

99 FERC ¶ 62, 152
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

South Carolina Electric & Gas Company

Project No. 1895-007

ORDER ISSUING NEW LICENSE
(Issued May 30, 2002)

INTRODUCTION

On June 30, 1998, South Carolina Electric & Gas Company (SCE&G) filed an application for a new major license pursuant to Sections 4(e) and 15 of the Federal Power Act (FPA),¹ for the continued operation and maintenance of the 10.6-megawatt (MW) Columbia Project No. 1895. The project is located on the Broad and Congaree Rivers in the City of Columbia and Richland County, South Carolina.² The project does not occupy any federal lands.

BACKGROUND

The previous license for the existing Columbia Project was issued on April 28, 1980, with an expiration date of June 30, 2000.³ Project operations have continued pursuant to annual licenses, pending disposition of SCE&G's application for a new license.⁴

¹16 U.S.C. § § 797(e) and 808.

²Because the project is located on a stream over which Congress has jurisdiction under the Commerce Clause and the project affects interstate commerce through its connection to an interstate power grid, it is required to be licensed pursuant to Section 23(b)(1) of the FPA. 16 U.S.C. § 817(1).

³The original license for the project was issued to SCE&G on July 18, 1944, for a 32.5-year period, effective January 1, 1938, and expiring on June 30, 1970. The project was operated under annual licenses from June 30, 1970, until issuance of a new license on April 28, 1980. The new license was issued for a 30-year period commencing with the expiration of the original license.

⁴See Section 15(a)(1) of the FPA. 16 U.S.C. § 808(a)(1).

On December 23, 1999, the Commission issued public notice that the application was accepted for filing and solicited interventions, protests, and additional study requests. The Department of the Interior (Interior); National Marine Fisheries Service (NMFS); American Rivers; the City of Columbia, South Carolina (City); and the South Carolina Department of Natural Resources (SCDNR) filed motions to intervene, and raised questions, among other issues, about minimum flows, fish passage, and water quality. None of the intervenors object to issuance of a new license.

The Commission staff conducted environmental scoping meetings on April 12 and 13, 2000. After SCE&G submitted additional information, the Commission issued a public notice on October 31, 2000, indicating the application was ready for environmental analysis and soliciting comments, recommendations, terms and conditions, and prescriptions. Responses were received from Interior, NMFS, SCDNR, Richland County, and the Southern Environmental Law Center.

On November 2, 2001, the Commission staff issued a draft environmental assessment (EA) that evaluated the potential impacts of relicensing the Columbia Project, and recommended issuing a new license for the project. On May 2, 2002, the Commission staff issued a final EA that took into account comments received on the draft EA. I have fully considered all comments from interested agencies and individuals in determining whether, and under what conditions, to issue a new license.

PROJECT DESCRIPTION

The project consists of the following existing facilities: (1) a 1,021-foot-long, 14-foot-high timber crib diversion dam; (2) a shallow, 265-acre reservoir located in the Broad River upstream from the diversion dam; (3) an 85-acre, 10-foot-deep, 150-foot-wide, 3.5-mile-long canal; (4) a 210-foot-long, granite-block masonry canal intake structure, containing 12 manually operated vertical lift gates to control the flow of water into the canal; (5) a granite-block masonry canal spillway containing two, 12-foot-wide Taintor gates separated by a 208-foot-long stoplog section; (6) a granite-block and brick masonry powerhouse, containing seven turbine-generator units with a total installed capacity of 10,600 kilowatts, producing about 48 million kilowatthours annually; and (7) other appurtenances.

WATER QUALITY CERTIFICATION

Under Section 401(a)(1) of the Clean Water Act (CWA),⁵ the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency has either issued water quality certification (WQC) for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that state certification shall become a condition of any federal license or permit that is issued.⁶ Only a reviewing court may revise or delete these conditions.⁷

On June 11, 1999, the South Carolina Department of Health and Environmental Control issued water quality certification, consisting of four water quality conditions, which are set forth in Appendix A of this order, and incorporated in the license by ordering paragraph (D).

SECTION 18 FISHWAY PRESCRIPTIONS

Section 18 of the FPA, 16 U.S.C. § 811, provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate.

The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) both filed preliminary fishway prescriptions and schedules for filing final prescriptions for the project in accordance with Section 18 of the FPA on December 26, 2000. FWS and NMFS filed final fishway prescriptions on April 5, 2002, and April 10, 2002, respectively.⁸ Appendix B of this order contains the agencies' fishway

⁵33 U.S.C. § 1341(a)(1).

⁶33 U.S.C. § 1341(d).

⁷As the Commission has acknowledged in *Kennebec Water Power Company*, 81 FERC ¶ 61,254 (1997), it is required by the decision of the United States Court of Appeals in *American Rivers, et al. v. FERC*, 129 F.3d 99 (D.C. Cir. 1997), to accept all conditions in a water quality certification as conditions of a license even if it believes that the conditions may be outside the scope of Section 401. Nothing in the conditions of the water quality certification shall be viewed as restricting the Commission's ability or the licensee's obligation, under the FPA, to take timely action necessary to protect human life or the environment.

⁸ FWS and NMFS filed errata to their fishway prescriptions on April 29, 2002,
(continued...)

prescriptions. To ensure the Commission's ability, under the FPA, to monitor compliance with the final fishway prescriptions and to ensure the protection of human life and the environment, Article 401 requires SCE&G to: (1) file the final fishway design plans, construction schedules, and monitoring studies required in Appendix B with the Commission for approval; (2) file documentation of completion of excavation of the channel immediately downstream of the upstream fishway to provide adequate passage depths; and (3) file amendment applications with the Commission in the event that changes to project operations or facilities become necessary, as stipulated in Appendix B, to facilitate fish migration past the project. Article 402 requires SCE&G to file with the Commission, for approval, a plan to control erosion, to control slope instability, and to minimize the quantity of sediment resulting from the construction of the prescribed fishways.

THREATENED AND ENDANGERED SPECIES

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA)⁹ requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat.

The following federally listed endangered or threatened species are known to occur in Richland County: the endangered red-cockaded woodpecker, shortnose sturgeon, smooth coneflower, rough-leafed loosestrife, and Canby's dropwort, and the threatened southern bald eagle. Atlantic sturgeon, a candidate for listing under the ESA, occur in the Cooper River and Santee River downstream of the Santee-Cooper Project, which is located downstream of the Columbia Project. No threatened or endangered species except the shortnose sturgeon and the bald eagle are expected to occur in the project area. There is no critical habitat for the shortnose sturgeon or the bald eagle in the project area.

Interior states that the proposed relicensing would not affect federally listed threatened or endangered species under its purview. The threatened and endangered species under Interior's jurisdiction are the red-cockaded woodpecker, smooth coneflower, rough-leafed loosestrife, Canby's dropwort, and bald eagle. Therefore, no consultation under Section 7 of the ESA is needed for these species.

⁸(...continued)
and May 15, 2002, respectively.

⁹16 U.S.C. § 1536(a)(2).

