four projects, if licensed and constructed, would provide a sub-block to the CWB; the size of the individual sub-blocks would be different for each project, due to the fact target flows would be based on what is needed to mitigate impacts at each specific project. The size of the CWB would also vary from year to year depending on the amount of flow in the river and the availability of water in excess of irrigation needs.

3
See 40 C.F.R. 1506.11 (1988).

4
Letter from Martha O. Hesse, Chairman, Federal Energy Regulatory Commission, October 25, 1988).

5
Letter from A. Alan Hill, Chairman, CEQ, October 27, 1988.

6
Information regarding the Supplement was published in the Federal Register on October 15, 1988. See 53 Fed. Reg. 42,997. Scoping meetings on the Supplement were held in Boise and Twin Falls, Idaho, on November 2, 1988.

The CWB proposal would require the licensees for the four projects to lease water for the CWB from the Upper Snake Water Supply Bank (Water Bank). The State of Idaho established the Water Bank as a convenient means to allow and account for the rental of water by those irrigators in need of additional water from those who have excess water. Irrigators who estimate that their water storage rights would be in excess of their requirements in any year may place a portion of their storage right in the Water Bank, to be leased by others, with irrigators receiving first priority. Any water that is not leased in any year is lost if all of the upstream storage is refilled in the following year.

IDWR, by letter dated September 30, 1988, stated that it appears that structured reliance on the Water Bank through the CWB mechanism can be successful in meeting prescribed mitigative flows on the mainstem of the Snake River. Furthermore, Commission staff discussions with IDWR staff regarding the operation of the Water Bank revealed that: (1) water has been available for lease from the Water Bank in all years since its creation; (2) Idaho Power Company has leased water for power generation from the Water Bank in every year since its creation; (3) future water availability likely will increase due to increased irrigation efficiencies; (4) it is highly probable that water will be available in the Water Bank in excess of irrigation demand in the future, except in very bad water years; and (5) the cost of water from the bank is currently very reasonable, and is expected to remain so in the foreseeable future.

Under the CWB proposal, each licensee would be responsible for providing project-specific target flows. Target flows to be set for the projects would recognize the physical limitations of the river system so that they would not interfere with irrigation operations and would not flood low-lying areas. Flows to be released for project-specific target flows would be accounted for when the water is released from the upstream American Falls Reservoir and measured below Milner Dam. Thus, the CWB would be an accounting mechanism for licensees to equitably share the responsibility for mitigative flows, since water which is released from American Falls Reservoir would flow through all of the four proposed projects.

As discussed below, we believe the CWB proposal is an appropriate means to provide mitigative flows while recognizing the need to protect irrigation needs in the area. Accordingly, Article 401 of the license requires CC to meet the target flows specified by Article 407 of the license by renting water from the Water Bank when it is available.

III. Environmental Impacts

A. Erosion, Sedimentation, and Slope Stability

Rehabilitation of Milner Dam would involve excavation of rock materials, construction of access roads leading from the excavations to the dam, associated staging areas, and a cofferdam to dewater a small area in the reservoir when reconstructing the spillway. These activities would cause minor erosion, sedimentation, localized movement of loose rock materials, and temporary increases in suspended sediment in Milner Reservoir during placement and removal of cofferdams. In order to ensure that impacts on soils and geologic resources are minimized, Article 402 requires CC to include measures to minimize erosion and sedimentation and to control slope stability when submitting final design specifications for rehabilitation of Milner Dam.

During project construction, localized erosion, sedimentation, and temporary increases in turbidity and suspended sediments would occur until disturbed land surfaces are stabilized. Blasting for the powerhouse and tailrace excavation and construction of the access road could cause localized rockfall and mass movement of loose materials, and placement and removal of cofferdams would temporarily increase suspended sediments and turbidity within the Snake River.

With implementation of a detailed, site-specific erosion, sediment, and slope stability control plan that incorporates CC's proposed mitigation and the mitigation measures recommended in the DEIS, the effects on soil and geologic resources would be minor. ⁷ Article 402 requires CC to prepare a detailed, site-specific plan to control erosion, sedimentation, and slope stability that includes control measures proposed by CC and recommended in the DEIS.

B. Water Quality

1. Water Quality Certification

In a letter dated January 27, 1984, CC requested water quality certification pursuant to Section 401(A)(1) of the Clean Water Act from the Idaho Department of Health and Welfare (IDHW). IDHW granted water quality certification for the Milner Project on September 30, 1985. Since IDHW did not act on the certification request within one year from the date it received the request, water quality certification was deemed waived by

7

See Section 4.1.1.1 of the DEIS.

Order No. 464. ⁸ However, since we believe the three conditions contained in the water quality certificate, which address erosion control, spoil disposal, and storage of fuels and chemicals are necessary, we are including them as part of Article 402 of the license.

2. Milner Reservoir and the Snake River below Milner Dam

The water quality in the Upper Snake River Basin is generally good, and is categorized as Class A by IDHW. Water uses to be protected include domestic and industrial water supply, irrigation, livestock watering, and salmonid fish spawning and rearing.

In the 1960's, Milner Reservoir had poor water quality conditions resulting from municipal and industrial point source discharges. During periods of reduced discharges, low dissolved oxygen concentrations (DO) in Milner Reservoir resulted in major fish kills. Substantial reductions in these point source discharges in the 1970's, however, have contributed to better water quality conditions in the reservoir.

Temperature and DO sampling conducted by CC's consultant in June to September 1983 and in August to December 1987 indicate that Milner Reservoir does not thermally or chemically stratify and that DO and temperature levels in the river below Milner Dam are similar to those in Milner Reservoir. These levels met the state water quality standards at all depths sampled in Milner Reservoir and in the Snake River below Milner Dam.

The Environmental Protection Agency (EPA) reports that in past years the surface waters of Milner Reservoir contained high concentrations of heavy metals. Since 1979, EPA reports that concentrations of zinc, cadmium, and copper in Milner Reservoir and in the Snake River below Milner Dam have ranged from 0 to 50 micrograms per liter (ug/l), from .2 to 2 ug/l, and from 1 to 8 ug/l, respectively. However, these concentrations are below levels reported by EPA that adversely affect freshwater aquatic organisms. ⁹

8

52 Fed. Reg. 5448 (February 23, 1987), FERC Stats. and Regs. III, 30,370 (effective May 11, 1987); reh'g denied, 52 Fed. Reg. 13,234 (April 22, 1987), 39 FERC 61,021 (Order No. 464-A), petitions for reconsideration dismissed, 41 FERC 61,208 (1987) (Order No. 464-B).

9

See generally Section 4.2.1 of the DEIS.

(A) Project Construction

Construction activities in Milner Reservoir and in the Snake River below Milner Dam would disturb sediments and other unconsolidated deposits that likely contain heavy metals or other toxic substances. Improper removal and disposal of sediments or unconsolidated deposits could disperse heavy metals or other toxic substances into the water column and would adversely affect the aquatic resources downstream. Although the entire project area need not be tested, Article 403 requires CC to test any sediment or unconsolidated materials within the Snake River and Milner Reservoir that would be dredged or excavated in conjunction with project construction for the presence of any heavy metals or other toxic substances, so that any contaminated materials would be identified, safely removed, and disposed of with minimal adverse effects on water quality and aquatic organisms.

(B) Project Operation

The proposed powerhouse would have the capacity to use flows of from 900 to 4,000 cubic-feet-per-second (cfs). Typically, the flows that pass Milner Dam in the summer are low, not generally exceeding 500 cfs, and the proposed powerhouse would not be expected to operate from approximately mid-June through mid-September.

Operation of the proposed project would not affect the water quality in Milner Reservoir; however, CC's proposed minimum flow of 58 cfs in summer during the irrigation season would likely result in substantial adverse impacts on water temperature and DO within the 1.6-mile-long bypassed reach. The DO and temperature of the water released from Milner Dam during summer would likely change as it flows downstream through the bypassed reach. The magnitude of these changes would depend on a number of factors, with the major controlling factor being the rate of stream discharge through the bypassed reach.

A reduction in the volume of water flowing through the bypassed reach would reduce water velocity and depth and increase the travel time. Consequently, the effect of solar radiation would be intensified and water temperature would increase in summer. Much slower velocities in the bypassed reach could also contribute to the growth of the already abundant aquatic plants. Increased plant respiration and decomposition would cause DO reductions.

Based on the cross-sectional and longitudinal profiles of the river channel below Milner Dam and the available data relating discharge to DO and water temperature, a flow of 200 to 300 cfs would likely have minimal impact on water temperature and

DO in the bypassed reach. Flows within this range would likely provide sufficient water velocity and depth, and in turn reduce the travel time through the bypassed reach, thus minimizing the effect of solar radiation on water temperature. A target flow established within this range would likely provide water quality conditions that are suitable for maintaining a put-and-grow trout fishery. 10 The target flows required by Articles 407 and 415 during project operation for the maintenance of the fish and recreational resources, respectively, would minimize the impacts of project operation on water temperature, DO, and sedimentation in the bypassed reach.

The DEIS recommended that CC implement a water quality monitoring plan that should include provisions for discharging sufficient water to the bypassed reach to minimize the effects of the proposed project on the water quality of the Snake River during project operation. Water quality impacts would be most critical during low water years and during summer months that coincide with low flows, high nutrient levels, and elevated water temperatures.

CC should implement a water quality monitoring plan along the bypassed reach. Therefore, Article 404 of the license requires CC to monitor the water quality of the Snake River to determine if water temperatures and DO necessary for the survival of a trout fishery within the bypassed reach are being maintained by the target flow released from Milner Dam. If the results of the monitoring required by Articles 404 and 409 show that levels of DO and temperature in the bypassed reach are not sufficient for maintaining a put-and-grow trout fishery, Article 409 requires CC to implement other fishery mitigation.

C. Fishery Resources

1. Existing Environment

(A) Milner Reservoir

Milner reservoir supports both warmwater and coldwater fisheries. The warmwater species include smallmouth bass, largemouth bass, yellow perch, channel catfish, brown bullhead, and black crappie. The coldwater species are rainbow trout, cutthroat trout, brown trout, and mountain whitefish. Also, numerous nongame species inhabit the reservoir. The coldwater species occur primarily at the headwaters of the reservoir. IDFG stocks catchable rainbow trout in the headwaters of Milner Reservoir near Burley, Idaho.

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This fishery resource is discussed in Part II C 4, infra.

Milner reservoir has a sandy substrate and is devoid of three dimensional structure such as rocks or boulders. The sandy substrate probably limits the production of aquatic invertebrates typically fed upon by fish. Further, the lack of structure limits warmwater fish production because structure is used by warmwater fish for spawning and for cover. 11

The Idaho Fisheries Management Plan 12 states that warmwater fish such as smallmouth bass, and channel and blue catfish will be stocked in the reservoir to meet the demand for the warmwater fishing in Milner Reservoir. The Fisheries Management Plan states that the management direction for Milner Reservoir include improving warmwater fish habitat.

(B) Snake River Bypassed Reach

Game fish use below Milner Dam is seasonal and depends on flow levels. Rainbow trout, cutthroat trout, brown trout, rainbow-cutthroat trout hybrids, mountain whitefish, channel catfish, largemouth and smallmouth bass, and yellow perch have been collected in the Snake River below Milner Dam. Nongame fish such as Utah dace, redbreast shiners, and mottled sculpins dominated the catch during the low flow period. 13

Water diversions for irrigation limits trout use of the proposed bypassed reach primarily to the non-irrigation season. Water diversions from April through October for irrigation deliveries significantly reduce the amount of water flowing downstream of Milner Dam. These flow reductions during the irrigation season, along with the likely changes to water quality, increased water temperature and decreased DO concentration, decreases the suitability of the downstream area for trout.

The Fisheries Management Plan for the Snake River below Milner Dam calls for a "yield trout fishery" with an approximate catch rate of 0.5 fish per hour. According to the Fisheries Management Plan, rainbow trout consisting of wild and hatchery fish would support the yield fishery.

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See Section 3.3.2.1.1 of the DEIS.

12

Idaho Department of Fish and Game, 1986, Fisheries Management Plan 1986 - 1990, Boise, Idaho, 274 pp.

13

See Section 3.3.2.1.2 of the DEIS.

2. Impacts

(A) Project Construction

Constructing the Milner Project and upgrading the dam would cause short-term increases in suspended and dissolved solids which would ultimately be deposited in downstream areas. The siltation could negatively affect mountain whitefish spawning in the bypassed reach, but would have actual little effect, due to the fact that so few fish occur or spawn in the bypassed reach. Siltation from construction activities would have little effect on other aquatic resources, because the siltation would be flushed out during the next high flow period. Further, implementing the erosion control and sedimentation plan required by Article 402 would limit sources of sediment. The potential for toxic substances affecting the downstream aquatic resources would be low because of the sediment testing and sediment removal requirements of Article 403.

(B) Project Operation

Operating the Milner Project would increase the time period for diverting water from the reservoir to the Twin Falls Main Canal. Typically, CC now diverts water during the irrigation season from April through October. With the project operating, CC would divert water all year and would reduce the frequency of spillage over Milner Dam. Fish passing over Milner Dam with the high spillage flows is probably the primary mechanism by which trout populate the bypassed reach. Project operation would substantially increase the number of fish diverted to the canal, where they would enter the project intake and would be killed or injured by the turbines or would no longer be recruited to the bypassed reach or downstream areas.

CC proposes to mitigate for adverse project impacts by enhancing the fish habitat in Milner Reservoir instead of installing a fish screen to mitigate the turbine-induced fish losses. The DEIS agreed with CC's reservoir enhancement proposal, but expressed reservations about the probability for success. 14 In its motion to intervene, IDFG stated that enhancing the habitat in Milner Reservoir would partially mitigate for turbine-induced fish mortality.

Enhancing the warmwater fish habitat by providing structures for holding and rearing habitat, or increasing spawning areas and stocking warmwater fish in Milner Reservoir as described in the Fishery Management Plan, would adequately mitigate turbine-induced fish losses. Therefore, CC should finance the

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See Section 4.2.2.1.2 of the DEIS.

development of the Milner Reservoir warmwater fishery as described in the Fisheries Management Plan. In addition, CC should fund stocking of warmwater fish species in the reservoir in cooperation with the IDFG. Stocking warmwater fish in the reservoir in cooperation with the IDFG and enhancing the reservoir habitat would be consistent with the Fisheries Management Plan. Article 405 requires CC, after consultation with IDFG, to develop, implement, and finance a warmwater fish stocking program and a habitat enhancement plan that is consistent with the Fisheries Management Plan for Milner Reservoir to mitigate the adverse effects of the project on the fishery resources.

CC should consult with IDFG and develop a plan to monitor the effectiveness of the reservoir enhancement structures and the fish stocking program. Specifically, CC should determine if additional warmwater fish stocking is necessary to meet the objectives of the Fisheries Management Plan for Milner Reservoir. The monitoring would also assist in determining the length of time the structures would remain in place and provide fish habitat. We conclude that a five-year monitoring program would provide sufficient information to determine if the mitigative measures are adequate. The monitoring also allows for correcting those that are not working. Therefore, Article 406 requires CC to conduct a reservoir fish habitat and fishery study for at least five years to determine if the fish habitat enhancement structures have remained in place and are functioning as desired and to determine if additional warmwater fish need to be stocked.

3. Instream Flow

CC proposes to release 58 cfs during the irrigation season and 150 cfs during the non-irrigation season. However, CC did not provide a biological rationale for these flow proposals or for the seasonal difference in the flows. The DEIS found that 58 cfs would prevent fish movement in the bypassed reach and would degrade fish food production by increasing channel sedimentation. 15 The proposed 58 cfs minimum flow would provide slightly improved instream flow conditions, because it would prevent the extreme low flow events that occasionally occur.

Operating the project during the non-irrigation season with the proposed 150 cfs minimum flow would significantly reduce the amount of trout habitat in the 1.6-mile-long bypassed reach according to conventional instream flow methodologies, would severely reduce trout recruitment and use of the bypassed reach during the non-irrigation season, and would reduce invertebrate

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See Section 4.2.2.1.1.3.1 of the DEIS.

production. 16 Proposed project operation would reduce the amount of trout habitat and eliminate spillage over the dam much of the time and, therefore, preclude trout movement over the dam to the bypassed reach. Thus, the proposed non-irrigation season minimum flow would conflict with the management direction of the yield fishery, because trout recruitment and suitable trout habitat would not be maintained in the bypassed reach.

The DEIS recommended that CC maintain minimum flows of 58 cfs and 1,260 cfs in the irrigation and non-irrigation seasons, respectively, to protect the downstream fishery resources. 17 The DEIS also recommended a minimum flow of 300 cfs in the irrigation season to partially mitigate the cumulative adverse impacts to the resident trout and other resources. 18 Since the DEIS' 300 cfs recommendation to mitigate cumulative impacts superseded the 58 cfs minimum flow for fishery resource protection, the DEIS concluded that minimum flows of 300 cfs in the irrigation season and 1,260 cfs in the non-irrigation season were needed. Flows derived by the Tennant Methodology, 19 the stream resource maintenance flow study, 20 and the minimum flows recommended in the DEIS to protect the fishery resources in the bypassed reach during the non-irrigation season range from 720 cfs to 2,190 cfs.

Release of the above flows for fishery protection purposes during the irrigation season would interfere with irrigation and thus could have a severe impact on the farm-based economy of the area. Furthermore, the release of the flows recommended for the non-irrigation season would reduce generation and hence the revenues necessary to repair Milner Dam. We believe that the

16

Id.

17

See Section 4.2.2.1.2 of the DEIS.

18

See Section 6.1.2 of the DEIS.

19

D.L. Tennant, 1976, Instream flow regimes for fish, wildlife, recreation, and related environmental resources, Pages 359-373. In Orsborn, J. F., and C. H. Allman, (ed.), Proceedings of the Specialty Conference on Instream Flow Needs, Volume II, American Fisheries Society, Bethesda, Maryland.

20

T. Cochnauer, 1976, Stream Flow Investigation, Project F-9-R-1, Job I, evaluation of applicability of water surface profile predictive modeling in reference to stream resource maintenance flow (SRMF) determinations, Job II, stream resource maintenance flow determinations on the Snake River, Idaho Department of Fish and Game, Boise, Idaho. 44 pp.

need to protect irrigation usage and provide sufficient generation outweigh the need to protect the fishery resources. Accordingly, we will not require CC to release the flows referenced above. However, we are requiring CC, by Article 407, to release a target flow of 200 cfs.

The loss of trout habitat in the non-irrigation season is offset somewhat by eliminating the extreme low flows that have occurred during the irrigation season, thus allowing trout to use the bypassed reach more consistently. A stable flow of 200 cfs would slightly enhance the fishery resources by continually maintaining a limited amount of habitat that would occasionally be eliminated by the low flow events. Therefore, 200 cfs would probably maintain sufficient water quality to maintain a put-and-grow trout fishery in the bypassed reach. As just indicated, Article 407 requires CC to maintain a target flow of 200 cfs below Milner Dam. 21

The Snake River downstream of the proposed powerhouse would benefit from the 200 cfs target flow. Releases from Milner Dam would prevent the extreme low flow periods. In addition to the releases from Milner Dam, the incentive to operate the powerhouse would provide water to downstream areas that would not typically have occurred during the irrigation season. Therefore, the fishery resources downstream of the bypassed reach would benefit more than those in the bypassed reach.

4. Trout Fishery Enhancement

The primary source of trout to the bypassed reach is recruitment from upstream areas. As mentioned above, proposed operation would reduce spill from Milner Dam and eliminate much of this recruitment.

In order to mitigate for the decreased recruitment to the downstream Snake River fishery and the loss of trout habitat in the Snake River in the non-irrigation season, CC should institute a put-and-grow trout fishery 22 in the 1.6-mile-long bypassed reach of the Snake River. CC should consult with IDFG to determine the sizes and numbers of trout to stock and to determine the area or areas in which to stock the trout. CC should stock the trout in areas that provide easy and safe access

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The 200 cfs target flow is not a minimum flow, and CC does not have to release the flow unless water is available.

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The Idaho Fisheries Management Plan defines a put-and-grow fishery as one where the fish are expected to survive and grow and contribute to the fishery for a extended period of time.

for anglers. This would provide a high value recreational fishery in this area.

Article 408 requires CC to develop and to implement a put-and-grow trout fishery in the 1.6-mile-long bypassed reach of the Snake River. We conclude that developing this trout fishery would mitigate the lost trout habitat in the Snake River resulting from reduced flows and would mitigate the reduced fish recruitment to the bypassed reach. Enhancing the trout fishery in the bypassed reach through hatchery supplementation would not conflict with the management direction for this section of the Snake River as described in the Fisheries Management Plan.

There is the possibility that the stocked fish would move downstream with the current where they would no longer be available to the anglers or where they could perish due to insufficient habitat or poor water quality. Therefore, CC should conduct a study to determine if the trout move downstream and if the trout are surviving long enough, depending on water temperature and DO concentration, to remain available to anglers.