The federally listed endangered shortnose sturgeon is known to occur in the project vicinity. In the final EA, the staff recommended a number of measures that would provide increased protection and enhancement for all life stages of shortnose sturgeon in the project area. These measures include upstream and downstream fishways with "sturgeon-friendly" measures and fishway effectiveness testing as prescribed by FWS and NMFS, run-of-river operation (Article 404), and increased minimum flows (Article 405). These measures would aid in sturgeon recovery efforts in the basin, and the final EA concluded that, with those measures, the project would not be likely to adversely affect the endangered shortnose sturgeon.

By letter dated October 25, 2001, NMFS was asked if it agreed with the Commission staff's conclusion of "not likely to adversely affect." By letter dated March 11, 2002, NMFS replied that it concurs with the finding subject to the following "reservations:" (1) SCE&G provide for the release of interim minimum flows until the prescribed fishways and minimum flow gates would be constructed and operational; and (2) the Commission require modification of the fishways or initiate ESA formal Section 7 consultation with NMFS if, once the fishways are operational, NMFS determines that additional modifications would be necessary to prevent adverse effects on shortnose sturgeon. Article 406 requires SCE&G to develop and implement an interim minimum flow release plan, and section A.10 of FWS' and NMFS' fishway prescriptions (Appendix B of this order) requires SCE&G to conduct fishway effectiveness evaluations. Article 401 requires amendment applications to be filed for long-term changes to project operations or facilities, should NMFS and FWS require, as stipulated in Appendix B, any such changes. These measures will ensure that continued operation and maintenance of the project is not likely to adversely affect the endangered shortnose sturgeon.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES AND SECTION 10(J) PROCESS

Section 10(j) of the FPA¹⁰ requires the Commission, when issuing a license, to include license conditions based upon recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act,¹¹ to "adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat)" affected by the project. If the Commission believes that any such recommendation may be inconsistent with the purpose and requirements of Part I of the FPA, or other applicable law, Section 10(j)(2) of the

¹⁰16 U.S.C. § 803(j)(1).

¹¹16 U.S.C. §§ 661 *et seq.*

FPA¹² requires the Commission and the agencies to attempt to resolve such inconsistencies, giving due weight to the recommendations, expertise, and statutory responsibilities of such agencies. If the Commission still does not adopt a recommendation, it must explain how the recommendation is inconsistent with Part I of the FPA or other applicable law and how the conditions imposed by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources.

FWS, NMFS, and SCDNR filed numerous recommendations pursuant to Section 10(j). This license contains conditions adopting FWS', NMFS' and SCDNR's recommendations that SCE&G: (1) operate the project in run-of-river mode (Article 404); (2) release minimum flows (Article 405); (3) release interim minimum flows (Article 406); and (4) develop and implement a plan to monitor reservoir surface elevations and instantaneous instream flows in the bypassed reach (Article 407).

Commission staff made an initial determination that some of the recommendations of NMFS, FWS, and SCDNR were inconsistent with the substantial evidence standard of Section 313(b) and the comprehensive planning and public interest standards of Sections 4(e) and 10(a) of the FPA.¹³ By letter dated October 25, 2001, Commission staff advised NMFS, FWS, and SCDNR of its preliminary determinations and attempted to resolve the apparent inconsistencies. FWS responded by letter dated December 3, 2001, NMFS responded by letter dated December 6, 2001, and SCDNR responded by letter dated December 18, 2001. Through further discussion with NMFS, FWS, and SCDNR at a Section 10(j) meeting held on January 29, 2002, the inconsistencies were resolved.

OTHER ISSUES

Administrative Conditions

The Commission collects annual charges from licensees for administration of the FPA, and to reimburse the United States for the occupancy and use of any federal lands. Article 201 provides for the collection of funds for administration of the FPA.

The Commission requires licensees to file sets of approved project drawings on microfilm. Article 202 provides for the filing of these drawings.

¹²16 U.S.C. § 803(j)(2).

¹³16 U.S.C. § 803(a).

Some projects directly benefitted from headwater improvements that were constructed by other licensees, the United States, or permittees. Article 203 requires SCE&G to reimburse such entities for these benefits if they were not previously assessed and reimbursed.

The Commission requires that for new major licenses, licensees must set up and maintain an amortization reserve account upon license issuance. Article 204 provides for the establishment of the account.

Clearing land for construction and maintenance may result in temporary facilities, brush, refuse, or other material that requires disposal. Article 205 requires SCE&G to follow appropriate federal, state, and local statutes and regulations when clearing and disposing of unnecessary materials.

The Departments of Commerce and the Interior have prescribed the installation of upstream and downstream fishways and minimum flow release gates (Appendix B of this order) at the project. Article 301 requires SCE&G, within 90 days of completion of construction of those facilities, to file for Commission approval revised exhibits A, F, and G, as necessary, to show the facilities as built.

Drought Contingency Plan

During the scoping period, the City expressed concern about maintaining and safeguarding its water supply from the power canal during periods of drought. In response, SCE&G proposed to work with the City and SCDNR to develop a Drought Contingency Plan that would outline priorities for canal water use and passage of water past the power canal intakes and into the bypassed reach. SCE&G filed a Drought Contingency Plan that stipulates a number of actions that would be implemented at the onset of drought conditions in the project area. SCE&G determined that conflicts among competing water uses would begin when inflows to the project reservoir would fall below 1,100 cfs. A plan that establishes a protocol for allocating water during times of low flow would have the beneficial effect of minimizing or resolving conflicts over water that would inevitably arise. Therefore, Article 403 requires SCE&G to implement its Drought Contingency Plan, to the extent that the plan directs the actions solely of SCE&G, the licensee, during drought conditions.

Disturbance of Vegetation

SCE&G proposes to minimize the disturbance of vegetation within the project boundary in order to protect wetland and terrestrial wildlife habitat. This measure would protect and maintain native wildlife habitats. Therefore, Article 408 requires SCE&G to

minimize the disturbance to existing vegetation and wildlife habitats within the project boundary, except as necessary to install the prescribed fishways and any recreational facilities, comply with state and federal regulations, and maintain project structures.

Rocky Shoals Spider Lily

The rocky shoals spider lily (RSSL), a state-listed species of federal concern, grows in sporadic populations in wetted rock-shoal habitat throughout the bypassed reach. In the fall of 1999, SCE&G coordinated with the Native Plant Society of Columbia for the introduction of about 50 RSSL plants to a new part of the bypassed reach: the area of spillway discharge of the project power canal near the Old Waterworks Pumping Station.

SCE&G has prepared a draft monitoring plan for the RSSL. SCE&G's draft plan is generally adequate for monitoring, protecting, and enhancing the RSSL. The draft plan, however, does not provide mechanisms for Commission oversight. Article 409 requires SCE&G to prepare a final plan that includes the following measures: (1) providing to the Commission (a) the results of each survey, (b) the comments of FWS and SCDNR on those results, and, if appropriate, (c) a proposal for additional measures to protect and enhance the RSSL; and (2) filing with the Commission, 90 days before the start of any actions that would be likely to adversely affect RSSL populations, the results of consultation with FWS and SCDNR and a proposal for measures to avoid, minimize, or mitigate any such impacts. Article 409 further requires SCE&G to consult with SCDNR and FWS before preparing its final plan.

SCE&G proposes to establish an interpretive display at the Old Waterworks Pumping Station, after the establishment of a RSSL population visible from the pumping station, to inform the public of efforts to ensure the continued existence of the RSSL. Installing the information display would enhance the public's understanding of this resource. Therefore, Article 409 requires SCE&G to implement this measure.

Historic Properties

There are significant cultural resources in the project area. Facilities associated with the Columbia Hydroelectric Project are included in the Columbia Canal Historic District, which is listed on the National Register of Historic Places (NRHP). In addition, a historic-period archeological site is potentially eligible for inclusion in the NRHP. To protect these resources, SCE&G has developed a Cultural Resources Management Plan (CRMP), which has been approved by the South Carolina State Historic Preservation officer (SHPO). Implementation of the CRMP will protect the significant cultural resources of the project area. Article 410 requires SCE&G to implement the CRMP. Article 410 also requires SCE&G to obtain permission from the Commission and the

SHPO before engaging in any new ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Recreation

SCE&G proposes to improve recreational signage at the project, with an emphasis on angler access areas in the bypassed reach. This proposal will enhance public use by improving awareness of recreational opportunities at the project, especially those areas that are currently not signed. Article 411 requires SCE&G to prepare, for Commission approval, a plan to install recreational signage at the project.

Additional recreational development in the project area is occurring through the River Alliance, a group of community leaders, citizens, cities, and counties that is developing 90 miles of riverfront in the greater Columbia area. The River Alliance's Greenway project, which is funded and in final design, will include the following: (1) a Canal Embankment that will include a viewing plaza near the project dam, pathways, lighting, a restroom, and an angler access point; (2) a City Dock that will include fishing access south of the project powerhouse, a public plaza, restaurants, lighting, and connections to other Greenway features; (3) a Canal Esplanade that will connect the City Dock and Embankment and will include lighting and public space; and (4) a Congaree Riverwalk that will include boating access to the Congaree River, restroom and changing facilities, lighting, and connections to other adjacent riverfront facilities. These facilities will address the need for tailrace and bypassed reach angling access improvements. Therefore, Article 412 requires SCE&G to facilitate the installation of the proposed Greenway project features by entering into an agreement for the use of SCE&G-owned land at or adjacent to the project for the construction and operation of the proposed Greenway facilities.

The South Carolina Coastal Conservation League and American Rivers recommend that SCE&G install a canoe put-in near the project dam. Providing a put-in near the dam would enhance boating use of the bypassed reach, but using that location would involve a seemingly long carry from the nearest parking area, which appears to be on the opposite end of the canal. But further review of the put-in option with those entities responsible for recreation planning in the area has merit. Therefore, Article 413 requires SCE&G to file a report documenting consultation with the River Alliance on the feasibility of incorporating a canoe put-in with its planned Greenway facilities near the dam.

Use and Occupancy of Project Lands and Waters

Requiring a licensee to obtain prior Commission approval for every use or occupancy of land would be unduly burdensome. Article 414 allows SCE&G to grant

permission, without prior Commission approval, for the use and occupancy of project lands for minor activities, such as landscape planting. Such uses must be consistent with the purpose of protecting and enhancing the scenic, recreational, and environmental values of the project.

STATE AND FEDERAL COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA¹⁴ 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.¹⁵ Fourteen comprehensive plans are currently on the Commission's list for the state of South Carolina that address various resources in the state. Of these, the Commission staff identified and reviewed 10 plans that are relevant to this project and six federal plans not solely related to South Carolina.¹⁶ No inconsistencies were found.

¹⁴16 U.S.C. § 803(a)(2)(A).

¹⁵Comprehensive plans are defined for this purpose at 18 CFR 2.19 (2001).

¹⁶The relevant state plans are: Water classifications and standards, and classified waters, 1985, South Carolina Department of Health and Environmental Control; Statewide water quality assessment, FY 1986-1987: a report to Congress pursuant to section 305(b) of the Clean Water Act, 1988, South Carolina Department of Health and Environmental Control; Assessment of nonpoint source pollution for the State of South Carolina, 1989, South Carolina Department of Health and Environmental Control; Nonpoint source management program for the State of South Carolina, 1989, South Carolina Department of Health and Environmental Control; South Carolina's comprehensive outdoor recreation plan, 1985, South Carolina Department of Parks, Recreation and Tourism; Instream flow study - phase I: identification and priority listing of streams in South Carolina for which minimum flow levels need to be established, 1985, South Carolina Water Resources Commission; Instream flow study - phase II - determination of minimum flow standards to protect instream uses in priority stream segments, 1988, South Carolina Water Resources Commission; and South Carolina instream flow studies: a status report, 1989, South Carolina Wildlife and Marine Resources Department - Division of Wildlife and Freshwater Fisheries.

The relevant federal plans are: Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service, undated; Final recovery plan for the shortnose sturgeon (*Acipenser brevirostrum*), 1998, National Marine Fisheries Service; Fishery

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APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10(a)(2)(C) and 15(a) of the FPA,¹⁷ the Commission staff evaluated SCE&G's record as a licensee for these areas: (1) consumption efficiency improvement program; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission services; (7) cost effectiveness of plans; and (8) actions affecting the public. I accept the staff's findings in each of the areas.

Here are the findings:

1. Conservation Efforts

Section 10(a)(2)(C) of the FPA requires the Commission to consider the extent of electricity consumption efficiency improvement programs in the case of license applicants primarily engaged in the generation or sale of electric power, like SCE&G. SCE&G is subject to and must comply with the South Carolina Public Service Commission policies

¹⁶(...continued)

management report no. 36 of the Atlantic States Marine Fisheries Commission: interstate fishery management plan for American eel (*Anguilla rostrata*), 2000, National Marine Fisheries Service; Fishery management report no. 35 of the Atlantic States Marine Fisheries Commission: shad and river herring (includes alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), Alabama shad (*Alosa alabamae*), American shad (*Alosa sapidissima*), and hickory shad (*Alosa mediocris*) - Amendment 1 to the interstate fishery management plan for shad and river herring, 1999, National Marine Fisheries Service; Technical addendum 1 to amendment 1 to the interstate fishery management plan for shad and river herring, 2000, National Marine Fisheries Service; and Fishery management report no. 31 of the Atlantic States Marine Fisheries Commission. Amendment 1 to the interstate fishery management plan for Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), 1998, National Marine Fisheries Service.

The relevant combined federal and state plans are: South Carolina rivers assessment. 1988, U.S. Fish and Wildlife Service, South Carolina Water Resources Commission, National Park Service; and the Santee-Cooper Basin diadromous fish passage restoration plan, 2001, U.S. Fish and Wildlife Service, National Marine Fisheries Service, South Carolina Department of Natural Resources.

¹⁷16 U.S.C. § § 803(a)(2)(C) and 808(a).

regarding energy conservation. It promotes demand side load management practices for both residential and commercial/industrial customers and has undertaken several programs to improve efficiency and promote energy conservation at its own plants. Its customer program includes conservation incentive rate structures and customer education.

These programs show that SCE&G continues to make an effort to conserve electricity and reduce peak hour demands. SCE&G has made a satisfactory good faith effort to comply with Section 10(a)(2)(C) of the FPA.