CC should file annual reports about the survival, growth, and movement of the trout and how the water quality at 200 cfs affects their survival, growth, and movement. If it is determined that the trout stocked in the bypassed reach are not surviving, are not growing sufficiently, or are moving out immediately, then CC should consider stocking trout in other areas of the Snake River such as the head of Milner Reservoir near Burley, Idaho. In conjunction with this study, the results from the water quality monitoring required by Article 404, particularly water temperature and DO, will provide valuable information to determine if 200 cfs provides conditions conducive for establishing a year round trout fishery.

We conclude that a five-year monitoring program would provide sufficient information to determine if the trout stocking program is successful. If the results indicate that the trout stocking program is not successful, the monitoring allows for changing the stocking rates, the size and species of trout stocked, and the stocking location. Article 409 requires CC to conduct a five-year trout monitoring study and to file annual reports on the results of each years studies.

C. Ramping Rate

Rapid alteration of streamflows during project startup would strand fish in the bypassed reach when submerged areas quickly drain, because of rapid decreases in the amount of water available to maintain existing habitat. To protect the fish and other aquatic resources from rapid, project-induced flow

reductions, the DEIS recommended that CC limit the maximum rate of change in the flow in the Snake River. 23

The ramping rate of one foot per hour recommended to protect whitewater boaters would also provide a measure of protection for fish and invertebrates inhabiting the bypassed reach. We believe that a one foot per hour ramping rate would adequately protect the fishery resources of the bypassed reach during project startup. Article 410 requires CC to implement a ramping rate of one foot per hour and to determine if this rate would adequately prevent stranding of fish and would protect the recreationists using the bypassed reach and downstream areas based on a site specific study. CC should consider structural measures during the design of the powerhouse(s) to facilitate implementing the ramping rate.

D. Raptor Protection

Transmission lines, particularly those in open, relatively treeless areas with few perching sites, may pose an electrocution hazard to raptors and other large birds. 24 Collisions with the lines may be an additional source of mortality. The U.S. Department of the Interior recommends that the project transmission line be designed and constructed to minimize these sources of avian mortality. CC has agreed to use an appropriate design to prevent electrocution of raptors. To ensure the protection of raptors and other large birds in the project area, Article 411 requires CC, after consultation with the fish and wildlife agencies, to design and construct the transmission line according to accepted guidelines for raptor protection.

E. Revegetation of Disturbed Upland Habitat

During construction of the proposed project, approximately 22 acres of upland shrub-grassland habitat would be disturbed. 25 CC proposes to reseed the disturbed areas with a mixture of grasses and native shrubs, but does not provide a detailed revegetation plan. As discussed in the DEIS, CC should develop and implement a detailed plan to revegetate disturbed upland areas, with the goal of establishing high quality wildlife habitat. 26 The plan, required by Article 412, should be developed in consultation with the appropriate agencies, and should contain, at a minimum, a description of plant species to

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See Section 4.2.2.1.2 of the DEIS.

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See Section 4.3.1.1 of the DEIS.

25

Id.

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See generally Section 4.3 of the DEIS.

be used, an implementation schedule, a description of planting methods, fertilization and irrigation requirements, and a monitoring program.

F. Wildlife Habitat Enhancement Structures

To enhance the project area for wildlife, CC proposes to: (1) construct two osprey nesting platforms in Milner reservoir; (2) develop artificial burrows for use by burrowing owls; and (3) construct an unspecified number of nesting structures for Canada geese in the project vicinity. CC does not, however, provide final designs, locations, and monitoring plans for these enhancement measures. The proposed measures, if successfully implemented, could enhance wildlife use of the project area. Therefore, Article 413 requires CC to provide a detailed plan for providing the proposed wildlife enhancement measures, including, at a minimum: (1) the final design of the goose nesting structures, osprey-nesting platforms, and burrowing owl burrows; (2) the location of the enhancement features; (3) a schedule for providing the enhancement features; and (4) a description of a program to monitor and maintain the enhancement features.

G. Replacement of Riparian Wetlands and Upland Habitat

Approximately 6.1 acres of riparian wetlands will be eliminated by project development. 27 CC has identified four sites totalling 18.2 acres along the project canal where wetlands could be created. Of those 18.2 acres, CC proposes to create 10.2 acres to satisfy the wildlife agencies' recommended 1.0 to 1.5 loss to replacement ratio for riparian wetlands. Construction would also result in the permanent loss of 26.6 acres of upland shrub-grassland, including 2.0 acres of BLM's isolated tract No. 23. The IDFG recommends that 26.6 acres of upland habitat, off-site if necessary, be developed and donated to IDFG as mitigation for upland losses. CC has agreed to replace lost upland habitat according to accepted IDFG guidelines.

Rather than develop another mitigative plan using upland habitat, possibly at an off-site location, we believe that it would be more beneficial to wildlife, as well as more practical, to provide additional riparian habitat in the immediate project area. Sufficient mitigation for both upland and wetland losses would be provided by adding 5.3 acres of riparian wetland habitat to the 18.2 acres of potential replacement habitat already identified by CC. This total of 23.5 acres of riparian wetland replacement habitat would include 13.3 acres for replacing 26.6 acres of lost upland habitat. This 1.0 for 2.0 ratio seems

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See Section 4.3.1.1 of the DEIS.

reasonable considering the much greater wildlife value of riparian wetlands, the wetlands comparative scarcity in the project area, and the high priority given to the protection of wetlands compared to upland habitat.

IDFG agrees with this approach for replacing upland habitat with riparian habitat. CC should have little difficulty providing the additional 5.3 acres by either enlarging the four sites already identified or by developing additional nearby sites along the canals or adjacent to Milner Reservoir. Article 414 requires CC to develop and maintain 23.5 acres of riparian wetland habitat to replace riparian wetlands and upland habitats lost to project development.

H. Socio-economic Considerations

The operation of the 85-year-old Milner Dam is essential for the diversion of Snake River flows to the three gravity canals that provide water to irrigate approximately 440,000 acres of agricultural land in south-central Idaho. 28 If Milner Dam were to fail during the yearly irrigation season, from April 1 through October 31, area farms that rely on the continuous delivery of water from the three canals would experience a major crop failure, because they would not be able to develop alternative irrigation systems in time to save their cultivated acreage.

Based on 1982 data collected by the Census of Agriculture, irrigated and harvested cropland in Twin Falls and Jerome Counties in Idaho produced agricultural sales of \$270 per acre. Thus, the loss of irrigation water for 440,000 acres would result in a \$118,800,000 revenue loss for the area's farm sector. Food processing establishments in south central Idaho, such as Universal Frozen Foods, Ore-Ida Foods, and Amalgamated Sugar Company, also would be adversely affected, since they would be unlikely to locate alternative economic sources of potatoes, beans, and sugar beets. Consequently, these companies would decrease their production and local employment. Moreover, employment cutbacks by the area's farms and food processing establishments would cause subsequent reductions in spending at area retail trade and service establishments, with a commensurate decline in their sales, employment, and profits.

I. Whitewater for Boaters

1. Flows

28 Personal communication, Dale Turnipseed, IDFG, Jerome, Idaho, November 28, 1988.

29 Twin Falls Canal Company and North Side Canal Company, Ltd., Response to DEIS, March 30, 1988.

In the 1.6-mile-long reach of the Snake River immediately below Milner Dam, expert whitewater boaters run continuous Class V rapids during high flows that occur in early spring and late fall. In 1986, about 200 visitor days of whitewater boating occurred in the Milner reach. Much of this use occurs in April and May when the weather is relatively warm and spring runoff is at its peak. The vast majority of boating use consists of kayaking; however, some rafting does occur. Boaters typically put in at a bridge located 0.5 miles downstream of Milner Dam and take out either 1.1 miles below the bridge where the Class V rapids end, or continue 7.0 miles downstream to a take-out point above Star Falls. Most boaters, however, choose to take out at the first location, since the stretch of river below this point is relatively calm, with only a few widely-spaced rapids.

Since the Milner reach has only become known to whitewater boaters within the past few years, the minimum flow needed to maintain the unique Class V experience has not been firmly established, although boaters generally prefer flows between 5,000 and 15,000 cfs. According to the BLM, at flows below 7,500 cfs, the reach is not runnable by rafts, but can be successfully run at flows of 3,000 cfs, or perhaps below, in a kayak. 30 The Class V experience is apparently completely changed at flows below 3,000 cfs, because many rocks are exposed, creating a whitewater run that can be negotiated only by kayakers skilled at technical maneuvering. 31

Because of the short length of the Milner reach, the whitewater experience found at certain flows at the Milner Project can be found in greater amounts on other sections of the Snake River and other Idaho rivers. For instance, the North Fork of the Payette River, near Boise, Idaho, provides several miles of continuous Class V rapids. In addition, the 14-mile Murtaugh reach of the Snake River, between Star Falls and Twin Falls Reservoir, provides a day-long Class IV-to-V whitewater run which has been compared favorably to the Colorado River. The Milner reach does not become a unique whitewater resource until very high flows occur (generally 10,000 cfs or above). The large volume of water at these high flows, concentrated in the narrow

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Personal communication, Jeff Jarvis, Outdoor Recreation Planner, BLM, Boise, Idaho, December 1, 1988; letter from Todd Graeff, Director, Idaho Department of Parks and Recreation, Boise, Idaho, October 10, 1988.

31

Letter from Delmar E. Vail, State Director, BLM, Boise, Idaho, January 20, 1987; personal communication, Jeff Jarvis, Outdoor Recreation Planner, BLM, Boise, Idaho, December 1, 1988.

gorge below Milner Dam, creates Class V waves that are internationally known among expert kayakers.

The DEIS recommended that bypass flows between 5,000 and 15,000 cfs, when available, be released on as many as 10 weekend days during May and June for whitewater boaters. Such flows would provide opportunities for expert kayakers to run the 1.6-mile-long Class V rapids below Milner Dam. Based on comments received on the DEIS from the IDWR and CC, and information gathered by the staff during a project site visit and public meetings held in August 1988, we agree that providing these flows at times when such flows are not made available by normal regulation of the storage and release patterns governing flows at Milner Dam would not be feasible.

Between April and October all water at Milner Dam appropriated for use by CC is diverted for irrigation. Providing flows between 5,000 and 15,000 cfs in May and June would require the entire irrigation system for the North Side Canal Company and Twin Falls Canal Company to be readjusted after each flow release. This would adversely affect water delivery to crops in the area. However, when flows exceed system requirements by the magnitude that would allow customary boating use below Milner Dam, such flows could be maintained when available to allow boaters to continue using this unique resource.

Table 1 below shows the occurrence of various whitewater flows both with and without project operation based on IDWR 56-year flow record for the Milner reach. Assuming that the minimum flow needed to boat the Milner reach is approximately 2,000 cfs, whitewater boating opportunities at Milner occur approximately 96 days per year during the boating season. However, project operation would reduce these opportunities by 60 percent, leaving approximately 38 days a year for whitewater boating.

Table 1. Average percent of Occurrence of Flows Below Milner Dam for March, April, May, June, October, and November, with average number of days at flow or greater.

Flow at least	6-month percentage	Number of days	With project 6-month percentage	With project number of days
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(cfs)	of occurrence	per year	of occurrence	per year
15,000	2.9	5.3	0.5	0.9
14,000	4.7	8.6	0.8	0.9
13,000	5.1	9.3	1.3	2.4
12,000	6.5	11.9	1.9	3.5
11,000	8.4	15.4	2.9	5.3
10,000	9.5	17.4	4.7	8.6
9,000	10.6	19.4	5.1	9.3
8,000	12.9	23.6	6.5	11.9
7,000	17.0	31.1	8.4	15.4
6,000	21.0	38.4	9.5	17.4
5,000	24.0	43.9	10.6	19.4
4,000	33.6	61.5	12.9	23.6
3,000	38.4	70.3	17.0	31.1
2,000	52.8	96.6	21.0	38.4

Although project operation would have an adverse effect on the total continuum of whitewater boating opportunities offered at Milner, from low flow technical kayaking to high flow Class V boating, it is important to note the impacts that project operation would have on the unique high flows (10,000 cfs and above). Flows of 10,000 cfs and above occur on the average about 17.4 days. With project operation, the occurrence of these flows would be reduced by almost half (49 percent), leaving about 8.6 days for boating at high flows. This represents a loss to boaters of approximately eight days (8.8 days).

Since these rare high flows are what make the Milner reach important to whitewater boaters, these flows should be preserved. This could be accomplished by requiring CC to stop operating the project on eight days when flows at 10,000 cfs or above are available. To ensure that these flows are available when boaters use the reach, they should be released during April and May for eight hours during daylight hours. Flows below 10,000 cfs, however, would be reduced during project operation. To help mitigate these impacts, when flow conditions available make it impossible for CC to meet their obligation of providing eight days of flows of 10,000 cfs or more, they should release flows between 4,000 and 10,000 cfs until their obligation is met. This would reduce project impacts on mid-range flows and ensure that whitewater flows would be available during years when high flows do not occur.

Article 415 requires CC, upon starting project operation, and in consultation with the appropriate agencies and whitewater boaters, to stop operating the project for eight hours on eight days in April and May when flows of 10,000 cfs or above occur.

Article 415 also requires CC to release flows between 4,000 and 10,000 cfs, when available, to meet its eight-day obligation when eight days of flows of 10,000 cfs or above do not occur during April and May.

Ceasing project operation at the above-mentioned times would result in a yearly loss to irrigators of \$8,400 in revenues generated by the project. To determine whether a better arrangement of flow could be provided to more closely match whitewater boater needs and to reduce the impact on project generation, Article 418 requires CC to conduct a study in consultation with the Idaho Whitewater Association (IWA), the National Park Service (NPS), BLM, the U.S. Bureau of Reclamation (BR), IDWR, and the Idaho Department of Parks and Recreation (IDPR). Since boaters may not spend an entire day on the river, it is possible that higher whitewater flows could be maintained in the bypassed reach for less than eight hours according to boaters needs as long as CC meet their obligation for providing the equivalent of eight eight-hour days of project shutdown at flows of 10,000 cfs or above.

To protect downstream recreationists from sudden increases in water level and streamflow, water levels in the project bypassed reach should not increase by more than one foot per hour when providing releases for whitewater boating. In addition, a warning system must be implemented in order to alert recreationists of hazardous situation created by increases in flow. A ramping rate and a warning system would allow fishermen and other recreationists below the dam to have enough time to leave the area before water levels and velocities become unsafe. Article 410 requires CC to file for Commission approval a plan for implementing ramping rates that would ensure the protection of fish resources and downstream recreationists. Article 416 requires CC to file a plan for Commission approval to warn recreationists of increases in water level and streamflow downstream of the dam.

2. Communication Network for Whitewater Boaters

In their March 30, 1988 response to the DEIS, CC proposed to develop a communication network that would quickly inform recreationists of anticipated flow conditions below Milner Dam. Under existing conditions, high flows occur rarely and are unpredictable for boaters. A communication network would partially mitigate for the loss of whitewater boating days caused by project operation by giving boaters more opportunity to plan boating trips to coincide with desirable flows. Article 418 requires CC, after consultation with BR, IDWR, IDPR, BLM, NPS, and IWA, to file for Commission approval a plan to provide a communication network to inform whitewater boaters of available whitewater flows.

J. Fishing Access to the Bypassed Reach

We believe that CC should study the feasibility of stocking the project bypassed reach with trout to provide new opportunities for fishing at the project site. A program to inform the public of fishing opportunities at the project site would be needed since presently the Milner reach receives minimal fishing use. Also, access to be provided at the powerhouse and at the bridge below Milner Dam could attract additional fishing use to the project bypassed reach. To ensure that anglers are adequately informed of fishing opportunities in the bypassed reach, Article 408 requires CC to file for Commission approval a plan that includes notification of anglers of fishing opportunities.

K. Recreation Facilities

CC initially proposed to construct the following recreational facilities: (1) a parking area to accommodate 10 vehicles at the powerhouse; (2) kayaker access at the powerhouse; and (3) a boat dock near the existing boat dock at the BLM's Bicentennial Site on Milner Reservoir. In their March 30, 1988 filing, however, CC proposed for consideration additional facilities. These include: (1) an interpretive center with associated picnic facilities at or near Milner Dam, or an alternate location; (2) an additional water ski dock or docks in Milner Reservoir near Milner Dam; (3) further development of public facilities at the BLM Wildlife Habitat Management area; or (4) other better suited public facilities selected as a result of the consultation process.

Since the construction of the project would provide an opportunity to enhance recreation near Milner Dam, some additional facilities should be provided to allow access for whitewater boaters and fishermen. Other facilities mentioned above, however, may not be needed at this time.

Article 419 requires CC to file for Commission approval a recreation plan prepared in consultation with the IDPR, BLM, NPS, and IWA, that includes, but is not limited to: (1) provisions for a kayaker put-in area at the bridge below Milner Dam and a take-out area below the powerhouse with parking facilities; (2) tailwater fishing facilities; (3) design drawings of the proposed facilities; (4) a construction schedule for the facilities; (5) a plan for monitoring recreational use in the project area to determine if additional recreational facilities will be needed in the future; and (6) documentation of agency consultation. Article 419 also requires that CC, in designing these facilities, consider providing the whitewater take-out area below the final Class V rapid below the powerhouse area and away from tailwater

fishing facilities. This would avoid boater interference with fishermen and allow boaters to run an additional Class V rapid.

L. Visual Resource Mitigation

Milner Dam and its associated proposed facilities are visible to visitors to the dam site interpretive area as well as from water users on the river and reservoir. The proposed dam and canal modifications would blend with the existing landscape.

The power generating facilities would be located in an area out of view of Milner Dam and in a visually natural setting within the canyon. The naturalness of the canyon walls is a great asset that should be maintained throughout the installation and operation of the proposed project. The proposed access road to the powerhouse site would cross steep canyon side slopes and its construction would entail earth and rock cuts and fills that would create a linear element in the natural appearing landscape. The proposed penstock would cross over the canyon rim and drop nearly vertical to the powerhouse at the river's edge. This large pipe, with its smooth surfaces, would reflect light and contrast in color, texture, and line, with the existing natural appearing landscape. The proposed powerhouse, substation, transmission line, gantry crane, and tailrace would also contrast with the natural appearing landscape because of their geometric forms. In particular, the transmission line from the powerhouse to the forebay would create a linear element contrasting with the canyon walls.

CC should study the feasibility of placing the transmission line either underground or in a conduit attached to the penstock from the powerhouse to the forebay area. Therefore, to ensure that the proposed facilities are designed to minimize visual impacts, Article 420 requires CC to submit final construction plans and specifications prior to the commencement of any project-related land-disturbing activities.

M. Cultural Resources

Three historic sites listed or considered eligible for inclusion in the National Register of Historic Places are located within or near the impact areas of the project. The listed site is Milner Dam. The eligible sites are the South Side Main Canal and Milner Townsite. Six archeological sites have also been identified in the project vicinity. Based on a review of the archeological report for the project, and a site visit to the project area, the Idaho State Historic Preservation Officer (SHPO) has stated that the sites either are not eligible for inclusion in the National Register or lie outside the area of

potential impacts. 33 Project construction and rehabilitation of the Dam would require modifications to the dam and the canal. No construction or rehabilitation work would occur in the area of the Townsite.

CC has filed a cultural resources management plan, prepared in cooperation with the SHPO, to mitigate the project's effects on the dam and the canal and to ensure that the townsite would not be affected by construction or rehabilitation work. The plan proposes to document in photographs, drawings, and in a report, according to the standards of the Historic American Engineering Record (HAER), the portions of the dam and the canal that would be altered by the project. The plan proposes to fence portions of the townsite and to prohibit construction activities in the vicinity of the townsite to ensure that no impacts to this site would occur. 34

The SHPO reviewed the plan and stated the following: (1) the plan minimizes impacts to the dam and the canal and ensures that the townsite would not be impacted; (2) rehabilitation work would not affect the original historical fabric of the dam; (3) this work would not significantly effect the appearance of the dam; and (4) the plan satisfies the historic preservation requirements for consultation with the Advisory Council on Historic Preservation, as required by the National Historic Preservation Act. 35

The U.S. Department of the Interior (Interior) also reviewed the cultural resources management plan and the cultural resources documentation contained in the application for license, and generally concurs with the plan and the findings of the SHPO. Interior recommends certain revisions to the plan and the cultural resources documentation to ensure that the plan is implemented in a satisfactory manner and that the documentation is complete. Specifically, Interior recommends these actions:

33

Letters from Dr. Thomas Green, State Archeologist, Idaho State Historical Society, Boise, Idaho, May 17, 1984; and John A. Rosholt, Attorney for Twin Falls Canal Company and North Side Canal Company, Ltd., Nelson, Rosholt, Robertson, Tolman & Tucker, Twin Falls, Idaho, February 11, 1986.

34

Letter from John A. Rosholt, Attorney for Twin Falls Canal Company and North Side Canal Company, Ltd., Nelson, Rosholt, Robertson, Tolman & Tucker, Twin Falls, Idaho, February 11, 1986.

35

Letter from Dr. Merie W. Wells, State Historic Preservation Officer, Idaho State Historical Society, Boise, Idaho, February 4, 1986.