2. Compliance History and Ability to Comply with the New License

I have reviewed SCE&G's compliance with the terms and conditions of the existing license. I find that SCE&G's overall record of making timely filings and compliance with its license is satisfactory.

3. Safe Management, Operation, and Maintenance of the Project

SCE&G owns and operates the Columbia Hydroelectric Project. I have reviewed SCE&G's management, operation, and maintenance of the project pursuant to the requirements of the Commission's regulations and the associated Engineering Guidelines, as well as all applicable safety requirements such as warning signs and boat barriers. I conclude that the project is being safely managed, operated, and maintained.

4. Ability to Provide Efficient and Reliable Electric Service

The staff reviewed SCE&G's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. SCE&G has been operating the project in an efficient manner within the constraints of the existing license. I conclude that it would continue to operate the project to provide efficient and reliable electric service in the future.

5. Need for Power

The Columbia Hydroelectric Project is owned and operated by SCE&G, a public utility supplying electricity to residential, wholesale, commercial and industrial users. The 10.6-MW Columbia Project operates run-of-river and contributes to SCE&G's baseload electric generating resources. To see how the demand for electricity is expected to change in the future in SCE&G's service area, staff looked at the regional need for power as reported by the Southeast Regional Reliability Council (SERC). For the period of 1999 through 2009, SERC is showing an average annual growth in summer peak demand of 2.36 percent and planned capacity increases of about 34,000 MW. Over the same period,

the capacity resource margins are in the range of 10 to 11.6 percent, decreasing to 9.6 percent in the last year, indicating that the projected increase in demand exceeds the rate of planned capacity increases. I conclude that the region has a need for power over the near term and that the Columbia Project, which supplies a part of the current regional electricity demand, could continue to help meet part of the regional need for power.

If licensed, the power from the project would continue to be useful in meeting SCE&G's needs as well as meeting a small part of the regional need for power. The project displaces fossil-fueled electric power generation that the regional utilities now use, and thereby the project conserves nonrenewable fossil fuels and reduces the emission of noxious by-products caused by the combustion of fossil fuels.

6. Transmission Services

If SCE&G does not receive a new license for the project, replacing project generation with other generation resources would increase transmission system losses by about 330,000 kilowatt-hours annually. No new transmission facilities or upgrading of existing facilities would be required. SCE&G's transmission system is the most effective means currently available to transmit the project's power because it is an existing system, designed to accommodate the project's output. Licensing the project will have no significant effect on existing or planned transmission systems.

7. Cost-Effectiveness of Plans

SCE&G studied the potential for additional power development of the site in 1997. The report determined it would not be feasible to redevelop this site and concluded that the existing project provides the best plan for development of the site. I conclude that the project as proposed by SCE&G, with the modifications included in this license, represents a cost-effective plan for the continued use of the Broad River at this location.

8. Actions Affecting the Public

This license requires environmental protection, mitigation, and enhancement measures that will improve the habitat for fish by providing increased flows for the bypassed reach and improved fish migration past the project dam; improved recreational opportunities; better protection of the City's Columbia Canal water supply intake during drought periods; protection and enhancement of habitat for the state-listed RSSL, and preservation of historic properties.

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1), require the Commission, in acting on applications for license, to give equal consideration to all the power and development purposes and 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. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

In the EA, the staff analyzed the following three alternatives for the Columbia Hydroelectric Project: (1) the project as proposed by SCE&G; (2) the project as proposed by SCE&G with staff-recommended enhancement measures; and (3) the no-action alternative. Based on the staff's independent review and evaluation of the environmental and economic effects of the alternatives, I select SCE&G's proposal with staff-recommended enhancement measures and Interior's and NMFS' Section 18 fishway prescriptions, as discussed herein, as the preferred alternative.

In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, the Commission considers a number of public interest factors, including the economic benefit of the project power.

Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in Mead Corporation, Publishing Paper Division,¹⁸ the Commission employs an analysis that uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefit and the costs of a project, and reasonable alternatives to the project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

Based on current economic conditions, without future escalation or inflation, the Columbia Project, if licensed as proposed by SCE&G, would provide a dependable capacity of 5.3 MW and produce an average of about 43,170 megawatthours (MWh) of energy, at an annual cost of about \$1,510,000 (about \$35/MWh) or about \$353,000 (\$8/MWh) less than the current cost of an equivalent amount of capacity and energy using

¹⁸ See 72 FERC ¶ 61,027 (1995).

alternative power sources.¹⁹ If licensed in accordance with the conditions adopted herein, the project would provide the same amount of capacity and energy at an annual cost of about \$1,705,000 (about \$39/MWh) or about \$158,000 (\$4/MWh) less than the current cost of alternative power sources. Under the no-action alternative, the project would provide a dependable capacity of 5.3 MW and produce an average of 48,000 MWh/year at a cost of \$1,116,000/year (about \$23/MWh) or about \$897,000 (about \$19/MWh) less than the current cost of an equivalent amount of capacity and energy using alternative power sources.

As noted above, it is SCE&G that must make the business decision whether or not to pursue the license. As the Commission explained in Mead, supra, project economics is, moreover, only one of the many public interest factors the Commission considers in determining whether or not, and under what conditions, to issue a license.²⁰

Based on staff's review and evaluation of the project as proposed by SCE&G, and with the additional enhancement measures I am adopting, I conclude that operating the project in the manner required by this license will protect and enhance fish and wildlife resources, water quality, recreational resources, and cultural resources. The electricity generated from the Columbia Hydroelectric Project will be beneficial, because it will continue to reduce the use of fossil-fueled, steam-electric generating plants, thereby conserving nonrenewable energy resources and reducing atmospheric pollution. I, therefore, find that the Columbia Hydroelectric Project, with the required environmental enhancement measures, is best adapted to a comprehensive plan for the use, conservation, and development of the waterway for beneficial public purposes.

LICENSE TERM

¹⁹The Commission staff's estimate of energy benefits is based on information filed by SCE&G in Exhibit H of its license application, showing that the 2001 cost of replacement energy, based on market prices, would be about \$31/MWh. Because the Columbia Project has a dependable capacity of 5.3 MW, the project is also credited with the capital cost of replacing that amount of capacity with new, natural gas-fired, combined-cycle combustion turbine capacity at a cost of \$99/kilowatt-year, resulting in a total estimated power value for the Columbia Project of about \$43/MWh.

²⁰In analyzing public interest factors, the Commission takes into consideration the fact that hydroelectric projects offer unique electric utility system operational benefits, and that proposed projects may provide substantial benefits not directly related to utility operations, benefits that would be lost if a license were denied solely on economic grounds. See City of Augusta, et al., 72 FERC ¶ 61,114, flat copy at p. 19 n. 57 (1995).

Section 15(e) of the FPA²¹ specifies that any license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date on which the license is issued. Commission policy is to grant 30-year license terms for projects with little or no redevelopment, new construction, or new environmental mitigation and enhancement requirements; 40-year terms for projects with a moderate amount thereof; and 50-year terms for projects with extensive amounts thereof.