(1) completing documentation of the dam, canal, and townsite in accordance with National Register eligibility criteria before determining the specific HAER documentation or avoidance procedures that should be implemented, to ensure that documentation and procedures are directed at the significant historical attributes of these sites; (2) surveying the townsite to precisely determine the boundaries of the site, to ensure that the site is not impacted; (3) avoiding the use of fencing at the townsite so as not to draw the attention of artifact collectors or vandals; and (4) providing further documentation on one archeological site (10-TF-641) to clearly establish that the site is not eligible for inclusion in the National Register. 36

To ensure that the dam, canal, and townsite are documented and protected in an adequate manner and that the cultural resources documentation of site 10-TF-461 is complete, CC should consult with the SHPO, and also the HAER in the case of the dam and canal, to determine the specific procedures that should be implemented, and should implement the plan with Interior's recommended revisions before beginning land-disturbing or land-clearing activities that would impact these sites. The documentation should be filed in a report or in separate reports, if the documentation or avoidance procedures are undertaken at different times, and filed with the Commission for approval. The reports must contain a letter from the SHPO accepting the documentation and procedures for avoiding impacts. In the case of the dam and the canal, letters from the HAER accepting the documentation must also be included. No rehabilitation work or other construction work at the dam or canal or within the vicinity of the townsite and the archeological site may commence until CC are notified by the Commission that the filing has been approved. Article 421 requires implementation of the revised plan.

The project has the potential to impact archeological and historic sites not previously identified at the project. Buried sites may be encountered during construction. Also, project facilities may be relocated or added to the project at some future date in areas not previously inventoried for sites. Any such archeological or historic sites should be afforded protection in accordance with the National Historic Preservation Act. Article 422 requires the implementation of cultural resources protection measures to avoid or minimize impacts to any such sites that may be impacted by the project. Article 421

36

Letters from Bruce Blanchard, Director, Environmental Review, Department of the Interior, Washington, D.C., December 17, 1985; and Helene Dunbar, Acting Chief, Interagency Archeological Services, National Park Service, San Francisco, California, February 4, 1986.

requires CC to finalize and implement its cultural resources management plan in a manner acceptable to the Advisory Council on Historic Preservation.

N. Cumulative Impacts

Cumulative impacts of the four proposed projects, including the Milner Project No. 2899, will be fully assessed in the Supplement and FEIS to take into consideration any changes that occur between the DEIS and the FEIS in configuration, operation, and mitigative measures associated with the other three projects. Standard Articles 15 and 17 of the license 37 reserve sufficient authority for the Commission to order reasonable modifications of the project structures and operations to take into account recommendations made in accordance with the NEPA process.

IV. Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the FPA, as amended by the Electric Consumers Protection Act of 1986 (ECPA), Pub. L. No. 99-495, requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The concerns raised by the federal and state fish and wildlife agencies have been fully addressed in the DEIS, and the conditions contained in this license are consistent with the recommendations made by those agencies.

V. Comprehensive Plans

Section 10(a)(2)(A) of the FPA, as amended by ECPA, requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans (where they exist) for improving, developing, or conserving a waterway or waterways affected by the project. The Commission's interpretation of "comprehensive plan" under Section 10(a)(2)(A) 38 was revised on rehearing by order issued April 27, 1988. 39 On rehearing, the Commission instructed the Director, Office of Hydropower Licensing, to request the state and federal agencies to file plans they believe meet the revised guidelines.

37

See Ordering Paragraph (D) hereof.

38

Order No. 481, 52 Fed. Reg. 39,905 (October 26, 1987), 111 FERC Stats. & Regs. 30,773 (1987).

39

Order No. 481-A, 43 FERC 61,120 (April 27, 1988).

The Commission reviewed five plans that address various aspects of waterway management in relation to the proposed project. 40 With one exception, the proposed project, as conditioned herein, is consistent with those plans.

The Idaho State Water Plan (ISWP) is a Section 10(a)(2)(A) comprehensive plan. In its September 25, 1985 motion to intervene in this proceeding, IDWR indicated that the ISWP specifies that the use of water by hydroelectric projects must be subordinated to future upstream depletionary uses and requested that such a provision be included in any license issued for Project No. 2899. IDWR did not, however, provide any information regarding the timing and extent of those future depletionary uses or how such uses would affect the operation of Project No. 2899.

As we explained in Horseshoe Bend Hydroelectric Company, 41 in determining whether, and under what conditions, a license should issue, we are required by the comprehensive planning provision of Section 10(a)(1) of the FPA, 18 U.S.C.

803(a)(1), to consider and balance all aspects of the public interest, including the need to protect environmental and irrigation interests and the need for the power to be produced by the project. In so doing, we prescribe conditions that we believe will provide the appropriate level of energy generation and protection for the environment and irrigation and will not issue a license if the conditions we deem necessary to protect environmental and other resources would render a project financially infeasible.

Inclusion in the license of the unsupported open-ended water subordination clause requested by IDWR would in essence vest in IDWR, rather than the Commission, ultimate control over the operation and continued viability of the project. In other words, the subordination clause, which would reserve to IDWR the right to permit unlimited diversion upstream of the project, could nullify the balance struck by us under the comprehensive planning provisions of Section 10(a)(1) of the FPA in issuing the license. Consequently, inclusion of the open-ended water subordination clause in the license as requested by IDWR would interfere with the exercise of our comprehensive planning

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Idaho Statewide Comprehensive Outdoor Recreation Plan, 1983, IDPR; Idaho State Water Plan, 1986, IDWR; Idaho Fisheries Management Plan, 1986, IDFG; and Northwest Conservation and Electric Power Plan, 1986; and Columbia River Basin Fish and Wildlife Program, 1987.

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42 FERC 61,072 (1988), appeal pending sub nom. Idaho Power Company v. FERC, No. 88-1078 (D.C. Cir. filed Feb. 3, 1988).

responsibilities under Section 10(a)(1) of the FPA and thus would be inconsistent with the scheme of regulation established by the FPA, which vests in the Commission the exclusive authority to determine whether, and under what conditions, a license should issue. 42

In light of the above, we will not add the requested open-ended subordination clause to the license for Project No. 2899. However, as we explained in Horseshoe Bend, should IDWR in the future determine that it would be desirable for CC to reduce their use of water for generation to accommodate a specific future upstream water use, IDWR can petition the Commission to have us exercise our reserved authority under Standard Article 12 of the license to require such a reduction. We will provide CC with notice of the request and an opportunity to respond and will act on the request after considering all supporting documents and information submitted by IDWR and CC.

The proposed project is otherwise consistent with the ISWP. The ISWP provides for a zero minimum flow below Milner Dam. The license as conditioned herein is consistent with the zero minimum flow provision of the ISWP, since the license would not require that minimum flows be provided below Milner Dam. Instead, it requires CC to provide any additional water needed to meet the environmentally-desirable target flows by leasing water that is in excess of irrigation requirements from the Water Bank, but only if available, and in accordance with the rules of the Water Bank operation.

The Columbia River Basin Fish and Wildlife Program (Program), developed by the Northwest Power Planning Council (Council) to protect, mitigate, and enhance fish and wildlife resources associated with the development and operation of hydroelectric projects within the Columbia River Basin is a Section 10(a)(2)(A) comprehensive plan. 43 Responsible federal agencies are required to provide equitable treatment for fish and wildlife resources, consistent with the other purposes for which hydropower is developed and to take into account to the fullest extent practicable the Program.

The Program directs agencies to consult with federal and state fish and wildlife agencies, appropriate Indian Tribes, and the Council during the study, design, construction, and operation of any hydroelectric development in the Basin. At the time the application for Project No. 2899 was filed, the Commission's

42

See First Iowa Hydro-Electric Coop. v. FPC, 328 U.S. 152 (1946).

43

See 43 FERC 61,120 (1988).

41

regulations required applicants to initiate pre-filing consultation with the appropriate federal and state fish and wildlife agencies and the Tribes and provided these groups with post-filing opportunities to review and to comment on the application. This consultation process has occurred.

The Program states that authorization of new hydroelectric projects should include conditions of development that would mitigate the impacts of the project on fish and wildlife resources. The relevant federal and state fish and wildlife agencies have reviewed and commented on the application. In addition, this license provides for mitigative measures to protect and enhance fish and wildlife resources and is therefore consistent with Section 1200 of the Program. Further, Article 423 of this license reserves to the Commission the authority to require future alterations in project structures and operation in order to take into account to the fullest extent practicable the applicable provisions of the Program:

VI. Project Economics and Need for Power

Commission studies show that the proposed project, operating under its proposed mitigation requirements, would produce approximately 144,300 MWh of energy annually at a levelized cost of about 61.5 mills/kWh. When compared to the levelized cost of alternative energy in the region of about 85 mills/kWh, the levelized net annual benefits of the project power would be approximately \$3.4 million. CC's levelized revenues under the terms of their power sales contract are expected to be about \$452,000 annually, which would be a significant contribution to their projected financing obligation for the Milner Dam rehabilitation.

The project is financially feasible, because CC have executed a contract for the sale of the project power which obligates the power purchaser to pay the total costs plus two mills/kWh for the project generation, to be escalated by 20 percent every five years.

As discussed in the attached S&DA, a need for power could exist in the region any time from the early 1990s to late 1990s, and that the Milner Project could be useful in meeting a small part of that need for power.

VII. Summary of Findings

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

As discussed previously and in the attached S&DA, the 200 cfs target flow required by Article 407 would: (1) not jeopardize the feasibility of the project development; (2) provide flows below Milner Dam without sacrificing irrigation water requirements; and (3) reduce CC's annual power revenues, which will be used to help offset the cost of the Milner Dam rehabilitation, by only \$13,300 (less than four percent). Thus, the requirement to lease water in excess of irrigation requirements to meet mitigation flow requirements is reasonable, because water is projected to be available for purchase from the Water Bank at a reasonable price that would not eliminate the economic benefits of the project or jeopardize CC's ability to secure financing for the project. Additionally, the target flow may be necessary for the maintenance of a marginal cold-water fishery in the river reach below Milner Dam.

Based on our independent analysis, we conclude that the Milner Project No. 2899 as conditioned herein would not conflict with any planned or authorized development and would be best adapted to comprehensive development of the waterway for the beneficial public uses specified in Sections 4(e) and 10(a)(1) of the FPA.

The Commission orders:

(A) This license is issued to the Twin Falls Canal Company and the North Side Canal Company, Ltd. (licensees), for a period of 50 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Milner Hydroelectric Project No. 2899. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

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

Exhibit G-	FERC No. 2899-	Showing
General Map	1	13
Project Boundary Map	2	14
Project Boundary Map	3	15
Project Boundary Map	4	16

Project Boundary Map

5

17

(2) Project works consisting of: (a) the existing Milner Dam, constructed with a trapezoidal-shaped rockfill section at elevation 4,138 feet, the north embankment with a crest length of 480 feet, the middle embankment with a crest length of 404 feet, and the south embankment with a crest length of 462 feet, proposed 15-foot-wide rockfill berms on the downstream slope of the dam, eleven 12-foot-high, 30-foot-wide radial gates proposed for the southern island, and an ungated emergency spillway on the northern island; (b) the existing 1,100-acre reservoir with a gross storage capacity of 26,000 acre-feet at an elevation of 4,130.08 feet; (c) a canal control structure, consisting of six manually-operated gates, 12-foot-wide by 15-foot-high, and one hydraulically operated bascule gate, 24-foot-long by 11-foot-high; (d) new stoplog slots, replacing the existing headworks; (e) a 8,500-foot-long, earth and riprap-lined excavated rock canal, modified to increase the canal capacity from 3,200 cfs to 7,000 cfs; (f) an existing bridge on the Twin Falls Main Canal, raised to an elevation of 4,137.5 feet and lengthened by 50 feet; (g) a new concrete wasteway, providing a water passageway through the right canal embankment of the Twin Falls Main Canal, having a 38-foot-long, 10.5-foot-high, hydraulically operated bascule gate; (h) a forebay, having a maximum capacity of 4,000 cfs; (i) an intake structure at the end of the forebay, consisting of steel trashracks and a 14-foot-wide, 17-foot-high, cable-operated, fixed-wheel gate; (j) a 17-foot-diameter, 385-foot-long steel penstock; (k) an 89-foot-long, 56-foot-wide, 83-foot-deep, semi-outdoor, reinforced concrete powerhouse, containing a single generating unit with a rated capacity of 43.85 megawatts, operating under a head of 151.6 feet; (l) a 170-foot-long tailrace; (m) a 2,300-foot-long access road; (n) a 1.4-mile-long, 138-kilovolt transmission line, tying into the existing Milner substation; (o) 600 feet of river bottom excavation; and (p) appurtenant facilities.

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

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

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

(D) This license is subject to the articles set forth in Form L-2 (October 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States," except Article 20, and the following additional articles:

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

(a) For the purpose of reimbursing the United States for the cost of administration of Part I of the FPA, a reasonable amount, as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 58,200 horsepower.

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

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

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

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

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

Article 301. The licensees shall begin construction of the project works within two years from the issuance date of the license and shall complete construction of the project within four years from the issuance date of the license.

Article 302. To ensure completion of construction of the dam safety modifications during the 1989 construction season, the licensees shall file a plan and schedule for the design and construction of the dam safety modifications within 30 days from the issuance date of the license. The plan shall include specific items for activities that are necessary before beginning construction activities.

Article 303. Within 90 days after completion of construction, the licensees shall file for the Commission's approval, revised Exhibits A, F, and G, to describe and show the project as-built, including all facilities determined by the Commission to be necessary and convenient for transmitting all of the project power to the interconnected system.

Article 304. Before the start of construction, the licensees shall review and approve the design of contractor-designed cofferdams and deep excavations and shall ensure that construction of the cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of the cofferdam, the licensees shall submit to the Commission's Regional Director and to the Director, Division of Dam Safety and Inspections, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

Article 305. The licensees shall retain a board of two or more qualified, independent, engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the board members shall be submitted for approval to the Director, Division of Dam Safety and Inspections, with a copy to the Commission's Regional Director. Among other things, the board shall assess the following: the geology of the project site and surroundings, the design, specifications, and construction of the reinforcement berms, canal embankments, spillway, powerhouse, electrical and mechanical equipment, and emergency power supply; instrumentation; and construction procedures and progress. Before each meeting, allowing sufficient time for review, the licensees shall furnish to the board, with a copy to the Regional Director and two copies to the Director, Division of Dam Safety and Inspections, the following: documentation showing details and analyses of design and construction features to be discussed; significant events in design and construction that have occurred since the last board of consultants' meeting; drawings; questions to be asked; a list of items for discussion; an agenda; and a statement showing the specific level of review to be performed by the board. Within 30 days after each board of consultants meeting, the licensees shall submit to the Commission copies of the board's report, including the board's recommendations and the licensees' plans for addressing the recommendations.

Article 306. At least 60 days before the start of construction of each major component of the project, such as the dam rehabilitation, spillway reconstruction, all necessary transmission facilities, powerhouse, and water conveyance structures, the licensees shall submit for that component, one copy to the Commission's Regional Director and two copies to the Director, Division of Dam Safety and Inspections, of the final design report, contract drawings and specifications. The Director, Division of Dam Safety and Inspections, may require changes in the plans and specifications to assure a safe and adequate project.

Article 307. The licensees shall develop procedures for the repair of the earthfill sections of Milner Dam in the event there

is excessive leakage. The licensees shall include procedures for the following items: inspection; reservoir drawdown; cofferdam construction; earth embankment repair methods; and other pertinent items. The repair procedure shall be reviewed and approved by the board of consultants required in Article 305. Within one year of issuance of the license, the licensees shall submit one copy to the Commission's Regional Director and two copies to the Director, Division of Dam Safety and Inspections, of a report detailing the procedures. The Director, Division of Dam Safety and Inspections, may require changes in the procedures to assure a safe and adequate project.

Article 308. Within one year of issuance of this license, the licensees shall submit a report evaluating the feasibility of constructing a power plant at Milner Dam to utilize the power potential of the flows released to the bypass reach of the river below the dam and therefore not usable by the proposed power plant to be located approximately 1.6 miles downstream. If the feasibility study shows that developing a power plant at the dam would be economically beneficial, the licensees shall submit a schedule and plans for developing a power plant at the dam in accordance with Article 301.

Article 401. The licensees shall acquire at the earliest possible date each year, by rental on an annual basis from the Upper Snake Water Supply Bank, stored water, to the extent that it is available in excess of irrigation demand, to be released as necessary to meet the target flows specified in Article 407. The licensees may, and are encouraged to, formulate an agreement with any and all of the licensees for projects which, in the future, are licensed to be constructed and operated on the Snake River below American Falls Dam and which have similar requirements to meet recommended flows from short-term water acquisition.

Article 402. The licensees, after consultation with the Soil Conservation Service, the Bureau of Land Management, and the Idaho Department of Fish and Game, and at least 90 days before beginning any project-related land-clearing, land-disturbing, or spoil-producing activities, except for activities specifically required for safety modifications to Milner Dam, shall prepare and file for Commission approval a plan to control erosion, slope stability, and to minimize the quantity of sediment resulting from project construction and operation. The Commission reserves the authority to require changes to the plan.

The plan shall be based on actual-site geological, soil, and groundwater conditions and final project design, and shall include the following: (1) a description of the actual-site conditions; (2) cofferdams, perimeter control measures, measures to divert runoff around disturbed land surfaces and to collect and filter runoff, provisions for energy dissipation, riprap,

measures to stabilize rock cuts, and permanent drainage for access roads; (3) detailed descriptions, functional design drawings, and specific topographic locations of all control measures; (4) specific details of the revegetation plan, including species composition, planting or seeding rates, fertilizer, and mulch; (5) provisions to dispose of spoil materials above the high water mark and store fuels and chemicals used in construction away from the river and reservoir; (6) a specific implementation schedule and details of monitoring and maintenance programs for project construction and operation; and (7) a schedule for periodic review of the plan and for making any necessary revisions to the plan.

The licensees shall include in the filing documentation of consultation with the agencies, copies of agency comments or recommendations on the plan, and specific descriptions of how all of the agency comments and recommendations are accommodated by the plan. The licensees shall allow a reasonable time frame, in no case less than 30 days, for agencies to comment and make recommendations prior to filing the plan.

No project-related land-disturbing, land-clearing, or spoil-producing activities shall begin until the licensees are notified that the plan complies with the requirements of this article, except for activities specifically required for safety modifications to Milner Dam. The licensees shall submit with the plans and specifications required by Article 308 for safety modifications to Milner dam, measures to minimize erosion, sedimentation, and control slope stability.

Article 403. The licensees, after consultation with the Environmental Protection Agency, the Idaho Department of Health and Welfare, the U.S. Fish and Wildlife Service, and the Idaho Department of Fish and Game, and at least 90 days before commencing any project related land-clearing, land-disturbing, or spoil-producing activities within the Snake River and Milner reservoir, shall file for Commission approval, a monitoring plan to conduct tests for heavy metals and other toxic substances in any sediments or other unconsolidated deposits in the Snake River and in Milner reservoir that would be removed or otherwise disturbed by dredging, constructing, or operating project facilities and to safely remove and dispose of any sediment and unconsolidated deposits containing heavy metals or toxic substances. The plan also should include an implementation schedule for the monitoring and comments of the consulted agencies on the monitoring plan and implementation schedule. The filing shall include documentation of agency consultation and any agency comments and recommendations on the plan. The Commission reserves the right to require changes to the plan. The licensees shall not commence any land-clearing or land-disturbing

activities within the Snake River and Milner reservoir until the Commission approves the plan.

Article 404. The licensees, after consultation with the Environmental Protection Agency, the Idaho Department of Health and Welfare, the U.S. Fish and Wildlife Service, and the Idaho Department of Fish and Game, and at least 90 days before beginning project operation, shall file for Commission approval, a water quality monitoring plan that would characterize levels of dissolved oxygen (DO) and water temperature in the bypassed reach from immediately below Milner dam to immediately above the powerhouse discharge during project operation. The plan shall describe in detail the methods and shall identify the time periods and locations for collecting water temperature and DO data, and shall include a schedule for providing the data to the consulted agencies and to the Commission. Further, the plan shall include a provision to determine if water temperature and DO necessary for the survival of a trout fishery within the bypassed reach are being maintained by the target flow required by Article 407. The filing shall include documentation of agency consultation and agency comments on the plan. The Commission reserves the right to require changes to the plan. The licensees shall not begin project operation until the Commission approves the plan.

Article 405. The licensees, after consultation with the Idaho Department of Fish and Game, shall develop, implement, and finance a warmwater fish stocking and habitat enhancement plan consistent with the Idaho Fisheries Management Plan 1986-1990 for Milner reservoir. The plan shall include the species of warmwater fish, numbers and sizes to be stocked, a description of specific enhancement structures, and a map showing the proposed locations of these structures in the reservoir. The licensees shall file the plan with the Commission for approval at least 90 days before beginning commercial operation. The licensees shall give the Idaho Department of Fish and Game at least 30 days to comment on the stocking and habitat enhancement program plan. The filing shall include documentation of agency consultation and any agency comments and recommendations. The Commission reserves the right to require modifications to the plan. The licensees shall not commence commercial operation until the Commission approves the plan.