This license requires SCE&G to invest over \$3 million for construction and testing of fish passage facilities. Based on this level of required expenditure and considering the size of the Columbia Hydroelectric Project, this license will be for a term of 40 years, effective the first day of the month in which this license is issued.²²

SUMMARY OF FINDINGS

The final EA contains background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment. The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license.

Based upon a review of the agency and public comments filed on the project, and the staff's independent analysis pursuant to Sections 4(e), 10(a)(1), and 10(a)(2) of the FPA, I conclude that issuing a license for the Columbia Hydroelectric Project, with the required environmental measures and other special license conditions, will be best adapted to the comprehensive development of the Broad River for beneficial public uses.

The Director orders:

(A) This license is issued to the South Carolina Electric and Gas Company (licensee) for a period of 40 years, effective the first day of the month in which this license is issued. 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:

²¹16 U.S.C. § 808(e).

²²Pacific Gas and Electric Company, 97 FERC ¶ 61,084, 61,414 (2001).

- (1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G included in the application for new license, filed on June 30, 1998.

<u>Exhibit G-</u>	<u>FERC Drawing</u> <u>No. 1895-</u>	<u>Showing</u>
1	1001	General Map
2	1002	Detail Map of Project Area
3	1003	Detail Map of Project Area

- (2) Project works consisting of:

(1) a 1,021-foot-long, 14-foot-high timber crib and concrete diversion dam; (2) a shallow, 265-acre, 3.5-mile-long reservoir located in the Broad River upstream from the diversion dam; (3) an 85-acre, 10-foot-deep, 150-foot-wide, 3.5-mile-long canal; (4) a 210-foot-long, granite-block masonry canal intake structure, containing 12 manually operated vertical lift gates to control the flow of water into the canal; (5) a granite-block masonry canal spillway containing two, 12-foot-wide Taintor gates separated by a 208-foot-long stoplog section; (6) a granite-block and brick masonry powerhouse, containing seven horizontal shaft Francis turbine-generator units with a total installed capacity of 10,600 kW; and (7) other appurtenances.

The project works generally described above are more specifically shown and described by the following exhibits that also form a part of the application for license and that are designed and described as:

Exhibit A:

All 3 pages of Exhibit A, filed June 30, 1998.

Exhibit F:

<u>Exhibit F-</u>	<u>FERC Drawing</u> <u>No. 1895-</u>	<u>Showing</u>
1	1004	Plan & Elevations of Dam & Canal Headgates
2	1005	Plan & Elevations of Power Plant Structure
3	1006	Spillway in Canal Bank

(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 property boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibits A, F, and G as designated in ordering paragraph (B) above are approved and made part of the license.

(D) This license is subject to the conditions submitted by the South Carolina Department of Health and Environmental Control under Section 401 of the Clean Water Act, as those conditions are set forth in Appendix A to this order.

(E) This license is subject to the conditions submitted by the U.S. Department of the Interior on April 5, 2002, and revised on April 29, 2002, and the U.S. Department of Commerce on April 10, 2002, and revised on May 15, 2002, under Section 18 of the FPA, as those conditions are set forth in Appendix B to this order.

(F) This license is subject to the articles set forth in Form L-3 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States." 54 FPC 1792, 1799 (1975). The license is also subject to the following additional articles:

Article 201. The licensee shall pay the United States an annual charge, effective as of the first day of the month in which this license is issued for the purpose of reimbursing the United States for the Commission's administrative costs, pursuant to Part I of the Federal Power Act, 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 10,600 kilowatts.

Article 202. Within 45 days of the issuance date of this order, the licensee shall file three original sets of aperture cards of the approved drawings. The drawings must be reproduced on silver or gelatin 35 mm microfilm. All microfilm must be mounted on type D (3 1/4" x 7 3/8") aperture cards.

Prior to microfilming, the FERC Drawing Number (1895-1001 through 1895-1006) shall be shown in the margin below the title block of the approved drawings. After mounting, the FERC Drawing Number must be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1), Drawing Title, and date of this license must be typed on the upper left corner of each aperture card.

Two sets of aperture cards shall be filed with the Secretary of the Commission ATTN: OEP/Division of Hydropower Administration and Compliance. The remaining set of aperture cards shall be filed with the Commission's Atlanta Regional Office.

Article 203. If the licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

Article 204. Pursuant to Section 10(d) of the Federal Power 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. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one-half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment.

To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly included in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock 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 4 percentage points (400 basis points).

Article 205. 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. 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. Within 90 days of completion of construction of the upstream and downstream fishways and minimum flow release gates authorized by this license, the licensee shall file, for Commission approval, revised exhibits A, F, and G, as necessary, to show those project facilities as built.

Article 401.

(a) Requirement to File Plans for Commission Approval.

Condition numbers A.4 and A.8 found in the U.S. Department of the Interior's and the U.S. Department of Commerce's Section 18 prescriptions (Appendix B) require the licensee to: (1) develop a detailed schedule and timeline for all required work in consultation with the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) and (2) develop in consultation with, and submit for approval by NMFS and FWS, all functional and final design plans, construction schedules, and any hydraulic model or other studies for the fishways. The conditions do not specify that the plans and schedules be approved by the Commission before implementing the measures and do not require the filing of the results of monitoring and hydraulic studies with the Commission for approval. Each such plan or schedule and reporting of monitoring and hydraulic studies shall also be submitted to the Commission for approval. These plans, schedules, and studies are listed below.

Interior's and Commerce's Section 18 Fishway Prescription Condition No. (Appendix B)	Plan, Schedule, or Study Name	Due Date from License Issuance
A.4	Detailed schedule and timeline for all prescribed work	6 months

Interior's and Commerce's Section 18 Fishway Prescription Condition No. (Appendix B)	Plan, Schedule, or Study Name	Due Date from License Issuance
A.8	Complete and submit all functional and final design plans, construction schedules, and any hydraulic model or other studies for the prescribed fishways.	6 months

With regards to plans and schedules, the licensee shall submit to the Commission documentation of its consultation, copies of comments and recommendations made in connection with the plan or schedule, and a description of how the plan or schedule accommodates the comments and recommendations. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The Commission reserves the right to make changes to any plan or schedule submitted. Upon Commission approval, the plan or schedule becomes a requirement of the license, and the licensee shall implement the plan or schedule, including any changes required by the Commission.

(b) Requirement to File Documentation of Completion.

The licensee shall also file with the Commission, for approval, documentation of completion, including as-built drawings as appropriate, of the following activities.

Interior's and Commerce's Section 18 Fishway Prescription Condition No. (Appendix B)	Activity	Due Date from License Issuance
B.3	Adjust the channel immediately downstream of the upstream fishway through slight excavation to provide adequate passage depths.	3 years

(c) Requirement to File Amendment Applications.

Certain conditions in the Appendix B contemplate unspecified long-term changes to project operations or facilities for the purpose of facilitating fish migrations past the project. These changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license. These conditions are listed below.

Interior's and Commerce's Section 18 Fishway Prescription ConditionNo. (Appendix B)	Modification
A.5	Changes to the migration periods for operation and maintenance of the fishways.
B.2	Periodic generation restrictions for purposes of guiding upstream migrants away from the powerhouse during peak migration periods.
B.5	Reduce generation to eliminate attractant flow into the tailrace during migratory periods.