Article 406. The licensees, after consultation with the Idaho Department of Fish and Game, shall develop a monitoring plan to determine if the habitat enhancement structures placed in Milner reservoir have remained in place and are functioning as desired and to determine if additional warmwater fish need to be stocked in Milner reservoir, required by Article 405, to meet the Fisheries Management Plan goal. The licensees shall conduct the monitoring plan for at least five years. The monitoring plan

shall include a schedule for filing the results of the monitoring and the comments of the Idaho Department of Fish and Game on the results and shall include recommendations for incorporating additional enhancement measures or stocking additional warmwater fish if needed. The licensees shall file the plan with the Commission for approval at least 90 days before beginning commercial operation. The filing shall include documentation of agency consultation and any agency comments and recommendations. The Commission reserves the right to require modifications to the plan. The licensees shall not commence commercial operation until the Commission approves the plan.

Article 407. The licensees shall discharge from Milner Dam a target flow of 200 cubic feet per second as measured at the Milner gage located in the bypass reach. The target flow may be temporarily reduced if required by operating emergencies beyond the control of the licensees or for short periods upon mutual agreement between the licensees and the Idaho Department of Fish and Game. Further, the target flow may be reduced if necessary during any periods where sufficient water is not available through lease from the Upper Snake Water Supply Bank in accordance with Article 401, or from water surplus to irrigation needs.

Article 408. The licensees, after consultation with the Idaho Department of Fish and Game, shall develop a plan to stock trout in the 1.6-mile-long bypassed reach of the Snake River. The plan must include the following: (1) stocking location(s); (2) the number, species, and size of trout to be stocked each year; (3) the estimated annual cost of implementing the program; (4) a communication network to inform anglers of the stocking dates and locations; and (5) the comments of the Idaho Department of Fish and Game on the program. The licensees shall file the plan with the Commission for approval at least 90 days prior to commencing commercial operation. The Commission reserves the right to require modifications to the plan. The licensees shall not commence commercial operation until the Commission approves the plan.

Article 409. The licensees, after consultation with the Idaho Department of Fish and Game, shall file a study plan for Commission approval, at least 90 days prior to commencing commercial operations, to determine if the put-and-grow trout fishery in the bypassed reach, required by Article 408, is successful. The plan shall include provisions for filing annual reports by December 31 of each year on the put-and-grow trout stocking program. The annual report shall include information on the growth, movement, and survival of the trout planted in the bypassed reach, water temperature and DO data collected pursuant to Article 404, and an evaluation of the effects of water temperature and DO on the stocking program and the comments of

the Idaho Department of Fish and Game on the results. The licensees shall give the Idaho Department of Fish and Game at least 30 days to comment on the results of the stocking program prior to filing the annual report. The licensees shall conduct the monitoring program for at least five years and file a final comprehensive report on the success of the stocking program and any recommendations for changing the stocking program, including at a minimum stocking new locations or changing the stocking rate. The Commission reserves the right to require modifications to the trout program based on the monitoring results. The licensees shall not begin commercial operation until the Commission approves the plan.

If the results of the annual monitoring or after the five-year study period show that changes to the stocking program are needed, the licensees also shall file for Commission approval a schedule for implementing the changes to the program along with the comments of the Idaho Department of Fish and Game on the recommended changes. The Commission reserves the right to require modifications to the recommendations for changing the stocking program.

Article 410. The licensees shall limit the maximum rate of change in river elevation (ramping rate) to one foot per hour or less for the protection of aquatic resources and downstream recreationists. Further, the licensees, after consultation with the Idaho Department of Fish and Game and the Idaho Department of Parks and Recreation, shall conduct a ramping rate study after the project is operational. The study shall determine if the one foot per hour rate of change in the Snake River's elevation provides adequate protection for the aquatic resources in the bypassed reach during project startup and to protect downstream recreationists when increasing and decreasing flows. The licensees shall file the results of the study along with any recommendations for changing the ramping rate for Commission approval within one year after the project is operational. Agency comments on the study and any proposed changes to the ramping rate shall be included with the filing. The Commission reserves the right to require modifications to the proposed ramping rate.

Article 411. The licensees shall design and construct the transmission line in accordance with guidelines set forth in "Suggested Practices for Raptor Protection on Power Lines--the State of the Art in 1981," by Raptor Research Foundation, Inc. The licensees after consultation with the U.S. Fish and Wildlife Service, the Idaho Department of Fish and Game, and the Bureau of Land Management in adopting these guidelines shall develop and implement a design that will provide adequate separation of energized conductors, groundwires, and other metal hardware, adequate insulation, and any other measures necessary to protect

raptors from electrocution hazards. Within 90 days after completion of construction of the transmission line, the licensees shall file as-built drawings of the transmission line design with the Commission.

Article 412. The licensees, after consultation with the U.S. Fish and Wildlife Service, the Idaho Department of Fish and Game, the Bureau of Land Management, and the Soil Conservation Service, and at least 90 days prior to commencing any land-disturbing, land-clearing, or spoil-producing activities not specifically required for safety modifications to Milner Dam, shall file for Commission approval a plan to revegetate all disturbed areas with native plant species beneficial to wildlife. The plan shall include at a minimum: (1) a description of the plant species to be used, an indication of each species habitat value and food value, and planting densities; (2) planting methods; (3) fertilization and irrigation requirements; (4) a monitoring program to evaluate the effectiveness of the plantings; (5) a description of procedures to be followed if monitoring reveals that the revegetation is not successful; and (6) an implementation schedule that provides for the revegetation as soon as practicable after completion at a particular site and the filing of periodic monitoring reports. Agency comments shall be included on the filing. The Commission reserves the right to require changes to the plan. The licensees shall not begin any land-clearing or land-disturbing activities not specifically required for safety modifications to Milner Dam until the plan is approved by the Commission.

Article 413. The licensees, after consultation with the U.S. Fish and Wildlife Service, the Idaho Department of Fish and Game, and the Bureau of Land Management, and at least 90 days before beginning any project-related land-clearing or land-disturbing activities not specifically required for safety modifications to Milner Dam, shall file for Commission approval a plan for constructing, maintaining, and monitoring osprey nesting platforms, Canada goose-nesting structures, and artificial burrows for burrowing owls (wildlife enhancement features) in the project area. The plan shall include at a minimum: (1) the final designs for the wildlife enhancement features; (2) the number and location of the wildlife enhancement features; (3) a schedule for providing the wildlife enhancement features; (4) a program for maintenance and monitoring. Agency comments on the adequacy of the plan shall be included in the filing. The Commission reserves the right to require changes to the plan. The licensees shall not commence any land-clearing or land-disturbing activities not specifically required for safety modifications to Milner Dam, until the plan is approved by the Commission.

Article 414. The licensees, after consultation with the U.S. Fish and Wildlife Service, the Idaho Department of Fish and

Game, the Bureau of Land Management, and the Environmental Protection Agency, and at least 90 days before beginning any project related land-disturbing or land-clearing activities not specifically required for safety modifications to Milner Dam, shall file for Commission approval a plan for developing at least 23.5 acres of riparian wetland habitat to mitigate for the loss of 6.8 acres of riparian wetlands and 28.6 acres of upland habitat. The plan shall include, but shall not be limited to: (1) maps showing the location of all replacement habitat, site boundaries, size of each site, and physical and habitat features; (2) a description of planting methods, fertilization and irrigation requirements, and a planting schedule; (3) a description of the soil and substrate conditions at the replacement sites; (4) a monitoring program that includes goals and criteria for successful establishment of wetland vegetation, sampling procedures, and reporting requirements; (5) procedures to implement if monitoring reveals that establishment of vegetation is not successful; (6) an implementation schedule that provides for habitat replacement as soon as practicable; and (7) a description of the program for the long-term ownership, management, and maintenance of the replacement habitat. Agency comments shall be included in the filing. The Commission reserves the right to require changes to the plan. The licensees shall not commence any land-clearing or land-disturbing activities not specifically required for safety modifications to Milner Dam until the plan is approved by the Commission.

Article 415. The licensees, for a total period of eight days for eight daylight hours each day (64 daylight hours) between April 1 and May 31, shall not operate the main powerhouse, to be located 1.8 miles downstream of Milner dam, when inflow to Milner reservoir, less irrigation withdrawals from Milner Reservoir, is 10,000 cubic feet per second (cfs) or more. When projections of available flows indicate that the flows in April and May will not reach 10,000 cfs, the licensees shall shut down the main powerhouse for eight daylight hours per day for up to eight days, when inflow to Milner reservoir, less irrigation withdrawals from Milner reservoir is between 4,000 and 10,000 cfs. The licensees do not have to shut down the project in the April-May period if the flows do not exceed 4,000 cfs in the period. The timing of the 64-daylight-hour project shutdown to meet the above obligation may be modified by the Commission, based on the results of the whitewater boating study required by Article 418.

Article 416. The licensees, after consultation with the Bureau of Land Management, the National Park Service, the Idaho Department of Parks and Recreation, and the Idaho Whitewater Association, and 90 days before starting project operation, shall file for Commission approval, a plan to warn downstream recreationists of increases in flow downstream of the dam for

whitewater boating. The plan, at a minimum shall include provisions for a warning system (e.g., lights, alarms, warning signs) to alert downstream recreationists of increases in water level and streamflow. Documentation of agency consultation shall be included in the filing. The Commission reserves the right to require changes to the plan.

Article 417. The licensees, after consultation with the Bureau of Reclamation, Bureau of Land Management, the National Park Service, the Idaho Department of Water Resources, the Idaho Department of Parks and Recreation, and the Idaho Whitewater Association, and 90 days before starting project operation, shall file for Commission approval, a plan for a communication network to inform whitewater boaters of available whitewater flows. The plan shall include documentation of agency consultation. The Commission reserves the right to require changes to the plan.

Article 418. The licensees, after consultation with the Bureau of Land Management, the National Park Service, the Bureau of Reclamation, the Idaho Department of Parks and Recreation, the Idaho Department of Water Resources, and the Idaho Whitewater Association, shall conduct a study to determine whether flows required by Article 415 could be modified to more closely match whitewater boater needs and reduce the effects of whitewater releases on project economics. Within six months from the issuance date of this license, the licensees shall file for Commission approval a plan for conducting the whitewater boating study. The licensees shall conduct the study as approved by the Commission and, within 90 days before the start of project operation, the licensee shall file with the Commission, results of the study. Study results must include: (1) an analysis of the range of whitewater flows necessary to maintain the Class V whitewater experience preferred by boaters running the Milner reach; (2) the time of day and week when boaters put in and take out of the Milner reach; (3) the average number of runs boaters make in a given day; (4) a proposed schedule for releasing flows for whitewater boating that describes the range of flows to be provided, the duration of the flows, and time of day and week these flows will be provided; (5) a discussion of recommendations provided by the consulted agencies and entities; and (6) documentation of consultation with the above-named entities. The Commission reserves the right to require changes to the plan.

Article 419. The licensees, after consultation with the Bureau of Land Management, the National Park Service, the Idaho Department of Parks and Recreation, and the Idaho Whitewater Association, and 90 days before starting any project-related land-clearing, land-disturbing, or spoil-producing activities (except rehabilitation of Milner Dam), shall file for Commission approval a recreation plan that includes, but is not limited to: (1) provisions for a whitewater boater put-in area at the bridge

below Milner Dam and a take-out area below the project powerhouse with parking facilities; (2) provisions for a tailwater fishing area below the powerhouse; (3) final design drawings showing the type and location of the proposed facilities; (4) a construction schedule for proposed recreational facilities; (5) a plan for monitoring recreational use in the project area to determine the for additional recreational facilities in the future; and (6) documentation of agency consultation. In the plan, the licensees shall also consider the feasibility of (1) providing the whitewater take-out area below the final Class V rapid below the powerhouse area and (2) locating the take-out area in a location where it does not interfere with tailwater fishing facilities. The Commission reserves the right to require changes to the plan.

Article 420. The licensees, at least 90 days before the start of any land-clearing, land-disturbing, or spoil-producing activities for each segment of the project, shall file for Commission approval, either separately or in combination, the following plans to blend all project features and project related areas of land disturbance with the surrounding landscape:

1. detailed site-grading and revegetation design plans for each soil, gravel, or rock borrow site, and spoil disposal site;
2. a design for eliminating the visual impact of the transmission line from the powerhouse to the forebay area;
3. detailed design drawings which describe the planned vegetation clearing, the specific tower or pole locations and design, and the specifications for the materials to be used in each transmission line facility;
4. designs, alignments, profiles, construction limits, planned vegetation clearing, proposed surfacing, and the construction specifications for all access roads, parking lots, construction laydown areas, canals, and surface or buried penstock routes, including the required rights-of-way; and
5. detailed design drawings which describe the planned architectural features, colors, surface textures, site grading, and landscape plantings for each structure.

The licensee shall include with the filing documentation of consultation with Bureau of Land Management (BLM) and copies of BLM comments and recommendations. The Commission may require changes to the plans. No land-clearing, land-disturbing, or spoil-producing activities shall begin until the licensees are notified that the above plans comply with the requirements of this article.

Article 421. The licensees, after consultation with the Idaho State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (Council), and the Historic American Engineering Record (HAER) of the Department of the Interior, shall finalize and implement the cultural resources management plan as filed by letter dated February 11, 1986, and shall include the revisions recommended by the National Park Service by letter dated February 4, 1986. Within one year from the date of this license, the licensees shall file for Commission approval a report containing the HAER documentation of Milner Dam and the South Side Canal, the procedures for avoiding impacts to Milner Townsite, and the documentation of archeological site 10-TF-461. The documentation and avoidance procedures at these sites may be filed in separate reports as the items are completed. The reports must contain letters from the SHPO, the Council, and in the case of the dam and the canal, also from the HAER, accepting the documentation. No rehabilitation work or land-disturbing or land-clearing work may begin at the historic or archeological sites addressed in the report until the licensees are notified that the filing or filings have been approved. The licensees shall make funds available in a reasonable amount for implementation of the plan. If the licensees, the SHPO, the Council, and the HAER cannot agree on the amount of money to be spent for implementation of the plan, the Commission reserves the right to require the licensees to conduct the necessary work at the licensees' own expense.

Article 422. The licensees, before starting any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in this license, shall consult with the Idaho State Historic Preservation Officer (SHPO), shall conduct a cultural resources survey of the area that will be impacted, and shall file for Commission approval a cultural resources management plan, prepared by a qualified cultural resources specialist. If the licensees discover any previously unidentified archeological or historic sites during the course of construction or developing project works or other facilities at the project, the licensees shall stop all land-clearing and land-disturbing activities in the vicinity of the sites, shall consult with the SHPO, and shall file for Commission approval a new cultural resources management plan, prepared by a qualified cultural resources specialist.

Either management plan shall include the following: (1) a description of each discovered site, indicating whether it is listed or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered site; (3) proposed measures for avoiding or mitigating effects; (4) documentation of the nature and extent of consultation; (5) a schedule for mitigating effects and conducting additional studies, and (6) a copy of a letter from

the SHPO accepting the plan. The Commission may require changes to the plan.

The licensees shall not begin land-clearing or land-disturbing activities, other than those specifically authorized in this license, or resume such activities in the vicinity of a site discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.

Article 423. The Commission, upon its own motion or upon the recommendation of federal or state fish and wildlife agencies or affected Indian Tribes, reserves the authority to order alterations of project structures and operations to take into account to the fullest extent practicable at each stage of the decision-making process the Columbia River Basin Fish and Wildlife Program developed and amended in accordance with the Pacific Northwest Electric Power Planning and Conservation Act.

Article 424. (a) In accordance with the provisions of this article, the licensees shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensees may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensees also shall have continuing responsibility to supervise and control the use and occupancies for which they grant permission and to monitor the use of and to ensure compliance with the covenants of the instrument of conveyance for any interests that they convey under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensees for the protection and enhancement of the project's scenic, recreational, or other environmental values or if a covenant of a conveyance made under the authority of this article is violated, the licensees shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any noncomplying structures and facilities.

(b) The types of use and occupancy of project lands and water for which the licensees may grant permission without prior Commission approval are these: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where the facility is intended to serve single-family dwellings; and (3) embankments, bulkheads, retaining walls, or

similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensees shall require multiple use and occupancy of facilities for access to project lands or waters. The licensees also shall ensure to the satisfaction of the Commission's authorized representative that the use and occupancies for which they grant permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensees shall do the following: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensees, among other things, may establish a program for issuing permits for the specified types of use and occupancy of project lands and waters that may be subject to the payment of a reasonable fee to cover the licensees' costs of administering the permit program. The Commission reserves the right to require the licensees to file a description of their standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

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

(d) The licensees may convey fee title to, easements or rights-of-way across, or leases of project lands for the following: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for

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

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

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

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

(3) The instrument of conveyance shall include covenants running with the land adequate to ensure the following: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable

precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands occur in a manner that protects the scenic, recreational, and environmental values of the project.

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

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

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

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

(F) Within 60 days of the issuance of this order, the licensee shall submit the following information for each county in which federal lands, utilized by the project, are included: (1) the number of nontransmission line acres of U.S. lands; and (2) the number of transmission line right-of-way acres of U.S. lands.

(G) This order is final unless an application for rehearing is filed within 30 days from the date of its issuance, as provided in Section 313 of the FPA. The filing of an application for rehearing does not operate as a stay of the effective date of its issuance or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's

Project No. 2899-003

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failure to file an application for rehearing shall constitute acceptance of this license.

By the Commission. Commissioner Moler concurred with a separate statement attached.

(S E A L)

Lois D. Cashell,
Secretary.

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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE)
COMMISSION'S REVIEW OF PURPA QF)
CONTRACT PROVISIONS INCLUDING)
THE SURROGATE AVOIDED) CASE NO. GNR-E-11-03
RESOURCE (SAR) AND INTEGRATED)
RESOURCE PLANNING (IRP))
METHODOLOGIES FOR CALULATING)
PUBLISHED AVOIDED COST RATES.)
)

Direct Testimony

Justin Hayes

EXHIBIT 1703

TWIN FALLS LICENSE FERC PROJECT # 18

May 4, 2012

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Idaho Power Company

Project No. 18-000-Idaho

ORDER ISSUING NEW LICENSE
(Major)
(Issued January 18, 1991)

Idaho Power Company (licensee) has filed an application for a new license under Part I of the Federal Power Act (Act) to continue to operate and maintain the Twin Falls Project, and install additional capacity. The project is located on the Snake River in Jerome and Twin Falls Counties, Idaho, partially on lands of the United States administered by the Bureau of Land Management (BLM).

The original license expired on June 10, 1984, and thereafter the project has been operated under an annual license.

The existing facilities consist of the Twin Falls Dam and reservoir, an intake structure, a 136-foot-long penstock, a powerhouse with an installed capacity of 9 megawatts (MW), and a 1-mile-long transmission line. The proposed additions are a second intake structure, a 213-foot-long penstock, a powerhouse with a 42-MW generating unit, an interconnection with the existing transmission line, and an access road and bridge. A more detailed description of the project is contained in ordering paragraph (B).

Notice of the application has been published. No protests or objections to issuance of the license were filed.

The Idaho Department of Water Resources (IDWR) filed a motion to intervene requesting that any license issued for this project should subordinate the licensee's water right to upstream depletionary uses. The IDWR's motion to intervene is discussed in the attached Safety and Design Assessment (S&DA).

The Idaho Department of Fish and Game (IDFG) filed a motion to intervene to ensure that any license issued for this project be conditioned to "preserve, protect, perpetuate, and maintain the fish and wildlife resources of the State of Idaho".

This project was examined and included in the draft and Final Environmental Impact Statement (FEIS) prepared on four proposed projects in the Snake River Basin. 1/

1/ Final Environmental Impact Statement, Federal Energy Regulatory Commission, Office of Hydropower Licensing, July 1990, Milnar (FERC No. 2899), Twin Falls (FERC No. 18), Auger

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IDFG's motion to intervene, as well as all comments received from interested agencies and individuals have been fully considered in the FEIS and in determining whether to issue this license, as discussed below.

Environmental Considerations

The impacts of the Twin Falls Project on important environmental resources, and the mitigation measures necessary to protect these resources, are discussed below.

1. Geology and Soils

The FEIS concluded that construction and operation of the new facilities at the project would cause minor increases in erosion and sedimentation in the Snake River. The licensee has proposed measures to control erosion and sedimentation and maintain slope stability including: (1) settling ponds to filter water pumped from construction sites; (2) rock bolts to stabilize the rock cliff above the powerhouse; (3) stabilizing spoil fills by compacting the spoil material, using stable slope configurations, leaving no depressions, and covering the spoil fills with top soil; and (4) seeding disturbed areas and applying mulch after the seed has been placed. As part of a final plan to be prepared by the licensee, the FEIS recommended additional measures to minimize impacts on soil and geologic resources. These additional measures include: (1) not exceeding the natural angle of repose on slopes of spoil material; (2) using clean gravels in cofferdams; (3) monitoring the revegetation process on the slopes above the powerhouse road; and (4) limiting in-river construction to the low-flow period of the year.

Article 401 requires the licensee to prepare and file a plan (to include the measures proposed by the licensee and those recommended in the FEIS) to control erosion, sedimentation, and slope stability during construction and operation of the project.