Interior's and Commerce's Section 18 Fishway Prescription ConditionNo. (Appendix B)	Modification
C.2	Place removable overlay screen panels at the existing trashracks and/or periodically restrict generation during peak periods of downstream migration.

Article 402. At least 90 days before the start of any land-clearing or land-disturbing activities, the licensee shall file with the Commission, for approval, a plan to control erosion, to control slope instability, and to minimize the quantity of sediment resulting from the construction of the prescribed fishways (Appendix B). The plan shall be based on actual-site geological and soil conditions and on fishway design, and shall include, at a minimum, the following:

- (1) a description of the actual site conditions;
- (2) measures proposed to control erosion, to prevent slope instability, and to minimize the quantity of sediment resulting from fishway construction;
- (3) measures proposed to prevent and clean-up any gasoline and oil spills associated with construction equipment;
- (4) detailed descriptions, functional design drawings, and specific topographic locations of all control measures; and
- (5) a specific implementation schedule and details for monitoring and maintenance programs during fishway construction.

The licensee shall prepare the plan after consultation with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and South Carolina Department of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 403. When drought conditions, as defined by the South Carolina Department of Natural Resources (SCDNR) Water Resources Division (WRD), begin in the project area, the licensee shall begin monitoring the Broad River flows via the Alston gage (United States Geological Survey [USGS] gage no. 02161000) on a daily basis via the USGS or WRD web site or by direct communication with USGS or WRD personnel. The licensee shall notify SCDNR, U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), and the Manager of the City of Columbia, South Carolina (City), within 10 days of beginning this monitoring program. If mean daily inflows into the project (based on the Alston gage) fall below 1,100 cubic feet per second (cfs), the licensee shall implement the following drought contingency actions:

- ▶ notify (FAX, phone, or e-mail) the SCDNR, the Manager of the City, FWS, and NMFS within 24 hours and the Commission within 10 days of implementing the drought contingency actions;
- ▶ when inflows (based on the Alston gage) to the project are within the range of 900 cfs to 1,100 cfs, curtail turbine operations to maintain the City's water withdrawal and the specified bypassed reach minimum flow (Article 405). The daily maximum project canal fluctuations of up to 5 feet (Article 404) shall still be in effect during this time. Downstream fishway flows (Appendix B) shall also continue as long as the project turbines are in operation;
- ▶ when inflows to the project drop below 900 cfs, the licensee shall discontinue turbine operations and downstream fishway flows. Reservoir inflows shall be passed into the project canal to maintain the City's withdrawal and the remainder shall be passed into the bypassed reach; and
- ▶ if the conditions exist that inflows to the project will not maintain the City's withdrawals and the bypassed reach flows, the licensee shall notify (FAX, phone, or e-mail) the SCDNR, the Manager of the City, FWS, and NMFS. At notification, the licensee shall schedule and then later convene a meeting of the listed contacts to discuss alternatives for distribution of the Broad River flows between the City's withdrawal and the bypassed reach flows. The licensee shall notify the Commission within 10 days of the completion of the meeting.

When drought conditions, as defined by WRD, have subsided and the drought status has been lifted, the licensee shall resume normal operations of the project and discontinue drought flow monitoring. Within 10 days of resuming normal operations, the licensee shall notify the SCDNR, the Manager of the City, FWS, NMFS, and the Commission that drought flow monitoring has ended for the period.

During years in which the licensee implements the drought contingency actions, the licensee shall provide the Commission with an annual report detailing the dates, duration of minimum and fishway flow variances, and agency consultation by January 31 of each year. The licensee shall provide copies of the annual reports to SCDNR, NMFS, and FWS upon their request.

Article 404. The licensee shall operate the project in a run-of-river mode for the protection of aquatic resources in the project reservoir, power canal, and Congaree River downstream of the project tailrace. The licensee shall at all times act to minimize fluctuation of the reservoir and power canal surface elevations by maintaining a discharge from the project so that at any point in time, flows, as measured immediately downstream of the project tailrace, approximate the sum of inflows to: (1) the project reservoir; (2) the bypassed reach (including inflow from the Saluda River); and (3) the project power canal less withdrawals by the City of Columbia, South Carolina, for water supply purposes.

The licensee shall, while acting to minimize fluctuations of the reservoir surface elevation, maintain: (1) the reservoir surface elevation no lower than 1 foot below the full pool elevation of 153.55 feet above mean sea level (msl) from March 1 through May 31 and no lower than 2 feet below the full pool elevation of 153.55 feet above msl the remainder of the year; and (2) the project canal surface elevation no lower than 5 feet below the full pool elevation of 153.55 feet msl. Planned, non-emergency drawdowns of the reservoir greater than 1 foot below the full pool elevation shall not be conducted from March 1 through May 31.

Run-of-river operation, including the fluctuation limits, may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the South Carolina Department of Natural Resources. If run-of-river operation is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 405. Commencing within 60 days of the installation and calibration of Commission-approved bypassed reach streamflow monitoring equipment required by Article 407 and the Commission approval of an interim minimum flow release plan required by Article 406, the licensee shall release from the project into the Broad River the

following minimum flows, or inflow into the project reservoir, whichever is less, for the protection and enhancement of aquatic, riparian, and recreational resources in the bypassed reach of the Broad River and Congaree River: (1) 900 cubic feet per second (cfs) from February 1 through May 15; (2) 700 cfs from May 16 through June 30; (3) 550 cfs from July 1 through October 31; and (4) 700 cfs from November 1 through January 31.

The licensee shall release the minimum flows in accordance with a Commission-approved interim minimum flow release plan required by Article 406 until the prescribed upstream fishway and minimum flow release gates stipulated in Appendix B are constructed and operational. Thereafter, the licensee shall release the minimum flows through the prescribed upstream fishway and minimum flow release gates.

The minimum flows may be temporarily modified: (1) if required by operating emergencies beyond the control of the licensee; (2) in accordance with the Drought Contingency Plan approved by Article 403; and (3) for short periods upon mutual agreement between the licensee and the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the South Carolina Department of Natural Resources. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 406. Within 6 months of license issuance, the licensee shall file with the Commission, for approval, an interim minimum flow release plan.

The plan shall include at a minimum:

(1) a provision to begin releasing the minimum flows required by Article 405 via spill over the dam and through the existing minimum flow notch within 1 year of license issuance and continuing until the prescribed upstream fishway and minimum flow release gates stipulated in Appendix B are constructed and operational;

(2) specification of tolerance limits in the interim period for maintaining compliance with the minimum flows required by Article 405; and

(3) an implementation schedule.

The licensee shall prepare the plan after consultation with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and South Carolina Department of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days

for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 407. Within 6 months of license issuance, the licensee shall file with the Commission, for approval, an operational compliance monitoring plan.