2. Water Quality

The FEIS concluded that chemical changes in water quality of the Snake River could result from construction related disturbance of sediments containing heavy metals, pesticides, and other toxic materials. Article 402 requires the licensee to develop a plan to conduct tests for toxic substances in any sediments or other unconsolidated deposits in the Snake River that would be removed or otherwise disturbed by dredging,

Falls (FERC No. 4797), and Star Falls (FERC No. 5797). This document is in the Commission's public file and is available for inspection at the Commission's Office of Public Information.

constructing, or operating project facilities, and to safely remove and dispose of any sediment and unconsolidated deposits containing heavy metals, pesticides and other toxic materials.

The FEIS concluded that diversion of river flow around Twin Falls would reduce reaeration and thus the level of dissolved oxygen (DO) in the Snake River. Depending on the river's biological oxygen demand (BOD) loading, a reduced amount of reaeration could reduce the waste assimilating capacity of the river. To avoid a reduction in the river's waste assimilating capacity, the FEIS recommended that the licensee make provisions for installing air blowers in the penstocks, turbine, or draft tubes to provide reaeration of the diverted water in the event DO falls below 90 percent saturation.

Upon reevaluation of the recommended saturation level the staff determined that present BOD levels in the study reach were not sufficiently high to necessitate 90% saturation in the river below the project. Analysis indicates that existing BOD levels would not significantly deplete DO in the river because the rate of biochemical oxidation is slower than the reaeration rate of the river. Consequently, either with or without the project, DO levels would be expected to be reduced by less than 1 mg/l from existing 8-9 mg/l summer levels. Saturation levels below 90% would be adequate to process existing levels of BOD. Barring major increases in BOD, the waste assimilating capacity of the river, with or without the project, would be protected. The present state standard of 6 mg/l DO (about 75% saturation in summer) for waters of the reach would be adequate. The state standard protects the fish of the reach from direct stress from low DO.

Article 403 requires the licensee to maintain DO at 6 mg/l, as measured in the river immediately downstream of the tailrace, in the diverted water by making provisions for supplemental aeration, as discussed above, if needed.

The FEIS recommended that monitoring of DO and water temperature be done to ensure that the project provides sufficient aeration. Article 404 requires the licensee, after consultation with the IDFG, Idaho Department of Health and Welfare (IDHW), and the U.S. Environmental Protection Agency (EPA), to develop and implement a monitoring program to monitor the need for, and effectiveness of, supplemental aeration.

The licensee applied for water quality certification pursuant to Section 401(a)(1) of the Clean Water Act, 33 U.S.C. 1341(a)(1), from the IDHW with a letter dated April 25, 1983. Water quality certification was granted by IDHW on November 7, 1983.

3. Fisheries

The FEIS concluded that the project would result in an increase in the number of wild, native cutthroat and rainbow-cutthroat hybrids removed from Twin Falls reservoir due to diversion of water through the project intakes. The FEIS recommended that habitat restoration and enhancement in tributary springs would constitute the most cost-effective mitigation. Article 405 requires the licensee to develop and implement, in consultation with IDFG, U.S. Fish and Wildlife Service (FWS), and BLM, a habitat enhancement plan and trout monitoring program.

4. Vegetation

The FEIS concluded that spoil disposal during project construction would result in temporary and permanent loss of up to 9.2 acres of vegetation at the project site. The FEIS recommended that spoil disposal be limited to certain specific disposal sites and the licensee develop and implement a detailed revegetation plan, in consultation with the FWS and IDFG. Article 406 requires the licensee to develop and file for Commission approval a detailed plan for revegetating areas to be disturbed by construction or spoil disposal.

5. Raptors

The FEIS noted the existence of a golden eagle nest near the project site that, if active, would experience limited, short-term impacts as a result of blasting during project construction. The FEIS recommended the licensee monitor the nest prior to beginning construction, and if found to be active, the licensee should implement protective measures, including prohibiting blasting, to protect the nest. Article 407 requires the licensee to monitor the golden eagle nest, and implement protective measures if the nest is found to be active.

6. Land Use and Recreation

The FEIS concluded that the project would have minor, negative impacts on recreational visitors and local traffic due to increased congestion and truck traffic during construction. To minimize traffic congestion during construction, the FEIS recommended that the licensee develop and implement a plan to assure vehicular safety during construction and to schedule construction activities to minimize conflicts with peak recreation use. Article 408 requires the licensee to develop, in consultation with Twin Falls County, a vehicular safety plan and a schedule of construction activities to minimize conflicts with the public during weekends.

The FEIS concurred with the licensee's proposed recreational improvements, including restroom facility replacement,

improvements to the scenic viewpoint and parking area, covered picnic tables, and dock improvements at the boat ramp and in the reservoir. Article 409 approves the licensee's recreation report filed on April 4, 1989, and specifies that the licensee file as-built drawings of the completed recreational facilities.

7. Visual Resources

The FEIS concluded that the project significantly impacts the aesthetic quality of Twin Falls by reducing flows over the waterfalls and modifying the natural landscape. The addition of the new facilities would lead to a further reduction in aesthetic quality by further reducing flow over the falls and adding additional power generation and transmission facilities.

The FEIS recommended a minimum flow of 300 cubic feet per second (cfs) over the falls from 8 a.m. to dusk every day from April through August and on weekends and holidays during the rest of the year (peak viewing times). The FEIS also recommended reducing the aesthetic impacts of the transmission tower located adjacent to the falls, matching the exposed surfaces of the powerhouse with natural rock at that location, and improving the overlook facilities.

Requiring the licensee to maintain a minimum flow of 300 cfs over the falls as recommended in the FEIS would, in a typical operation, cause the release of higher flows to preclude falling below the required 300-cfs minimum flow. Staff believes that a 10% variation (30 cfs) from the 300-cfs minimum flow, in this visual environment, would not be perceptible. In addition, this range of flows (270 to 300 cfs at the low end) would still provide significantly greater flows in the northern plume than the 140 cfs proposed by the licensee, and still obviates the need for a weir to split the falls.

The practice of providing a higher flow than is absolutely required would, over time, result in significant lost generation and subsequent revenue, without a similar perceptible benefit to the aesthetic quality of Twin Falls.

Article 410 requires the licensee to maintain an average flow of 300 cfs over Twin Falls during these peak viewing times for aesthetic quality, and also requires that these flows not fall below an instantaneous minimum of 270 cfs or inflow, whichever is less, during these peak viewing times. Requiring the 300-cfs average flow during the peak viewing times allows the licensee to reconcile minor operating streamflow fluctuations and functional operating limitations without excessive loss in generation.

Article 411 requires the licensee to construct the project facilities as recommended in FEIS and to develop a visual

resources protection plan in consultation with the BLM, Idaho Department of Parks and Recreation (IDPR), and the Idaho State Historical Preservation Officer (SHPO). This plan will document the following plan components and objectives: (1) painting or other treatment to reduce the adverse visual impact of the transmission tower adjacent to the falls; (2) the exposed surfaces of the new powerhouse shall be rock-faced; (3) existing chainlink fencing at the overlooks shall be replaced with a stone and wood rail system; and (4) a means for measuring and reporting flows required in Article 410 shall be provided.

8. Cultural Resources

The FEIS concluded that new construction could affect the existing project facilities, which are eligible for inclusion on the National Register of Historic Places (Register). The FEIS recommended that the licensee, in consultation with the SHPO, design new project facilities that avoid adverse effects to the characteristics of the existing project structures. Article 412 requires the licensee to preserve the existing facility's unique characteristics that render the project eligible for the Register. Article 413 requires the licensee to contact the SHPO if cultural resources are discovered during project construction and develop a cultural resources management plan if needed.

9. Cumulative Impacts and Benefits

The FEIS evaluated the cumulative effects of 4 proposed projects on a 32-mile-long section of the Snake River from Milner Dam to Auger Falls. The four projects include the Twin Falls Project, the Milner Project (FERC No. 2899), the Auger Falls Project (FERC No. 4797), and the Star Falls Project (FERC No. 5797). The FEIS identified target resources for the Snake River--important resources that could be adversely affected in a cumulative fashion by the proposed hydropower projects--including drainage morphology, water quality, resident trout, white sturgeon, wintering waterfowl, raptors, riparian-associated wildlife, riparian vegetation, aesthetic quality, recreation, and local economy.

The FEIS concluded that the proposed modifications at the Twin Falls Project, with the mitigation and enhancement measures recommended by the staff, would result in improved trout habitat in Vinyard Creek which would contribute to cumulative benefits to resident trout and recreational fishing. While the additional development at Twin Falls would contribute to cumulative impacts to visual quality in the Snake River canyon, staff recommended mitigation would enhance sight seeing conditions at Twin Falls, which would contribute to cumulative benefits to recreation.

Comprehensive Development

Section 4(e) of the Act states that in deciding whether to issue a license, the Commission, in addition to the power and development purposes of the project, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. These purposes are considered in the staff conclusions section of the FEIS prepared for this project.

Section 10(a)(1) states that the project adopted shall be such that in the judgement of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, for the adequate protection, utilization and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreation and other purposes discussed in section 4(e).

Further, section 10 (a)(2) of the Act requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Federal and state agencies filed 26 plans that address various resources in Idaho. Of these, the staff identified 7 plans that are relevant to this project. 2/

The FEIS concluded that the project, as proposed to be modified, would be inconsistent with portions of two of the plans: (1) the Columbia River Basin Fish and Wildlife Program; and (2) the Idaho Fisheries Management Plan.

The Columbia River Basin Fish and Wildlife Program (Program) was developed by the Northwest Power Planning Council to protect, mitigate, and enhance fish and wildlife resources associated with

2/ (1) Columbia River Basin Fish and Wildlife Program, 1987, Northwest Power Planning Council; (2) Northwest Conservation and Electric Power Plan, 1986, Northwest Power Planning Council; (3) Idaho State Water Plan, 1986, Idaho Water Resources Board; (4) Idaho Fisheries Management Plan, 1986-1990, Idaho Department of Fish and Game; (5) Idaho Water Quality Standards, 1985, Idaho Department of Health and Welfare; (6) Idaho Outdoor Recreation Plan, 1983, Idaho Department of Parks and Recreation; (7) Monument Resources Management Plan, 1984, U.S. Department of Interior, Bureau of Land Management.

the development and operation of hydroelectric projects within the Columbia River Basin and its tributaries. The FEIS determined that the project would be inconsistent with the Program's requirement for fisheries protection, because the project lacks facilities to protect against fish entrainment. The Program, however, while requiring compensation for unavoidable losses, does not require prevention of entrainment. As stated earlier, Article 405 requires the licensee to develop a plan to enhance trout habitat, monitor the effectiveness of the enhancement measures, and develop a supplemental plan if needed. With this trout habitat enhancement plan the project would be consistent with the Program.

The Twin Falls project is also located in a reach of the Snake River designated by the Council as a "protected area". However, the protected area designation does not apply to the proposed actions at the project because the designation does not apply to existing dams.

The Idaho Fisheries Management Plan, developed by the IDFG, provides overall goals and guidance for the management of fishery resources for the state. The project would be inconsistent with the specific goal of the plan pertaining to the backwaters of Twin Falls Dam to Murtaugh Bridge, of protecting wild trout, in particular the population of wild, native cutthroat trout. Specifically, the project would adversely affect the trout through entrainment into the project intake. The degree of inconsistency would be reduced, however, to the extent that proposed trout habitat improvements lead to an expanded wild trout population.

The FEIS concluded that the project would be consistent with the other five relevant comprehensive plans. The Idaho Water Resources Board has approved the licensee's petition to exempt the project from interim protection status under the Idaho State Water Plan. There are no inconsistencies with the provisions of the Idaho Statewide Comprehensive Outdoor Recreation Plan, the Idaho State Water Quality Standards, or the Department of Interior, Bureau of Land Management Monument Resource Plan. The project is exempt under the Northwest Conservation and Electric Power Plan because it is a modification of an existing facility.

Because the licensee would divert more flow to operate the new powerhouse, the FEIS recommended that the licensee should provide a minimum flow over the falls to mitigate impacts to visual quality. Impacts to the waterfalls are considered important because the aesthetic qualities of the falls are extremely sensitive to change. This sensitivity stems from the adverse impacts to visual quality of frequently having low or no flows over the falls in June through September from operation of the existing project, and also from the falls high visibility and popularity with visitors. The staff estimates that the 50-year

levelized cost of providing 300 cfs from 8 a.m. to dusk every day in April through August and on weekends and holidays during the rest of the year would be about \$80,000 annually. The staff believes that this cost is justified during periods of high visitor use of the project area.

The FEIS recommended that the licensee enhance trout habitat in Vinyard Creek adjacent to Twin Falls reservoir. The licensee agrees with this and has allocated funds specifically for this purpose. The FEIS recommended that the licensee should also monitor the effectiveness of the trout habitat enhancement measures for 5 years and provide a basis for modifying these measures if needed. The staff believes that this monitoring would increase the cost of the project by about \$27,500 per year for a total of \$138,000. The staff believes that the costs of the above measures are justified in order to mitigate for increased removal of wild, native trout due to diversion of water into the project intake.

Staff estimates that the project will start producing power in 1994 and the capital cost of the project to be \$44 million. Staff finds operating the project, with staff environmental measures would produce net economic benefits of about 38 mills/kilowatthour.

Based on a review under sections 4(e) and 10(a), issuing a new license for the expanded Twin Falls Project is best adapted to a comprehensive plan for improving and developing the upper Snake River basin.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions based on the recommendations of federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife. The FEIS addressed the concerns of the federal and state fish and wildlife agencies and this license provides conditions consistent with the recommendations.

The Department of Interior and the IDFG filed recommendations for fish and wildlife conditions. The recommendations, which were determined consistent with the Act and other applicable laws, are described in detail in the FEIS and are summarized below.

Trout Habitat Enhancement: The FWS and IDFG recommend enhancement of trout habitat to protect the trout population in Twin Falls Reservoir. Specifically, IDFG and FWS recommend enhancement of trout habitat in Vinyard Creek adjacent to Twin Falls Reservoir. The FEIS concurred with these recommendations because habitat enhancement appears to be the most cost-effective measure to protect and potentially enhance the trout population.

Article 406 requires the licensee to develop and implement a trout habitat enhancement plan in consultation with the FWS and IDFG.

Trout Monitoring Program: The FWS recommends a 3-5 year monitoring program to determine the effectiveness of the proposed trout habitat enhancement measures. The FWS also recommends the monitoring plan should include provisions for a backup plan in the event the proposed measures do not work as intended. Article 406 requires the licensee to develop and implement a monitoring program with provisions for modifying the plan in the event measures do not work as intended.

Section 15(a)(2)(A): Complying with the Present License

The staff has reviewed licensee's plans to comply with the conditions of a new license. The licensee's compliance record shows it made a good faith effort to comply with all of its prior license conditions. It is therefore believed that the licensee would be able to meet the requirements of a new license.

Section 15(a)(2)(B): Safe Operation

The staff reviewed licensee's plans to manage, operate, and maintain the project safely and finds them adequate. The licensee proposes no change in project operation adversely affecting project safety. Based on the licensee's public safety records, its plans are adequate.

Licensee's project safety record shows we can expect it to cooperate with the Commission and to fully comply with the terms and conditions of the new license.

Section 15(a)(2)(C): Providing Efficient and Reliable Electric Service

The staff reviewed licensee's operating plans and its ability to provide efficient and reliable electric service. It is concluded that the licensee is operating the project in an efficient and reliable manner.

The staff examined licensee's record of forced outages and find that the outages do not represent a significant number of occurrences.

The licensee normally uses the power it generates with the project in its system. Because the project is located near the center of the licensee's system, it allows the project to contribute to reliability and stability of the area. Also, the licensee is electrically interconnected with all adjoining systems, so any surplus energy can be made available for use in those systems.

Section 15(a)(2)(D): Need for the Power

The staff considered the short and long-term need for the power the project would generate, and the cost of alternative power if the licensee does not get a new license for the project and has concluded that:

- Power from the Twin Falls project is needed.
- Replacing project power would cost the licensee about \$5.6 million annually.

The project is located in the Northwest Power Planning Council (Council) area--in the south-central part of Idaho--near Twin Falls, Idaho. In March 1989, the licensee published a resource management report (RMR) that identifies the existing unit at the project as a nondeferrable resource now serving part of the licensee's power requirements.

The licensee plans to expand the project capacity to 51 MW. The average annual generation from the project will increase to 189,000 megawatthours (MWh). Completion of the expansion is now scheduled for 1995.

The RMR shows a need for power on the licensee's system in 2001 under medium loads and median water conditions and in 1995 under high loads and median water conditions. The licensee projects that deficiencies occurring in some months during low water conditions will require the licensee to curtail service to interruptible customers and to make purchases from other utilities to meet its firm loads.

With low loads and median water conditions, the licensee may have resources in excess of its system needs through 2008. In recognition of this possibility, the licensee is further developing its ability to participate in the regional power market.

The Council's 1989 supplement to its 1986 Power Plan shows a need for power could exist in the Council area any time from the early to the late 1990's.

The supplement also shows resource deficits would occur on the Investor-owned Utility (IOU) systems in the Council area before deficits occur in the area as a whole. The Council projects IOU deficits by 1992 with medium-high loads and by 1998 with medium-low loads.

In March 1990, the Pacific Northwest Utilities Conference Committee (Committee) issued a revised Northwest Regional Forecast of Power Loads and Resources. The Committee projects a need for more power resources in the Council area as a whole in

1993. The Committee also projects that individual systems in the area could experience deficits as early as the 1990-1991 winter.

Hydro resources, such as the Twin Falls Project expansion, coming on-line in the mid-1990's, could be useful in meeting a small part of that need for power. Such projects could contribute to the need as part of the hydro resources in the Council's proposed resource addition portfolios.

When operational, the projects would be available to displace thermal generation in the Western Systems Coordinating Council (WSCC) region until needed to serve load directly in the Council area or on the licensee system specifically. The WSCC region encompasses the Council area.

The staff studied the financial impact on the licensee's ratepayers, considered as a single group, which would result from the loss of the output of the project. If the Commission denies a new license or issues a nonpower license, it is assumed the licensee would replace the project's dependable capacity and energy by generating more with its present coal-fired base load units.

Historically, the project produces about 60 gigawatthours (GWh) of energy annually and has a dependable capacity of 7.7 MW. But because of the licensee's proposed project changes and the enhancements the staff, the agencies, and the licensee propose, the energy output of the project would differ appreciably over the next license period.

If the licensee must replace the capacity and energy the project now produces, the staff estimates that the levelized annual impact on the licensee's ratepayers would be \$5.6 million or about 91.7 mills/kilowatthour.

Section 15(a)(2)(E): Transmission Line Improvements

The licensee does not plan to modify the transmission network that has been and will be used by project.

Section 15(a)(2)(F): Project Modifications

The licensee proposes to increase the installed capacity 42 MW by building a new powerhouse. The project would have a total installed capacity of 51 MW. Project annual generation would increase from 60 to 189 GWh.

Section 15(a)(3): Compliance History

The licensee has satisfactorily complied with the terms and conditions of its existing license. The licensee has made timely filings and submittals and has maintained the project and its

recreation facilities in a satisfactory manner.

Term of the License

Section 15 of the Act specifies that any license issued shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. This provision is consistent with the Commission's policy which establishes 30-year terms for those projects which propose no new construction or capacity, 40-year terms for those projects that propose a moderate amount of new development, and 50-year terms for those projects that propose substantial new development.

The existing facilities of the Twin Falls Project consist of a concrete arch dam, a 135-foot-long penstock, a powerhouse containing a single generating unit with an installed capacity of 9 MW and a one-mile-long transmission line.

Redevelopment of the project would add an intake structure, a 213-foot-long penstock, a second powerhouse containing a 42-MW generating unit, a tailrace, and other appurtenant facilities.

The redevelopment of the project would increase the installed capacity from 9 MW to 51 MW and the project generation from 60 GWh to 189 GWh. We consider these additions substantial new development, therefore a term of 50 years for the new license is warranted.

Summary of Findings

Based on the conclusions in the FEIS and additional staff discussions concerning environmental impacts of the project in this order, it is concluded that issuance of this license is in the public interest.

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

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

The Director orders:

(A) This license is issued to the Idaho Power Company, for a period of 50-years, effective the first day of the month in which this order is issued, for the redevelopment and continued

operation and maintenance of the Twin Falls Project. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The project consists of:

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

<u>Exhibit G-</u>	<u>FERC No. 18-</u>	<u>Showing</u>
G	39	Project Map

(2) Project works consisting of: (a) the Twin Falls Dam which has three sections, a concrete arch dam across the north falls with a 474-foot-long overflow crest at elevation 3,508 feet (3,511.4 feet with flashboards), a non-overflow concrete gravity dam across the south falls with a 203-foot-long crest at elevation 3,520 feet, and a concrete dike across the island between the north and south falls in two sections, one 108 feet long with the crest at elevation 3,516 feet and the other 207 feet long with the crest elevation 3,509 feet (3,512 feet with flashboards); (b) the Twin Falls Reservoir, which has a storage capacity of about 1,000 acre-feet at normal pool elevation of 3,511.4 feet; (c) a gated intake structure in the non-overflow gravity section; (d) a 10-foot-diameter, 136-foot-long steel-lined tunnel penstock; (e) a 40-foot-long, 37-foot-wide concrete powerhouse at the base of south falls containing a generating unit with a rated capacity of 9 MW; (f) a 1-mile-long, 138-kV transmission line connecting the project to the licensee's distribution system; (g) a second intake structure at the non-overflow section of the dam; (h) an 18-foot-diameter steel-lined tunnel consisting of a 120-foot-deep vertical shaft and a 93-foot-long horizontal tunnel; (i) a 63-foot-wide, 100-foot-long concrete powerhouse at the toe of the non-overflow section of the dam containing a generating unit with a rated capacity of 42 MW; (j) a tailrace returning all waters to the Snake River; (k) a short primary line connecting this development with the other powerhouse; (l) a 110-foot-long, 18-foot-wide concrete and steel bridge between the powerhouses; and (m) other appurtenances.