The plan shall include at a minimum:

- (1) provisions for monitoring reservoir and canal surface elevations and bypassed reach flows at a point between the dam and the confluence of the Broad River and Saluda River;
- (2) a description of the exact location of all gages and other equipment utilized for monitoring reservoir and canal surface elevations and bypassed reach flows, the method of calibration for each gage, the frequency of recording for each gage, and a monitoring schedule;
- (3) a provision for maintaining a log of project operation and generation;
- (4) a provision for providing the gaging and project operation and generation data to the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), and South Carolina Department of Natural Resources (SCDNR) within 30 days of the date of the specific agency's request for the data;
- (5) a provision to notify the Commission, NMFS, FWS, and SCDNR of any deviations in compliance with the operational requirements of this license as soon as possible, but no later than 10 days after each such incident;
- (6) a provision for an annual compliance report to be filed with the Commission and copies sent to NMFS, FWS, and SCDNR by December 31 of each license year documenting any deviation in compliance with the operational requirements of this license that occurred during the year; and
- (7) an implementation schedule.

The licensee shall prepare the plan after consultation with the U.S. Geological Survey, NMFS, FWS, and SCDNR. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan, including installation and use of monitoring devices, shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 408. The licensee shall attempt to minimize the disturbance to existing vegetation and wildlife habitats within the project boundary. Disturbances may be required if necessary to install the fishways required by the U.S. Department of the Interior's and the U.S. Department of Commerce's Section 18 prescriptions (Appendix B) and the recreational signage required by Article 411, and to comply with federal and state regulations. The Commission reserves the right to require changes in the project to protect wildlife and wildlife habitat.

Article 409. Within 1 year of license issuance, the licensee shall file with the Commission, for approval, a final monitoring plan for the rocky shoals spider lily (RSSL).

The plan shall include at a minimum the measures listed in the licensee's proposed monitoring plan contained in the filing dated May 12, 2000, and the following additional measures:

(1) a schedule for providing the Commission with (a) the results of each survey, (b) the comments of the U.S. Fish and Wildlife Service (FWS) and the South Carolina Department of Natural Resources (SCDNR) on those results, and, if appropriate, (c) a proposal for additional measures to protect and enhance the RSSL;

(2) a provision for filing with the Commission, 90 days before the start of any actions that would be likely to adversely affect RSSL populations, the results of consultation with FWS and SCDNR and for filing a proposal for measures to avoid, minimize, or mitigate any such impacts; and

(3) a detailed plan and schedule for establishing an interpretive display at the Old Waterworks Pumping Station, after the establishment of a RSSL population visible from the pumping station, to inform the public of efforts to ensure the public's understanding of the plant.

The licensee shall prepare the plan after consultation with FWS and SCDNR. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 410. The licensee shall implement the "Cultural Resources Management Plan, Columbia Hydroelectric Project, FERC Project No. 1895, Richland County, South Carolina", included in the license application's Volume IV, filed on November 30, 1999. The Commission reserves the authority to require changes to the above Cultural Resources Management Plan at any time during the term of the license.

Article 411. Within 90 days after issuance of this license, the licensee shall file with the Commission, for approval, a plan to install recreational signage at the project.

The plan, at a minimum, shall include:

- (1) angler access signs at the locations identified on Figure 1 of the licensee's additional information filed on October 4, 2000;
- (2) a sample sign design;
- (3) an installation schedule; and
- (4) an explanation of how periodic monitoring will occur to ensure that any damaged signs are repaired or replaced in a timely manner.

The licensee shall prepare the plan after consultation with the U.S. Fish and

Wildlife Service, the South Carolina Department of Natural Resources, and the River Alliance. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons.

The Commission reserves the right to require changes to the plan. The licensee shall not implement the plan until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 412. Within 90 days after issuance of a new license, the licensee shall file with the Commission, documentation of an agreement for the use, lease, or purchase of licensee land at or adjacent to the project for the purpose of constructing and operating the Three Rivers Greenway recreational facilities shown on Figure 2 of the licensee's additional information filed on October 4, 2000.

Article 413. Within 60 days after issuance of a new license, the licensee shall file with the Commission, a report documenting consultation with the River Alliance on the feasibility of incorporating a canoe put-in with its planned facilities (see Article 412 above) near the dam. If an agreement cannot be reached for the incorporation of a canoe put-in into the current plan, the report shall include the rationale for not including the facility. If a reasonably-priced put-in can be designed, the agreement required in Article 412 should include the canoe put-in in the facility.

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 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 types of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the 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, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require 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 or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and

the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal 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 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under 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 the State Historic Preservation Officer.

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

(3) The instrument of conveyance must include the following covenants running

with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

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

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

(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.

(G) 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.

(H) This order is final unless a request for rehearing is filed within 30 days of its issuance, as provided in Section 313 of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

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J. Mark Robinson
Director
Office of Energy Projects

APPENDIX A

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL WATER QUALITY CERTIFICATE CONDITIONS

- (1) A Spill Prevention Plan must be available at all times at this facility. Should a spill occur at this facility, SCE&G must immediately notify the SCDHEC-Central Midlands District Office and the downstream industrial or municipal or drinking water supply users.
- (2) SCE&G must notify the downstream industrial, municipal or drinking water supply users within 24 hours of the decision to hold water when water is to be held in the reservoir and not discharged due to emergency situations or maintenance to the project.
- (3) If the Department is notified that there are fish kills occurring within the FERC boundary of this facility, SCE&G will be required to identify the problem(s) and the methods to be implemented to eliminate causes.
- (4) SCDHEC reserves the right to impose additional conditions on this Certification to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State water quality standards.

APPENDIX B

SECTION 18 FISHWAY PRESCRIPTIONS

I. U. S. DEPARTMENT OF COMMERCE

A. General Terms and Conditions for Fishways

To ensure the immediate and timely contribution of the proposed fishway to the Santee Basin fish restoration effort, the following measures are included and shall be incorporated by the licensee to ensure the effectiveness of the fishway pursuant to Section 1701 (b) of the 1992 National Energy Policy Act (P.L. 102-0486, Title XVII, 106 Stat. 3008).

1. Fishways shall be constructed, operated, and maintained to provide effective (safe, timely, convenient) passage for American shad, blueback herring and American eels at the licensee's expense.
2. The design population for each target species is:

	Upstream fishway design populations*	
Target species	Ultimate basin goal	Existing and near future needs**
American shad	688,150	250,000
Blueback herring	3,430,000	1,250,000
American eel	unquantified	unquantified

*Calculated using Table 1 of the Santee Basin Plan.

**Calculated using Table 1 of the Santee Basin Plan assuming passage at Columbia and the next upstream dam.

3. Upstream fishways shall be operational during the designated migration period at river flows up to 21,000 cfs (14,600cfs spilling over the dam at full generation), as measured at the Broad River at Alston Gage (Gage No. 02161000).
4. Fishways shall be fully operational as soon as possible but no later than three years after the date of issuance of a new license so that continuing impacts of the project may be mitigated and benefits of passage improvements realized

as soon as practicable. The licensee shall (1) notify and (2) obtain approval from the Services for any extensions of time to comply with the provisions included in the Departments' prescriptions for fishways. A detailed schedule and time line for all work required shall be developed in coordination with the U.S. Fish and Wildlife Service and National Marine Fisheries Service (Services).