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

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

necessary or appropriate in the operation or maintenance of the project.

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

(D) This license is subject to the articles set forth in Form L-2 (October 1975), entitled "TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED MAJOR PROJECT AFFECTING LANDS OF THE UNITED STATES", except article 20, and the following additional articles.

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

(a) For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 68,000 horsepower.

(b) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 74.7 acres of its lands, other than for transmission line right-of-way, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time.

(c) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 18.4 acres of its lands for transmission line right-of-way, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time.

Article 202. Pursuant to Section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One half of the project surplus earnings, if any, accumulated under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall

be set aside in the project amortization reserve account. The amounts established in the project amortization reserved account shall be maintained until further order of the Commission.

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

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

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

Article 302. The licensee shall file revised exhibits A, F, and G for Commission approval, to describe and show the project as built, within 90 days after finishing construction.

Article 303. The licensee shall review and approve the contractor's cofferdams and deep excavations designs before starting construction, and during the construction shall make sure that the cofferdams and deep excavations are consistent with the previously approved designs.

At least 30 days before starting construction of the cofferdam, the licensee shall submit the approved cofferdam construction drawings and specifications and the letters of approval, sending one copy to the Director of the Division of Dam

Safety and Inspections and one copy to the Director of the Commission's Portland Regional Office.

Article 304. At least 60 days before starting construction, the licensee shall submit (1) final contract drawings and specifications and (2) a supporting design report, sending two copies of the filings to the Director of the Division of Dam Safety and Inspections and one copy to the Director of the Commission's Portland Regional Office.

The filings shall cover such pertinent features of the project as (1) water-retention structures, (2) all necessary transmission facilities, (3) the powerhouse, and (4) water conveyance structures.

The Director of the Division of Dam Safety and Inspections may require changes in the plans and specifications to assure a safe and adequate project.

Article 401. The licensee, after consultation with the Soil Conservation Service (SCS), shall prepare and file along with final plans and specifications required by Article 304, a plan to control erosion, slope stability, and to minimize the quantity of sediment resulting from project construction and operation. The plan shall be implemented and shall include the following: (1) settling ponds to filter water pumped from construction sites; (2) rock bolts to stabilize the rock cliff above the powerhouse; (3) stabilizing spoil fills by compacting the spoil material in stable slope configurations not exceeding the natural angle of repose, leaving no depressions in the spoil material and covering it with top soil; (4) seeding disturbed areas and spoil fills with a seed mixture approved by SCS and applying mulch after the seed has been placed; (5) monitoring revegetation on slopes above the powerhouse road and replanting as necessary to ensure successful revegetation of this slope; (6) using clean gravels in cofferdams; and (7) limiting in-river construction, including placement and removal of cofferdams, to the low flow period of the year.

Documentation of consultation with SCS and the seed mix recommended by SCS shall be included with the plan when it is filed with the Commission. The Commission reserves the right to require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

Article 402. The licensee, after consultation with the U.S. Environmental Protection Agency, Idaho Department of Health and Welfare, U.S. Fish and Wildlife Service, and Idaho Department of Fish and Game and at least 90 days before starting any project related land-clearing, land-disturbing, or spoil-producing activities within the Snake River shall file for Commission approval, and shall implement a plan to conduct tests for heavy

metals, pesticides, and other toxic substances in any sediments or other unconsolidated deposits in the Snake River that would be removed or otherwise disturbed by dredging, constructing, or operating project facilities and to safely remove and dispose of any sediment and unconsolidated deposits containing heavy metals, pesticides, or other toxic materials. The plan also shall include an implementation schedule for the monitoring and comments of the consulted agencies on the monitoring plan and implementation schedule. The filing shall include documentation of agency consultation and any agency comments and recommendations on the plan.

The licensee shall allow a reasonable time frame, in no case less than 30 days, for agencies to comment and make recommendations prior to filing the plan. The licensee shall not commence any land-clearing, land-disturbing, or spoil-producing activities within the Snake River until the Commission approves the plan. The Commission reserves the right to require changes to the plan.

Article 403. The licensee after consultation with the U.S. Environmental Protection Agency, Idaho Department of Health and Welfare, Idaho Department of Fish and Game, and U.S. Fish and Wildlife Service, and at least 90 days before starting any land-clearing, land-disturbing, or spoil-producing activities, shall file for Commission approval plans for the potential installation of air blowers in the penstocks, turbine, or draft tubes, as may be required by Article 404 to provide reaeration if dissolved oxygen is below 6 mg/l in as measured in the river immediately downstream of the tailrace. The project shall be designed such that installation of an air injection system is not precluded.

The licensee shall allow a reasonable timeframe, in no case less than 30 days, for agencies to comment and make recommendations on the plan. The filing shall include documentation of agency consultation and any agency comments and recommendations on the plan. The licensee shall not commence any land-clearing, land-disturbing, or spoil producing activities until the Commission approves the plan. The Commission reserves the right to require changes to the plan.

Article 404. The licensee, after consultation with the Idaho Department of Fish and Game (IDFG), the Idaho Department of Health and Welfare (IDHW), and the U.S. Environmental Protection Agency (EPA), shall develop and implement a plan to monitor water temperature and dissolved oxygen in the river immediately downstream of the tailrace. The plan shall be filed for Commission approval at least 90 days prior to commencing commercial operation of the new powerhouse. The licensee shall allow a reasonable timeframe, in no case less than 30 days, for agencies to comment and make recommendations prior to filing the plan. The filing shall include documentation of agency

consultation and any agency comments or recommendations. Upon Commission approval the licensee shall implement the plan.

The plan shall include continuous (hourly) monitoring of DO and water temperature in the river immediately downstream of the tailrace from June 15 to October 15. Violations of the state water quality standard for DO shall be reported to EPA, IDHW and IDFG within 24 hours. The plan shall include specific response measures in the event standards are not met, including, but not limited to, an air injection system at the powerhouse to maintain 6 mg/l of DO, in the river immediately downstream of the tailrace, or release of water over the falls rather than through the project turbines and a schedule for constructing or implementing these measures. The licensee shall not begin operation of the new powerhouse until the Commission approves the plan. The Commission reserves the right to require changes to the plan. Within 60 days of completion of construction of an air injection system the licensee shall file as built drawings.

Article 405. The licensee, after consultation with the Idaho Department of Fish and Game (IDFG), the U.S. Fish and Wildlife Service (FWS), and the Bureau of Land Management (BLM), shall develop and implement a plan for habitat enhancement, including but not limited to improvements to Vinyard Creek, the intake forebay, Twin Falls reservoir, and the Snake River and adjacent springs upstream to Hansen Bridge and a monitoring program to determine the response of the outthroat trout, rainbow-cutthroat hybrid population to habitat enhancements. The plan shall be filed for Commission approval at least 90 days prior to commencing commercial operation of the new powerhouse. The licensee shall allow a reasonable timeframe, in no case less than 30 days, for agencies to comment and make recommendations prior to filing the plan. The filing shall include documentation of agency consultation and any agency comments or recommendations. Upon Commission approval the licensee shall implement the plan.

The plan shall include (1) provisions for surveys of all potential spring habitat upstream to the Hansen Bridge and assessments of the potential for rehabilitating or enhancing habitat at each spring location, (2) monitoring of the seasonal distribution and abundance of trout in areas where habitat improvement have been constructed, and (3) provisions for filing annual reports by December 31 of each year on the habitat enhancement program and the response in the fish population. The licensee shall conduct the monitoring program for at least 5 years and file a final comprehensive report on the success of the habitat enhancement program and for approval any recommendations for changing the program. The final report shall include agencies' comments on its findings and recommendations. The Commission reserves the right to require changes to the plan.

The licensee shall not begin commercial operation of the new powerhouse until the Commission approves the plan.

In the event the specific measures of the habitat enhancement program are deemed inadequate to protect and enhance the population at any time during or immediately following the 5-year monitoring program, the licensee in consultation with IDFG, FWS, and BLM shall file for Commission approval a supplemental plan for implementing changes to the program along with comments and recommendations of the IDFG, FWS, and BLM. The Commission reserves the right to require changes to the plan and any subsequent supplemental plan.

Article 406. The licensee, after consultation with the U.S. Fish and Wildlife Service and the Idaho Department of Fish and Game, and at least 90 days before any project related land clearing, land-disturbing, or spoil-producing activities, shall file for Commission approval, a detailed plan for revegetating areas to be disturbed by construction or spoil-disposal. Upon Commission approval, the licensee shall implement the plan.

The plan shall include at a minimum: (1) the exact location of the staging area and spoil disposal sites; (2) the planned contours and depth of topsoil; (3) a description of how the spoil would be compacted and contoured; (4) a description of the plant species used, their source, and their potential value to wildlife; (5) planting densities; (6) fertilization and irrigation requirements; (7) provisions to control exotic species and damage from small mammals and deer; and (8) a monitoring program. The licensee shall avoid depositing spoil materials at the downstream 10,000-cubic-yard site and at the 500-cubic-yard site, as shown on attachment 10 of the filing dated April 4, 1989.

The licensee shall allow a reasonable timeframe, in no case less than 30 days, for agencies to comment and make recommendations on the plan. The filing shall include documentation of agency consultation and any agency comments and recommendations on the plan. The licensee shall not commence any land-clearing, land-disturbing, or spoil-producing activities until the Commission approves the plan. The Commission reserves the right to require changes to the plan.

Article 407. The licensee, after consultation with the U.S. Fish and Wildlife Service (FWS) and the Idaho Department of Fish and Game (IDFG) and at least 90 days before starting any land-clearing, land-disturbing, or spoil-producing activities, shall file for Commission approval, a plan to monitor the golden eagle nest near the project site and to prevent project construction activities from disturbing nesting golden eagles. Upon Commission approval, the licensee shall implement the plan.

The plan shall include the following: (1) a schedule for monitoring the golden eagle nest, including the period over which the nest would be monitored and how often monitoring would occur; and (2) measures to protect the nesting golden eagles if the nest is used, including prohibiting blasting and other specific construction activities. Agency comments shall be included in the filing.

The licensee shall not start any land-clearing, land-disturbing, or spoil-producing activities until the Commission approves the plan.

Article 408. The licensee, after consultation with the Idaho Department of Transportation and Twin Falls County, and 90 days before starting any project related land-clearing, land-disturbing, or spoil-producing activities and before bringing any equipment to the site shall file for Commission approval, a plan to ensure and monitor vehicular safety on roads leading to the project site, and a construction schedule to minimize conflicts with recreational access and activities on weekends. Upon Commission approval the licensee shall implement the plan. The filing shall include documentation of the required consultation along with and any comments and recommendations. The licensee shall not commence land-clearing, land-disturbing, or spoil-producing activities nor bring any equipment to the site until the Commission approves the plan. The Commission reserves the right to require changes to the plan.

Article 409. The licensee's recreation report, filed on April 4, 1989, consisting of 14 pages of text and tables and one drawing, that provides for the improvement of: (1) restroom facilities, (2) access to scenic viewpoints, (3) parking facilities, and (4) a boat launch area, is approved and made part of the license. Within 90 days of completing the recreational improvements, the licensee shall file with the Commission, as-built drawings showing the size, type, and location of the completed facilities. The licensee shall be responsible for constructing, operating, and maintaining the proposed recreational facilities.

Article 410. The licensee shall maintain flows that average 300 cubic feet per second (cfs) over Twin Falls from 8 a.m. to 30 minutes after sunset each day, 7 days a week, April 1 through August 31, and 8 a.m. to 30 minutes after sunset every Saturday and Sunday and on all holidays, September 1 through March 31 (peak viewing times). At no time during these peak viewing times shall the flow over Twin Falls fall below 270 cfs or inflow, whichever is less. The average flow of 300 cfs, required during peak viewing times, may be temporarily modified if required by operating emergencies beyond the control of the licensee or for short periods upon mutual agreement between the licensee, the

Bureau of Land Management, the Idaho Department of Parks and Recreation, and the Idaho State Historic Preservation Officer.

Article 411. The licensee shall prepare an aesthetic resources protection plan in consultation with the Bureau of Land Management, the Idaho Department of Parks and Recreation, and the Idaho State Historical Preservation Officer. The licensee shall file the plan for Commission approval at least 90 days prior to any land-clearing, land-disturbing, and spoil-producing activities. The licensee shall allow a reasonable timeframe, in no case less than 30 days, for agencies to comment and make recommendations on the plan. The filing shall include documentation of agency consultation and any agency comments and recommendations on the plan. The licensee shall not commence any land-clearing, land-disturbing, spoil-producing activities until the Commission approves the plan. The Commission reserves the right to require changes to the plan. Upon Commission approval the licensee shall implement the plan.

The plan shall include final siting and design drawings and specifications and other necessary supporting analyses, including photographs, that document the following plan components and objectives: (1) painting or other treatment to reduce the adverse visual impact of the transmission tower adjacent to the falls; (2) the exposed surfaces of the new powerhouse shall be rock-faced to match the cliff location and the adjacent rock facade of the historic powerhouse; (3) existing chainlink fencing at the overlooks shall be replaced with a stone and wood rail system that would be compatible with the site's natural and historic character while providing for public safety and unimpeded views of the falls for adults and children; and (4) providing a means for measuring and reporting flows required in Article 410.

Article 412. The licensee, at least 90 days before starting any project-related land-clearing, land-disturbing, or spoil-producing activities or modifications to existing structures, shall consult with the Idaho State Historic Preservation Officer (SHPO) concerning the measures necessary to maintain the historical integrity of the existing project facilities that render the property eligible for the National Register of Historic Places. Any project modifications shall be undertaken in a manner satisfactory to the SHPO and in accordance with the Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation. Prior to starting any project-related land-clearing, land-disturbing, or spoil-producing activities or modifications to existing structures, the licensee shall file for Commission approval, a cultural resources management plan describing the standards and guidelines that will be implemented to maintain the historical integrity of the existing project facilities, and a copy of a letter from the SHPO commenting on the acceptability of the plan. The Commission reserves the right

to require changes to the plan. Upon Commission approval the licensee shall implement the plan.

Article 413. The licensee, before starting any future land-clearing, land-disturbing, or spoil-producing activities associated with the project, shall consult with the Idaho State Historic Preservation Officer (SHPO) and shall conduct a cultural resources survey of the affected areas. Further, the licensee shall file a report containing the survey results; for Commission approval a cultural resources management plan to avoid or mitigate impacts to any significant archeological or historic sites identified during the survey; and, the written comments of the SHPO on the report and the plan. If the licensee discovers any previously unidentified archeological or historic sites during the course of constructing or developing project works or other facilities at the project, the licensee shall stop all land-clearing, land-disturbing, or spoil-producing activities in the vicinity of the sites, shall consult with the SHPO, and shall file for Commission approval a cultural resources management plan to avoid or mitigate impacts to significant resources, together with the written comments of the SHPO on the plan. Upon Commission approval the licensee shall implement the plan. The survey and the plan shall be based on the recommendations of the SHPO, shall be conducted and prepared by a qualified cultural resources specialist, and shall adhere to the Secretary of the Interior's Guidelines for Archeology and Historic Preservation.

The report and plan shall contain the following: (1) a description of each discovered site, indicating whether it is listed or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered site; (3) proposed measures for avoiding or mitigating the effects; (4) documentation of the nature and extent of consultation with the SHPO; and (5) a schedule for mitigating effects and conducting additional studies. The Commission may require changes to the plan.

The licensee shall not implement a cultural resources management plan or begin any land-clearing, land-disturbing, or spoil-producing activities until informed by the Commission that the requirements of this article have been fulfilled.

Article 414. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility

to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for the protection and enhancement of the project's scenic, recreational, or other environmental values or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

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

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do

not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) nonproject overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than 1 million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report, briefly describing for each conveyance made under this paragraph (c) during the prior calendar year the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

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

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

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

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

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

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

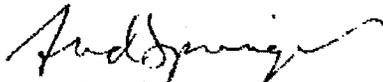
(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion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

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

(E) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this

order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order is issued under authority delegated to the Director and constitutes final agency action. Request for rehearing by the Commission may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. § 385.713.



Fred E. Springer
Director, Office of
Hydropower Licensing

Benjamin Otto (ISB No. 8292)
710 N 6th Street
Boise, ID 83701
Ph: (208) 345-6933 x 12
Fax: (208) 344-0344
botto@idahoconservation.org

Attorney for the Idaho Conservation League

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE)
COMMISSION'S REVIEW OF PURPA QF)
CONTRACT PROVISIONS INCLUDING)
THE SURROGATE AVOIDED) CASE NO. GNR-E-11-03
RESOURCE (SAR) AND INTEGRATED)
RESOURCE PLANNING (IRP))
METHODOLOGIES FOR CALULATING)
PUBLISHED AVOIDED COST RATES.)

Direct Testimony

Justin Hayes

EXHIBIT 1704

**FERC NOTICE OF IPC'S APPLICATION TO AMEND THE BLISS AND LOWER SALMON FALLS LICENSES
AND
EXHIBIT B FROM IPC'S FERC APPLICATION CONTAINING SUPPORT LETTERS FROM U.S. FISH AND
WILDLIFE SERVICE AND IDAHO DEPARTMENT OF FISH AND GAME
AND
IPC'S FERC SUBMITTAL OF IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY SUPPORT LETTER**

May 4, 2012

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Idaho Power Company

Project Nos. 1975-102 and
P-2061-086

NOTICE OF APPLICATION FOR AMENDMENT OF LICENSE AND SOLICITING
COMMENTS, MOTIONS TO INTERVENE, AND PROTESTS

(September 13, 2010)

Take notice that the following hydroelectric application has been filed with the Commission and is available for public inspection:

- a. Application Type: Amendment of license to amend project operation from run-of-river to load-following.
- b. Project Nos.: 1975-102 and P-2061-086
- c. Date Filed: May 11, 2010 and May 5, 2010
- d. Applicant: Idaho Power Company
- e. Name of Project: Bliss (P-1975) and Lower Salmon Falls (P-2061)
- f. Location: The Bliss Project (P-1975) is located on the Snake River in Gooding, Twin Falls and Elmore Counties, Idaho. The Lower Salmon Falls Project (P-2061) is located on the Snake River in Gooding and Twin Falls Counties, Idaho. Both projects occupy lands managed by the Bureau of Land Management. The Lower Salmon Falls project also occupies lands within the Hagerman Fossil Beds National Monument managed by the National Park Service.
- g. Filed Pursuant to: Federal Power Act, 16 USC §§ 791a - 825r
- h. Applicant Contact: Nathan F. Gardiner, Idaho Power Company, 1221 West Idaho Street, P.O. Box 70, Boise, Idaho 83707-0070; telephone (208) 388-2975.
- i. FERC Contact: Andrea Claros, telephone: (202) 502-8171, and e-mail address: andrea.claros@ferc.gov.
- j. Deadline for filing comments, motions to intervene and protests: October 13, 2010.

Comments, protests, and interventions may be filed electronically via the Internet in lieu of paper. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's website (<http://www.ferc.gov/docs-filing/efiling.asp>). Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system (<http://www.ferc.gov/docs-filing/ecomment.asp>) and must include name and contact information at the end of comments. The Commission strongly encourages electronic filings.

All documents (original and eight copies) filed by paper should be sent to: Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426. Please include the project numbers (P-1975-102 and P-2061-086) on any comments or motions filed.

The Commission's Rules of Practice and Procedure require all interveners filing documents with the Commission to serve a copy of that document on each person whose name appears on the official service list for the project. Further, if an intervener files comments or documents with the Commission relating to the merits of an issue that may affect the responsibilities of a particular resource agency, they must also serve a copy of the document on that resource agency. A copy of any motion to intervene must also be served upon each representative of the Applicant specified in the particular application.

k. Description of Request: After the completion of a six-year study on the effects of load-following operation on the federally threatened Bliss Rapids snail, Idaho Power Company (licensee) is proposing to amend Article 401 of the licenses for the Bliss and Lower Salmon Falls Hydroelectric Projects to implement load-following operation rather than run-of-river operation. For the Bliss Project, the licensee proposes a minimum flow of 4,500 cubic feet per second (cfs), a hourly tailwater ramp rate of 3 feet per hour, a daily tailwater ramp rate of 6 feet per day and a headwater fluctuation limit of 2 feet from full pool. For the Lower Salmon Falls Project, the licensee proposes a minimum flow of 3,500 cfs, a hourly tailwater ramp rate of 2.5 feet per hour, a daily tailwater ramp rate of 5 feet per day and a headwater fluctuation limit of 2 feet from full pool. These limits were previously proposed by the licensee prior to the issuance of the project licenses in 2004.

l. Locations of the Application: A copy of the application is available for inspection and reproduction at the Commission's Public Reference Room, located at 888 First Street, NE, Room 2A, Washington, D.C. 20426, or by calling (202) 502-8371. This filing may also be viewed on the Commission's website at <http://www.ferc.gov> using the "eLibrary" link. Enter the docket number excluding the last three digits in the docket number field to access the document. You may also register online at <http://www.ferc.gov/docs-filing/esubscription.asp> to be notified via email of new filings and issuances related to

this or other pending projects. For assistance, call 1-866-208-3676 or e-mail FERCOnlineSupport@ferc.gov, for TTY, call (202) 502-8659. A copy is also available for inspection and reproduction at the address in item (h) above.

m. Individuals desiring to be included on the Commission's mailing list should so indicate by writing to the Secretary of the Commission.

n. Comments, Protests, or Motions to Intervene: Anyone may submit comments, a protest, or a motion to intervene in accordance with the requirements of Rules of Practice and Procedure, 18 CFR 385.210, .211, .214. In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a motion to intervene in accordance with the Commission's Rules may become a party to the proceeding. Any comments, protests, or motions to intervene must be received on or before the specified comment date for the particular application.

o. Any filings must bear in all capital letters the title "COMMENTS", "PROTEST", or "MOTION TO INTERVENE", as applicable, and the Project Number of the particular application to which the filing refers.

p. Agency Comments: Federal, state, and local agencies are invited to file comments on the described application. A copy of the application may be obtained by agencies directly from the Applicant. If an agency does not file comments within the time specified for filing comments, it will be presumed to have no comments. One copy of an agency's comments must also be sent to the Applicant's representatives.

Kimberly D. Bose,
Secretary.

ATTACHMENT B



United States Department of the Interior

IDAHO FISH AND WILDLIFE OFFICE

1387 S. Vinnell Way, Room 368

Boise, Idaho 83709

Telephone (208) 378-5243

<http://www.fws.gov/idaho>



MAR 18 2010

Nathan F. Gardiner
Idaho Power Company
P.O. Box 70
Boise, Idaho 83707

Subject: Amendments of License for Lower Salmon Falls (FERC 2061) and Bliss (FERC 1975) Hydroelectric Projects —Elmore, Gooding and Jerome Counties, Idaho—
Technical Assistance
Settlement Agreement FERC 1975-2061 14420-2010-TA-0253

Dear Mr. Gardiner:

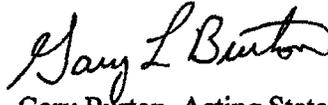
The Fish and Wildlife Service (Service) received two Draft Applications for Amendment (Amendments) of License for Lower Salmon Falls (FERC 2061) and Bliss (FERC 1975) hydroelectric projects (Projects) from the Idaho Power Company (Company) for submission to the Federal Energy Regulatory Commission (Commission). The Amendments were developed for the Projects based on the 2004 Settlement Agreement (Agreement) and associated snail monitoring studies for the 2010 Bliss Rapids Snail Protection Plan (Plan). The Bliss Rapids snail is listed as threatened under the Endangered Species Act of 1973, as amended (Act). The purpose of the Amendments is to propose resumption of load following operations within the limits for the Projects allowed in Attachment 2, Table 2 of the 2004 Settlement Agreement referenced in Appendix B of the Bliss license. The proposed Amendments are consistent with the results of the studies in the Plan and the input received from the Service.

The results of the studies and development of the Plan constitute updated information for Bliss Rapids snail and the proposed action. Based on this new information, we request that the Commission reinstate consultation for the Projects under section 7 of the Act. In addition, the Company's Amendments request an interim load following period beginning April 1, 2010, as per the Plan. This interim strategy is consistent with the Plan developed cooperatively between the Company and the Service. Pending the Commission's request for formal consultation of the Plan and our subsequent development of an updated biological opinion, the Company may choose to operate for an interim period, as outlined in the Agreement, supported by the Plan and

Nathan F. Gardiner
Amendments of License for Lower Salmon Falls (FERC 2061) and Bliss (FERC 1975) Hydroelectric Projects

proposed in the Amendments. If you have any questions please call Michael Morse of my staff at
(208) 378-5261.

Sincerely,



Gary Burton, Acting State Supervisor
Idaho Fish and Wildlife Office

cc: FERC (Bose)



IDAHO DEPARTMENT OF FISH AND GAME

600 South Walnut/P.O. Box 25
Boise, Idaho 83707

C.L. "Butch" Otter / Governor
Cal Groen / Director

April 20, 2010

Mr. Nathan Gardiner
P.O. Box 70
1221 W. Idaho St.
Boise, ID 83702

**RE: Lower Salmon Falls and Bliss projects (FERC No. 2061 and 1975) Applications for
Amendment of License**

Dear Mr. Gardiner:

Idaho Department of Fish and Game (Department) staff has reviewed the draft Applications for Amendment of License for the Lower Salmon Falls (FERC No. 2061) and Bliss (FERC No. 1975) projects to allow Idaho Power Company (IPC or Company) to operate the projects to follow load within the limits of the Snail Protection Plan (Plan) recently filed with the FERC, pursuant to Article 403 of the licenses. The Plan, developed in consultation with the U.S. Fish and Wildlife Service (FWS), addresses the effects of project operations on federally listed snails and contains proposed measures to address water quality concerns, habitat destruction, alteration of spring habitat, and control of invasive species. The proposed Plan does not require IPC to operate the projects in a run-of-river mode.

Specifically, IPC seeks to amend the licenses such that the first paragraph of Article 401 of both licenses is deleted and replaced with language that states the projects will be operated within the limits summarized in Table 2 of Attachment 2 of the "Settlement Agreement Concerning the Relicensing of Idaho Power's Mid-Snake and C.J. Strike Hydroelectric Projects" filed with the FERC on February 12, 2004. Because the Snail Protection Plan does not require run-of-river operation, IPC also seeks to have the second, fourth, and last paragraph of Article 401 of both licenses deleted. The Company further requests they be authorized to operate the projects to load follow on an interim basis pending approval of the Plan. The FWS concurs that the projects may be operated to load follow within the limits of the Plan pending approval by the FERC.

The Department previously commented on the draft Snail Protection Plan and found it acceptable with minor modifications (letter to Michael Stephenson dated March 8, 2010). The Department does not disagree with the proposed amendments to allow load following at the Lower Salmon Falls and Bliss projects within the limits of the Snail Protection Plan, nor do we disagree with the request to operate the projects to load follow on an interim basis pending FERC approval of the Plan.

Keeping Idaho's Wildlife Heritage

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Thank you for the opportunity to comment.

Sincerely,



Cindy Robertson
Natural Resources Program Coordinator

cc: Mike McDonald, Magic Valley Region
Doug Megargle, Magic Valley Region
Harriet Hensley, Office of the Attorney General



Nathan F. Gardiner, Attorney
Telephone: (208) 388-2975
ngardiner@idahopower.com

August 31, 2010

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Bliss (FERC No. 1975-102)
Application for Amendment of License

Dear Ms. Bose:

Enclosed herewith for filing with the Commission is a copy of the Idaho Department of Environmental Quality's (IDEQ) comments on the draft Application for Amendment of License sent to IDEQ on March 2, 2010.

If you have any questions concerning this filing, please call me at (208) 388-2975.

Sincerely,

A handwritten signature in black ink, appearing to read "Nathan F. Gardiner".

Nathan F. Gardiner

NFG:sh
Enclosures
cc: Patrick J. Regan, FERC-PRO

{00039476.DOC; 1}

P.O. Box 70 (83707)
1221 W. Idaho St.
Boise, ID 83702

17



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

August 30, 2010

Nathan F. Gardiner
Idaho Power Company
1221 West Idaho Street
P.O. Box 70
Boise, ID 83707-0070

RE: Bliss Project – FERC No. 1975 Lower Salmon Falls–FERC No. 2061
Amendment of Licenses

Dear Mr. Gardiner:

Idaho DEQ has received letters dated March 2, 2010 and copies of draft Applications for Amendment of License for Project FERC No. 1975 (Bliss Project) and for Project FERC No. 2061 (Lower Salmon Falls). DEQ requested additional information from the Idaho Power Company and received that information via a letter dated July 14, 2010. The information compared the proposed license operational conditions to the historic mode of operation of these Projects.

According to the additional information and based on DEQ review of the Applications, the proposed license amendment operations are consistent and within the historic mode of operation as that has been interpreted and previously certified by DEQ. Since the proposed license amendment operations are within the historic mode of operation, the proposed changes are addressed by the provisions of DEQ's existing section 401 Water Quality Certification for the Bliss and Lower Salmon Falls Projects. Therefore, the Application for Amendment of License for these two Projects as presented in the letters dated March 2, 2010 does not require a new section 401 certification.

Sincerely,

Barry N. Burnell

Barry N. Burnell
Water Quality Division Administrator

c: Doug Conde, AGs Office
Balthasar Buhider, DEQ Twin Falls Regional Office
Michael Morse, USF&WS, Boise Office
Jonathan C. Bowling, P.E., Idaho Power Company

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botto@idahoconservation.org

Attorney for the Idaho Conservation League

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE)
COMMISSION'S REVIEW OF PURPA QF)
CONTRACT PROVISIONS INCLUDING)
THE SURROGATE AVOIDED) **CASE NO. GNR-E-11-03**
RESOURCE (SAR) AND INTEGRATED)
RESOURCE PLANNING (IRP))
METHODOLOGIES FOR CALULATING)
PUBLISHED AVOIDED COST RATES.)

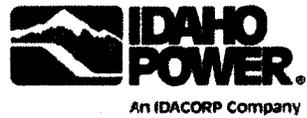
Direct Testimony

Justin Hayes

EXHIBIT 1705

**BIOLOGICAL ASSESSMENT FOR THE SNAKE RIVER PHYSA
SUBMITTED BY IPC TO FERC FOR THE BLISS AND LOWER SALMON FALLS LICENSE AMENDMENTS**

May 4, 2012



**Biological Assessment for
the Snake River Physa**

Barry Bean
Aquatic Biologist

Michael Stephenson
Aquatic Biologist

**Lower Salmon Falls, FERC Project No. 2061-004
Bliss, FERC Project No. 1975-014**

October 2011
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Appendix 1

Application for Amendment of License for Lower Salmon Falls Project

Appendix 2

Ecoanalysts Taxonomic Results for Frest and Johannes Samples

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1. INTRODUCTION

On February 12, 2004, Idaho Power Company (IPC) and the U.S. Fish and Wildlife Service (FWS) filed a settlement agreement (Settlement Agreement) with the Federal Energy Regulatory Commission (FERC) concerning the relicensing of IPC's C.J. Strike and 4 Middle Snake River (Mid-Snake) hydroelectric projects (IPC and FWS 2004). The purpose of the Settlement Agreement was to allow for additional studies to assess the effect, if any, that 5 IPC hydroelectric projects have on 2 of 5 species of snails found in the Snake River or associated springs and which are listed as endangered or threatened. Five species of Gastropoda found in the Snake River of Idaho, or its associated springs, have been given special status under the Endangered Species Act of 1973, as amended (ESA). *Pyrgulopsis idahoensis* Pilsbry, 1933 (Idaho springsnail); *Valvata utahensis* Call, 1884 (Utah valvata snail); *Haitia (Physa) natricina* Taylor, 1988 (Snake River physa); and *Lanx* sp. (Banbury Springs lanx), an undescribed limpet, were ruled endangered. *Taylorconcha serpenticola* Hershler et al., 1994 (Bliss Rapids snail) (BRS) was ruled threatened under the ESA (FWS 1992). The Idaho springsnail has since been synonymized with *P. Robusta* Walker, 1908 (Jackson Lake springsnail) by Hershler and Liu (2004). On September 5, 2007, the FWS issued a final rule to remove the Idaho springsnail from the List of Endangered and Threatened Wildlife (FWS 2007), and IPC was not required to study this taxon past this date. Lysne et al. (2007) provides a review of the life history, ecology, and distribution of the springsnail. The Utah valvata snail was also excluded from the proposed studies since project operations of these hydroelectric projects were anticipated to have minimal effect on the species. The Utah valvata has also been delisted by the FWS (FWS 2010).

The Snake River physa was not included in the Settlement Agreement studies due to its extreme rarity and since the proposed operations of the Lower Salmon Falls (FERC Project No. 2061-004) and Bliss (FERC Project No. 1975-014) projects were not anticipated to directly affect this species or its deeper-water habitat. Since that time, upstream surveys conducted by U.S. Bureau of Reclamation (USBR) near Minidoka Dam have shown that Snake River physa can inhabit shallower riverine habitats than previously noted.

The Lower Salmon Falls and Bliss projects are not used to store water on a seasonal basis. Although Lower Salmon Falls and Bliss reservoirs have minimal storage, they are used to follow electrical energy demand (load following) on a limited, daily basis and to help meet short-term, unexpected peak-load requirements. Load following at these projects dewater benthic habitats downstream of the dams for short durations. Dewatering has the potential to strand and affect benthic organisms residing in the dewatered zone.

After submitting the final reports pertaining to the Settlement Agreement biological opinion (BiOP) studies (Clark 2009), License Article 403 required IPC to file a Snail Protection Plan (IPC 2010). Developed in cooperation with the FWS, the Snail Protection Plan outlined studies to monitor BRS in the Snake River and its spring tributaries for the term of the Mid-Snake licenses. The goal of the Snail Protection Plan is to collect data to monitor the long-term population trends in the riverine and spring habitats. The information collected will help guide management decisions regarding BRS and requires protection measures for the species on IPC-owned properties.

On May 5, 2010, IPC petitioned FERC to amend the Lower Salmon Falls and Bliss project licenses to allow for load-following operations at these facilities (Appendix 1). The proposed load-following operations are outlined in detail (Table 1) in the Settlement Agreement. The proposed load-following operations constitute the action (Action) considered in this Biological Assessment. This document evaluates the potential impacts of the Action on the Snake River physa snail.

2. ACTION AREA

The Action Area includes that portion of the Snake River impacted by operations of the Lower Salmon Falls and Bliss dams. The upstream extent of the Action Area is the upper end of Lower Salmon Falls Reservoir at river mile (RM) 579, and continues downstream to the headwaters of C.J. Strike Reservoir at RM 522.5 for a total of 70.45 miles (Figure 1). The upstream extent of the Action Area is approximately 3 miles southwest of the town of Hagerman in southwest Idaho, while the downstream end of the Action Area is approximately 14 miles south of the town of Mountain Home, ID.

The Action Area consists of 5 distinct river reaches due to the 2 impoundments and stream morphology. These 5 river reaches from upstream to downstream are referred to as the Lower Salmon Falls Reservoir, Lower Salmon Falls Reach, Bliss Reservoir, Upper Bliss Reach, and Lower Bliss Reach. Each river reach is described in detail in the following sections.

2.1. Lower Salmon Falls Reservoir

Lower Salmon Falls Reservoir begins immediately downstream of the lower of the 2 Upper Salmon Falls power plants at RM 579 and continues downstream to Lower Salmon Falls Dam at RM 573 for a total of 6 miles. The reservoir is approximately 750 acres, or 3,035,119 square meters (m²) in size at full pool (FERC 2004a).

The Lower Salmon Falls license (FERC 2004a) requires IPC to operate Lower Salmon Falls Dam as a run-of-river (ROR) project, maintaining Lower Salmon Falls Reservoir at full-pool elevation (2,798 feet mean sea level [ft msl]). Exceptions to this mode of operation include ESA snail studies that occurred in the past and emergency operations outlined in FERC (2004a). IPC proposes to operate this project in a load-following mode, altering discharge downstream of the dam to meet electrical demand. Under this proposal, IPC would be allowed to draft Lower Salmon Falls Reservoir no more than 2 feet from full pool (2,796 ft msl).

2.2. Lower Salmon Falls Reach

This free-flowing reach begins just downstream of Lower Salmon Falls Dam at RM 573 and continues downstream to the headwaters of Bliss Reservoir at RM 566 for a total of 7 miles. Habitat types in this reach are dominated by glides (58%), followed by riffles (20%), pools (15%), and rapids (7%) (Welcker, Conner, Butler et al. 2009).

The Lower Salmon Falls license (FERC 2004a) requires IPC to operate Lower Salmon Falls Dam as a ROR project, passing inflows to the reservoir downstream of the project as closely

as possible. Under the proposed operations, IPC would be allowed to ramp the discharge downstream of Lower Salmon Falls Dam by 2.5 feet per hour (ft/hr) and 5 feet per day (ft/day), subject to a minimum discharge requirement of 3,500 cubic feet per second (cfs) to protect ESA-listed snails.

2.3. Bliss Reservoir

Bliss Reservoir begins at RM 566, near Shoestring Bridge, and continues downstream to Bliss Dam at RM 560.3, for a total of 5.7 miles. The reservoir is approximately 255 acres, or 1,031,940 m² in size at full pool (FERC 2004b).

The Bliss license (FERC 2004b) requires IPC to operate Bliss Dam as a ROR project, maintaining Bliss Reservoir at full-pool elevation (2,654 ft msl). Exceptions to this mode of operation include ESA snail studies that occurred in the past and emergency operations outlined in FERC (2004b). IPC proposes to operate this project in a load-following mode, altering discharge downstream of the dam to meet electrical demand. Under this proposal, IPC would be allowed to draft Bliss Reservoir no more than 2 ft from full pool (2,652 ft msl).

2.4. Upper Bliss Reach

The Upper Bliss Reach begins just downstream of Bliss Dam at RM 560.3 and continues downstream to the King Hill Bridge at RM 546.35. Habitat types in this reach are dominated by glides (68.4%), followed by pools (16%), riffles (6%) with rapids and bench and chute making up the remainder (Welcker, Conner, Butler et al. 2009).

The Bliss license (FERC 2004b) requires IPC to operate Bliss Dam as a ROR project, passing inflows to the reservoir downstream of the project as closely as possible. Under the proposed operations, IPC would be allowed to ramp the discharge downstream of Bliss Dam by 3 ft/hr and 6 ft/day, subject to a minimum discharge requirement of 4,500 cfs to protect ESA-listed snails.

2.5. Lower Bliss Reach

The Lower Bliss Reach begins at the King Hill Bridge at RM 546.35 and continues downstream to the headwaters of C.J. Strike Reservoir at RM 522.5, near Crane Rock. We used ArcMap™ version 10 to estimate the surface area of this reach, which is approximately 7,973,763 m².

3. STATUS OF THE SPECIES

3.1. Snake River Physa Species Description

The Snake River physa was listed as endangered December 14, 1992 (FWS 1992). Critical habitat for this species has not been designated. Adult snails measure approximately 5–7 millimeters (mm) with 3–3.5 whorls. Shells are described as having a broad aperture and expanded body whorl (Taylor 2003). The growth lines are oblique to the axis of the coil at about 40 degrees and relatively distinct (Taylor 2003).

The taxonomy of the Snake River physa has been debated in recent years. Rogers and Wethington (2007) synonymized *P. natricina* with *P. acuta*. The synonymy was based on re-examination of all type material of Snake River physa and compared to Taylor's original description (1988). Rogers and Wethington (2007) determined that the internal and external morphological features Taylor relied upon to distinguish *P. natricina* were all within the range of variability documented for *P. acuta*.

Physidae can be difficult to identify based on shell morphology alone (Burch 1989); many of the distinguishing features described by Taylor are based on internal anatomy (Taylor 1988, 2003). There were no specimens with intact soft tissue available at the time Rogers and Wethington (2007) made their assessment. Gates and Kerans (2010) examined Physidae specimens collected by USBR in 2006–2008. They examined shell morphology as well as internal anatomy. Gates and Kerans (2010) reported 274 live-when-captured specimens that conformed to Taylor's (1988) description of Snake River physa. Gates and Kerans (2010) also reported that DNA analysis confirmed these specimens to be genetically distinct and, along with the use of morphological and anatomical characteristics, identified them as Snake River physa.

3.2. Life History and Population Dynamics of the Snake River Physa

Very little is known about the life history of the Snake River physa. The Snake River physa was thought to occupy whitewater habitat with depths greater than 3 feet (Taylor 1982). Gates and Kerans (2010) reported that Snake River physa were more common in permanently wetted sites; they found the species in 28.4% of permanently watered sites, compared to 5.8% of seasonally dewatered sites. They reported mean depth of occupied sites as 1.74 meters (m). Snake River physa were positively correlated with gravel substrates and higher water velocities (Gates and Kerans 2010). The species is thought to be riverine, but 2 specimens tentatively identified as Snake River physa have been collected in the Bruneau Arm of C.J. Strike Reservoir (Table 2), one specimen was collected in Swan Falls Reservoir (Table 2), and USBR has collected specimens from a lotic wetland area just downstream of Minidoka Dam (Kerans and Gates n.d.).

Little is known about the population dynamics of the Snake River physa as few specimens of the snail have ever been collected. Gates and Kerans (2010) noted that the species could be found in the same location from year to year. Taylor (1988) describes its range as "restricted to the Snake River from the vicinity of Bliss to Hammett, Idaho," although sampling by USBR and IPC has extended their known range upstream to Minidoka Dam (RM 675) and downstream to the mouth of the Payette River (RM 367.9).

Gerard et al. (2008) reported that pulmonates are well-adapted to stochastic environments, such as large water-level variations and seasonal drought episodes, due to their pulmonary respiration and their greater genetic and phenotypic plasticity. Thomas and McClintock (1996) observed *P. cubensis* burrowing into the hyporheic sediments to survive desiccation in ephemeral ponds. John Keebaugh (pers. comm.) observed Snake River physa burrowing through small gravel substrate in the laboratory. Snake River physa behavior has not been observed during dewatering events, so any potential behavioral adaptations to dewatering events are not known at this time.

Water temperature tolerances and preferences of Snake River physa are unknown. FWS (1992) reported the species requires clean, cold water, yet Gates and Kerans (2010) reported a mean water temperature of 22.63 degrees Celsius (°C) for sites occupied by the species. This temperature exceeds the maximum temperature criteria for coldwater biota of 22 °C set forth under the Clean Water Act of 1972 (formerly known as the Federal Power Act of 1935, as amended) (CWA). We used a t-test to compare the mean water temperature and standard errors for sites where Snake River physa were present and absent as reported by Gates and Kerans (2010, Table 1.3). Water temperatures were significantly higher for sites occupied by Snake River physa compared to unoccupied, permanently watered sites ($p=0.001$) by an estimated 0.6 °C. The mean temperature for the subset of sites where Snake River physa occurred in the permanently watered zone was higher than the mean temperature for all permanently watered sites (Gates and Kerans 2010, Table 1.12) (t-test, $p=0.007$; estimated difference of 0.5 °C). These results suggest the Snake River physa can tolerate water temperatures above the coldwater standard of 22 °C, and that the species is associated in warmer water within the temperature range observed by Gates and Kerans (2010).

3.3. Documented Observations of Snake River Physa in the Mid-Snake River

Taylor (1988) describes 12 collections of Snake River physa in the Action Area from 1959–1985. It is unclear from his descriptions which specimens were collected live or dead. The holotype was collected in 1980 from the Lower Salmon Falls Reach near Frank Lloyd Wright Rapids (@ RM 570). Taylor (1988) also made collections from the same site in 1959, 1961, and 1981. In addition, Taylor collected 3 specimens “above the Malad Power Plant,” in 1980.

Taylor (1988) also collected specimens on 3 occasions (twice in 1980 and once in 1959) in the vicinity of Bancroft Springs in the Upper Bliss Reach. In the Lower Bliss Reach, Taylor made collections in 1956, 1980, 1981, and 1985 “1 mile above Indian Cove Bridge.”

Frest and Johannes (2004) surveyed the sites described above where Taylor reported collecting Snake River physa. Frest and Johannes subsampled 1,000 mollusks from each of these samples, but did not find any Snake River physa. IPC contracted with EcoAnalysts, Inc., Moscow, ID, to sort the remainder of these samples in 2011. EcoAnalysts examined 22 sample jars taken from 15 locations during Frest and Johannes’ 2003 Snaker River physa survey. No *Physa natricina* were found during this study (Appendix 2).

Verified specimens of Snake River physa were very rare until recently, when the USBR discovered them in the upper Snake River (Gates and Kerans 2010). These new collections of Snake River physa prompted IPC to re-evaluate specimens identified as Physidae from samples collected throughout the Middle and Lower Snake River from 1995–2003. John Keebaugh of the Orma J. Smith Museum of Natural History at the College of Idaho in Caldwell, ID, identified 51 (live when captured) Snake River physa from 19,426 specimens identified as Physidae (Keebaugh 2008) (Table 2). These Snake River physa were collected between Bliss Dam (RM 559.3) downstream to a site near the mouth of the Payette River (RM 367.9).

Of the 51 Snake River physa Keebaugh identified from IPC's samples, one was collected in the Action Area at RM 559.3, just downstream of Bliss Dam.

IPC and the FWS contracted with Montana State University (MSU) to further examine the morphology of all 51 specimens and the genetics of a subset of these. DNA was successfully collected from 15 of the specimens and matched Snake River physa genetic characteristics from specimens collected by USBR upstream in the Minidoka Reach of the Snake River (Gates and Kerans 2011). Gates and Kerans were unable to collect DNA from the specimen collected in the Action Area, and the morphological identification was uncertain due to a broken apex. Two other specimens with broken apices and uncertain morphologic identification were confirmed as Snake River physa with the DNA analysis (Gates and Kerans 2011).

4. ENVIRONMENTAL BASELINE

IPC conducted macroinvertebrate surveys in the Action Area in 1995, 1996, 2000, and 2002, for which all invertebrates were sorted and identified to the lowest appropriate taxonomic level. A total of 1,139 samples were collected. Only one (potential) Snake River physa was collected during this effort. The species is likely very rare or absent from the Action Area.

4.1. Water Quality

The Idaho Department of Environmental Quality (IDEQ) listed the study area as water quality limited, as defined under §303(d) of the federal CWA (33 U.S.C §1313[d]) (IDEQ 2006). The Snake River from Milner Dam (RM 639) downstream to King Hill (RM 546.35) was listed for nutrients, sediment, dissolved oxygen (DO), flow alteration, ammonia, pathogens, and temperature (IDEQ 1998). The reach from King Hill Bridge (RM 546.35) to Crane Rock (RM 522.5) was listed for sediment, nutrients, and pesticides (IDEQ 2006). For comparison, the reach of the Snake River from Minidoka Dam to Milner Dam (where Snake River physa have been found in densities and abundances greater than in the Action Area (Gates and Kerans 2010) is listed on the CWA §303(d) list of water-quality limited water bodies for sediment, DO, nutrients, and oil and grease (IDEQ 2000), as well as temperature, flow alteration, and *Escherichia coli* (*E. coli*) (IDEQ 2010).

4.2. Occurrence of Associated Invertebrates

Kerans and Gates (n.d.) and Ryan Newman (USBR, pers. comm.) noted samples that contained Snake River physa also had *Ferrissia rivularis* (a freshwater limpet) and *Helobdella stagnalis* (a leech) present each time in their 2006 samples (n=30). We reviewed samples collected by IPC for the presence of these 2 species in the Action Area (IPC unpublished data) (Table 3). *Helobdella stagnalis* occurred in both reservoirs, as well as the Lower Bliss Reach. *Ferrissia* sp. occurred in all of the free-flowing reaches. The only section of the Action Area occupied by both species is the Lower Bliss Reach, suggesting this area may provide the best habitat for Snake River physa.

We compared the mollusk community of the Action Area to the Minidoka Reach and Snake River RM 366.9–490.1, where the majority of Snake River physa have been collected

in the Mid-Snake (Table 4). BRS and *P. Robusta* were not included in this species list, as many of our samples targeted these 2 species without identifying and counting other species. Mollusk community data for the Minidoka Reach are from Gates and Kerans (2010). The Action Area mollusk community is dominated by the invasive New Zealand mudsnail (*Potamopyrgus antipodarum*) (NZMS), compared to 2.5% of the mollusk community in the Minidoka Reach. Both of the reaches where Snake River physa occurred also had relatively high numbers of Artemesian rams-horn (*Vorticifex effusa*). This species is also fairly common in the Upper and Lower Bliss reaches. The 2 reservoir reaches had the lowest diversity with NZMS comprising over 97% of the mollusk community.

4.3. Habitat Analysis

Taylor (1982) described Snake River physa habitat as "gravel to boulder substratum in steady current." More recent studies conducted by Gates and Kerans (2010) found that the species occurred most frequently on gravel substrate. We made use of Welcker, Conner, Wilson et al. (2009) to describe the substrate in the Lower Salmon Falls Reach and Upper Bliss Reach. For the other 3 reaches, we reviewed field notes for substrate data dating back to 1995 (IPC, unpubl. data).

Welcker, Conner, Wilson et al. (2009) used a one-dimensional hydrodynamic model to predict substrate size in 2 categories: Cobble or larger (>64 mm) and gravel or smaller (<64 mm). They verified their predictions using underwater video equipment.

4.3.1. Lower Salmon Falls Reservoir

Substrate data for this reach are sparse, as IPC has conducted limited sampling for macroinvertebrates in Lower Salmon Falls Reservoir. We collected substrate data for 11 sites in the reservoir. Four of the 11 sites (36%) had gravel substrate. The surface area of the reservoir is approximately 3,035,119 m². This is a 2-dimensional estimate, so the actual benthic area is greater by an unknown amount. Combining the estimates for proportion of gravel substrate and the surface area provided above results in an estimated gravel habitat area of 1,092,643 m². It is unknown what proportion of this habitat would be dewatered during load-following operations; however, the water depth at the dam during full-pool conditions is approximately 59 ft; therefore, the majority of the habitat in this reservoir remains inundated when the reservoir elevation is reduced by 2 ft.

4.3.2. Lower Salmon Falls Reach

Welcker, Conner, Wilson et al. (2009) found that 17% of this reach consisted of gravel or smaller substrate. This estimate of small substrate includes gravel as well as smaller substrate types, such as sand and silt, and thus should be considered a high estimate. Bean and Van Winkle (2009) estimated the wetted habitat for this reach to be 945,761 m² at the minimum discharge level allowed by the license of 3,500 cfs. This equates to approximately 160,799 m² of habitat in the Lower Salmon Falls Reach that consists of gravel or smaller substrate in the permanently wetted zone.

Load-following operations at the Lower Salmon Falls project dewater 27,094–71,711 m² of benthic habitat in the Lower Salmon Falls Reach, depending upon discharge in the river upstream of the power plant (Bean et al. 2009). If 17% of this habitat is made up of gravel or smaller substrate, this results in 4,605–12,191 m² of substrate that is potential Snake River physa habitat.

4.3.3. Bliss Reservoir

IPC has noted substrate at 30 sites in Bliss Reservoir. Of the 30 sites, 13 (43%) were gravel substrate. The surface area of the reservoir is approximately 1,031,940 m². This is a 2-dimensional estimate, so the actual benthic area is greater by an unknown amount. Combining the estimates for proportion of gravel substrate and the surface area provided above results in an estimated gravel habitat area of 469,837 m². It is unknown what proportion of this habitat would be dewatered during load-following operations; however, the water depth at the dam during full-pool conditions is approximately 70 ft; therefore, the majority of the habitat in this reservoir remains inundated when the reservoir elevation is reduced by 2 ft.

4.3.4. Upper Bliss Reach

Welcker, Conner, Wilson et al. (2009) found that 44% of this reach consisted of gravel or smaller substrate. This estimate of small substrate includes gravel as well as smaller substrate types, such as sand and silt, and thus should be considered a high estimate. Bean and Van Winkle (2009) estimated the wetted habitat for this reach to be 1,671,782 m² at the minimum discharge level allowed by the license of 4,500 cfs. This equates to approximately 735,584 m² of habitat in the Upper Bliss Reach that consists of gravel or smaller substrate in the permanently wetted zone.

Load-following operations at the Bliss project dewater 98,890–205,353 m² of benthic habitat in the Lower Salmon Falls Reach, depending upon discharge in the river upstream of the power plant (Bean et al. 2009). If 44% of this habitat is made up of gravel or smaller substrate, this results in 43,512–90,355 m² of substrate that is potential Snake River physa habitat.

4.3.5. Lower Bliss Reach

IPC has noted substrate at 50 sites in the Lower Bliss Reach. Of the 50 sites, 26 (52%) were gravel substrate. The surface area of the Lower Bliss Reach is approximately 7,973,763 m². This is a 2-dimensional estimate, so the actual benthic area is greater by an unknown amount. Combining the estimates for proportion of gravel substrate and the surface area provided above results in an estimated gravel habitat area of 4,146,357 m².

We calculated the area inundated by the Lower Bliss Reach for the range of operational flows (4,500–15,500 cfs) from Bliss Dam (Table 5). The Inundation Analysis report for the Mid-Snake River, Idaho (Conner et al, 2009) provided inundation results for the reach of the Upper Bliss Reach, and it contains complete descriptions on how the data were collected, processed and analyzed. We used similar methods and data to determine the area of inundation for the Lower Bliss Reach.

To complete the analysis, we used the aerial photography and photogrammetry developed for the previous inundation analysis. The aerial photography was taken on April 13, 2004 when the flows out of Bliss Dam were between 5,000 and 5,200 cfs. The inundated plan area in the photos (8,251,968 m²) was taken to represent the area at a flow 5,000 cfs. For the inundation analysis of the Lower Bliss Reach, all results are presented as plan area, as opposed to slope area that was used in the inundation analysis upstream (Conner et al, 2009). There is less difference between slope and plan area in the lower reach because of the flatter bathymetry, and this approach simplified the analysis. The aerial photographs were interpreted with photogrammetry to create 2 ft contour maps of the Lower Bliss Reach. The incremental increase in inundated area at flows from 6,000 to 15,500 cfs was calculated using modeled water surface elevations for these flows compared to the elevations of the continuous topographic surface from the photogrammetry. To calculate the inundated areas for 4,500 cfs, we extrapolated the observed trend in the graph using a linear regression of the 5 data points for flows of 5,000 to 9,000 cfs. The equation for this line was found to be inundated area (m²) = 57.02*flow (cfs) + 8,218,720. The results of the analysis are provided in Table 5 below.

These results for inundated area of the Lower Bliss Reach of the Snake River vs. flow for the operational range of Bliss Dam shows relatively minor changes in area for large changes in flow. The inundated area increases only 9% through the entire operational range. This is due to the wide, flat nature of this reach where water surface elevations do not increase as much due to increases in flow as seen above King Hill Bridge. The results also show a slightly greater increase in inundated areas between flows 9,000 and 11,000 cfs. The lower reach of the Snake River below King Hill contains numerous islands and the lower elevation portions of these islands inundate at flows between 9,000 and 11,000 cfs, which explains the slightly steeper slope of the line at those flows.

Below King Hill Bridge, the Snake River changes shape and transitions to a wider, shallower river with large islands and above King Hill Bridge the river is narrow and deeper with more rapids, riffles and glides. Because the river is wider below King Hill Bridge, the water surface elevation changes less with flow than the river above the bridge. To show how the water surface varies above and below King Hill Bridge we completed Figure 2, which displays the observed range of measured water elevation data (stage) from Bliss Dam to Crane Rock for a range of flows from 4,500 to 28,000 cfs.

During the two ROR years (2004-2005 and 2005-2006), the minimum flows out of Bliss Dam were approximately 4,900 cfs. During Load Following operations, the minimum flows can be as low as 4,500 cfs. This lower minimum flow exposes 22,810 m² of riverbed more than 4,900 cfs flow, which represents a 0.3% decrease in total inundated area.

5. FACTORS AFFECTING THE SPECIES WITHIN THE ACTION AREA

The FWS (1992) listed hydroelectric development, peak-loading effects from existing hydroelectric project operations, water withdrawal and diversion, water pollution, inadequate regulatory mechanisms, and the invasive NZMS as factors affecting the Snake River physa at the time of listing.

Water quality within the species' range is impacted by return flows from irrigated agriculture, fish hatchery effluent, hydroelectric development, sewer treatment plant discharge, and spring flows (IDEQ 1998). The susceptibility of Snake River physa to impaired water conditions is unknown. The invasive NZMS is the most abundant mollusk in the Action Area (Table 4). Studies have not been conducted to assess competitive impacts of the NZMS on Snake River physa. Richards (2004) conducted experiments to assess competition between the NZMS and the threatened BRS, which is endemic to the Snake River drainage. Richards reported that the NZMS negatively impacted BRS growth rates. Richards (2004) also found that increasing NZMS densities in enclosures resulted in lower BRS densities. The high abundance of NZMS in the Action Area is likely to impact the Snake River physa if resources are limited.

The Action is limited to IPC operations of the Lower Salmon Falls and Bliss projects. Additional discharge alterations in the Action Area consist of water withdrawal or augmentation, as well as seasonal and daily water fluctuations. The numerous dams on the Snake River divert and alter water discharge from its headwaters all the way to the mouth of the Columbia River. Little is known about the pre-impoundment flow regime of the Snake River within the Action Area. Seasonal run-off events were certainly larger in magnitude in the absence of flood control and water storage for irrigation. Reduced peak flows, paired with agricultural activity in the Snake River Basin, have likely increased sedimentation in the Action Area. There currently are no plans or proposals to develop any new hydroelectric projects within the species' range.

6. EFFECTS OF THE PROPOSED ACTION

6.1. Direct

Direct effects to Snake River physa individuals or eggs are expected to result from individuals being stranded out of water due to changes in discharge as a result of the Action. Direct effects of stranding to Snake River physa are desiccation and exposure to temperature extremes. Desiccation of individual snails of all age classes (including eggs) may result in mortality or reduced fitness, especially when ambient air temperatures are extreme (i.e., summer heat and winter freezing events). The Snake River physa lack an operculum, which is used to seal the shell and could potentially reduce susceptibility to desiccation. The species does have a pallial lung, which may aid in respiration when dewatered. John Keebaugh (pers. comm.) described Snake River physa as a relatively mobile species, so adult snails may be able to avoid desiccation by migrating as the water level drops. Desiccation studies have not been conducted for this species; therefore, their tolerance to dewatering is unknown.

Gates and Kerans (2010) reported that Snake River physa occurred more frequently in permanently watered sites (69) compared to seasonally dewatered sites (9). Furthermore, 80% of sites occupied by Snake River physa were in the middle 50% of the river. Minidoka Dam is used for seasonal storage, with winter discharge 10-times lower than estimated discharge in the absence of the dam for many continuous months (Gates and Kerans 2010). The fluctuation zone in the Action Area is very different in nature, as the Lower Salmon Falls and Bliss projects are not capable of seasonal storage. Snake River physa typically do not inhabit shallow habitat (Taylor 1988, Gates and Kerans 2010); therefore, the majority of the population residing in the

Action Area is likely to be protected by the minimum discharge guidelines outlined in FERC 2004a and 2004b.

Very little is known regarding the timing, location, or frequency of Snake River physa reproduction in the Action Area. Desiccation studies have not been conducted for Snake River physa eggs. If the species does lay eggs in the fluctuation zone, it is likely that periodic dewatering events negatively impact survival of the eggs. Impacts to eggs may be greater during periods of extreme hot or cold weather, but it is not known when the species reproduces. Hyporheic seepage in the dewatered zone may help to reduce impacts to eggs.

6.2. Indirect

While diet studies have not been conducted for the Snake River physa, Clampitt (1970) qualitatively analyzed gut contents of *P. integra* and *P. gyrina*. Detritus was the most common food item, followed by algae. Hydroelectric operations have been shown to reduce periphyton productivity in rivers (Gislason 1980), but impacts to periphyton in the Action Area have not been studied. The periphyton community is likely degraded in the dewatered zone of the Action Area, which could result in reduced fitness and increased competition for the Snake River physa.

The invasive NZMS is abundant in the Action Area. Stress (e.g., reduced food sources, harassment due to water level fluctuations, etc.) related to the Action may give the NZMS a competitive advantage over Snake River physa in the Action Area, which could further reduce fitness and abundance of the Snake River physa.

6.3. Cumulative

Much of the Mid-Snake is water quality limited (IDEQ 1998, 2000, 2006, 2010). Anthropogenic impacts to water quality and quantity in the Snake River upstream of the Action Area will likely continue to impact Snake River physa habitat within the Action Area.

Climate change could alter the flow regime of the Snake River over time. For example, Hamlet and Lettenmaier (1999) predict that warmer winter weather will result in 35–45% reductions in snowpack in the Columbia River Basin by year 2045. A reduction in snowpack could result in lower Snake River discharge as water is allocated to irrigators. Water quality may be impacted as irrigators are forced to use more chemicals (e.g., fertilizer) on their crops to compensate for reduced water allotments. Reduced discharge may also lead to lower dilution rates of pollutants, resulting in increased water-quality impairment. In addition to water quality changes, water temperature could rise with increasing ambient air temperatures, especially as a greater proportion of water is passed through irrigation systems before reaching the Snake River. While Snake River physa are known to occur in conditions warmer than the CWA §303(d) coldwater biota criteria of 22 °C, their thermal tolerance is unknown. Increases in water temperature could also affect interspecific competition, food resources, and dissolved oxygen levels, among other factors. Further warming of the water within the Action Area due to climate change and related factors could negatively impact Snake River physa.

Introduction of additional invasive species to the Action Area could negatively impact the Snake River physa. The Idaho State Department of Agriculture (ISDA) has implemented a boat

inspection program to prevent introduction of aquatic nuisance species, but it is possible that invasive species will be introduced to the Action Area despite these efforts. Additional competition from invasive species in a waterway that is already water-quality limited could have negative impacts on Snake River physa.

7. CONCLUSION

IPC concludes that load-following operations of the Lower Salmon Falls and Bliss projects may affect the Snake River physa, but are not likely to jeopardize the continued existence of the species. This is based on the fact that the species prefers deep-water habitat that is protected by minimum-discharge requirements, and the daily fluctuation zone likely represents less than 5% of the habitat within the Action Area. However, Snake River physa eggs, juveniles, and adults that are stranded in the dewatered zone as a result of operations of the 2 projects may be negatively impacted.

8. ACKNOWLEDGMENTS

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9. CONSULTATION

IPC met with FWS on August 20, 2011, to discuss the impacts of the Action on Snake River physa. Since that time, IPC has met informally with FWS and shared data from the IPC database at their request.

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