5. Fishways shall be maintained and operated, at the licensee's expense throughout the upstream and downstream migration periods for the target species. The downstream fishway shall be operated year round during generation to provide safe and timely downstream passage for diadromous target species and riverine species. The migration periods for diadromous target species are as follows:

Species	Upstream migration	Downstream migration
American shad	Feb. 1 - May 15	essentially year round
Blueback herring	Feb. 1 - May 15	essentially year round
American eel	unknown	unknown

Any of these migration periods may be amended or otherwise changed during the term of the license by the Services in consultation with the SCDNR and the licensee, based on experience, data, or new information.

6. The licensee shall keep the fishways in proper order and shall keep fishway areas clear of trash, logs, and material that would hinder passage. Anticipated maintenance shall be performed sufficiently before a migratory period such that fishways can be tested and inspected, and will operate effectively prior to and during the migratory periods. In consultation with the Services and SCDNR, the licensee shall develop a fishway maintenance plan describing the anticipated maintenance, a maintenance schedule, and contingencies. The plan, containing the consultation comments of the fishery agencies, shall be submitted to the Services for final review and approval. Upon such approval, the plan shall be submitted to the Commission for approval.
7. The licensee shall provide personnel of the Services, SCDNR, and other Services' designated representatives, access to the project site and to pertinent project records for the purpose of inspecting the fishways to

determine compliance with the fishway prescriptions and for general evaluation and overview observations.

8. The licensee shall develop in consultation with, and submit for approval by the Services, all functional and final design plans, construction schedules, and any hydraulic model or other studies for the fishways described herein.
9. A continuous minimum zone-of-passage flow of 900 cfs shall be provided in the reach below the spillway between February 1 and May 15.
10. The licensee shall develop plans for, and conduct fishway effectiveness evaluations in consultation with the Services and SCDNR on both upstream and downstream facilities. Plan development shall follow the framework of the Fishway Effectiveness Testing Recommendations for Anadromous Fish Passage at the Columbia Hydroelectric Project (FERC No.1895) developed by the resource agencies and submitted to the licensee by letter of January 27, 2000 (see Administrative Record). The plans and results of effectiveness studies shall be submitted to the Services and SCDNR for review and comment prior to being filed for approval by the Commission. If the licensee disagrees with any of the comments and recommendations from the agencies, it shall provide an explanation in its filing with the Commission.

B. Upstream Fishways

1. Construct a vertical slot fishway in the east corner of the spillway just downstream of the Columbia diversion dam. The fishway shall have two entrances (a high and a low flow entrance) to ensure operation during the majority of flows occurring during the migration season. There are two options for sizing the fishway which are acceptable at this time. One is based on a phased plan of constructing a fishway capable of passing anticipated fish target numbers for existing and near future needs, with a potential requirement to add a new facility at such time as upstream migrants exceed the fishway capacity, and the other is to construct a fishway based on ultimate passage target numbers at this time. All vertical slot designs shall incorporate "Sturgeon friendly" features (e.g., no sharp turns, exploration of slot modifications or orifices) as sturgeon are potential future target species.

Option 1 - Phased Fishway - Construct a vertical slot fishway at the east end of the spillway (See Figure 3, Item #1 and Figure 4) with the following dimensions:

Fishway Type	Vertical slot
Pool volume	470 cubic feet (10'W x 10'L x 5'D)
Drop per Pool	9 inches
Slot Width	16 inches
Internal Fishway Flow	Approximately 25 cfs (varies with Headwater Level)
Suggested Location	At east end of spillway
Operating Range	Up to 21,000 cfs river flow
Counting Station	Side view window type at upstream end of fishway
Fishway entrances	8 - 10' wide primary entrance with downward operating slide gate and 4' wide gated side entrance.
Trash Boom	Floating trash boom required to keep debris from entering fishway
Attraction Flow	Up to 200 cfs at the primary and side fishway entrances

This fishway is similar to the vertical slot fishway proposed by the licensee with modifications proposed by the Services. When and if the capacity of this fishway is reached (approximately 250,000 shad run), construct a second Phase 2 fishway. Other design parameters are provided in attached Figure 3, Item # 1 and Figure 4.

Phase 2 would include the installation of a second vertical slot fishway (pool volume = 630 cubic feet, pool size = 11'W x 11'L x 5.5'D) at the western shore of the spillway if and when the capacity of the Phase I fishway is reached. The existing Phase 1 fishway at the east end of the spillway would continue to provide fish passage during the Phase 2 construction period. Design specifications would be similar to the Phase 1 fishway.

Option 2 - Fishway Sized for Ultimate Target Numbers - Construct a vertical slot fishway with the following specifications:

Fishway Type	Vertical slot
Pool volume	1,100 cubic feet (14'W x 14'L x 6'D)
Drop per Pool	9 inches
Slot Width	21 inches
Internal Fishway Flow	Approximately 40 cfs (varies with Headwater Level)
Suggested Location	At east end of spillway
Operating Range	Up to 21,000 cfs river flow
Counting Station	Side view window type at upstream end of fishway
Fishway entrances	8 - 10' wide primary entrance with downward operating slide gate and 4' wide gated side entrance.
Trash Boom	Floating trash boom required to keep debris from entering fishway.
Attraction Flow	Up to 200 cfs at the primary and side fishway entrances

2. Provide suitable zone of passage flows to attract upstream migrants away from the project powerhouse and into the bypassed reach and to provide adequate depths for migratory movements through the bypass reach. A minimum flow of 900 cfs is prescribed for this purpose during the designated upstream migration period (Feb. 1 to May 15). Periodic generation restrictions may also be required to guide upstream migrants away from the powerhouse during peak migration periods. The 900 cfs bypassed reach flow includes the Phase I fishway attraction flow (approx 200 cfs) plus (700 cfs) via a controlled release from new spillway crest gates. We recommend three 20' long crest gates for this purpose. The location and design details

will be developed during the final design stage. Minimum instream flows in the bypass reach for other periods of the year have been designated elsewhere. See Figure 3, Item # 2 and Figure 4.

3. The channel just downstream of the ladder shall be adjusted through slight excavation to provide adequate passage depths.
4. Construct a fish counting window with a crowder device and an adjustable back lighted panel to facilitate fish counting during periods of high turbidity.
5. Depending upon the results of effectiveness testing, reduce generation to eliminate attractant flow into the dead-end tailrace during migratory periods.

C. Downstream Fishways

To minimize the entrainment of downstream migrants, the following measures are proposed at the powerhouse intake forebay at the downstream end of the power canal (note: existing trash racks have 1.125" clear spacing according to licensee data).

1. Install a bypass structure at the downstream end of the powerhouse intake trash racks. This facility would be similar to the bypass structure proposed by licensee but would have multiple level gated bypass intakes (multilevel primarily for American eel passage but may be beneficial to all non-surface oriented species including future consideration for sturgeons). Downstream migrants collected by the bypass structure are to be sluiced to the tailrace below the powerhouse via a smooth gated conduit. Provide up to 120 cfs operating flow at this bypass facility. Up to 75% of this flow can be recirculated back to forebay for power generation via mixer pumps. See Figure 3, Item #5. This design is similar to the conceptual design provided by Kleinschmidt Associates in the drawings issued for agency review on September 9, 1999, and the downstream fish passage features, flows and other notes on pages 4 of 5 and 5 of 5 of the Draft Design Memorandum for Conceptual Design of Upstream and Downstream Fish Passage Facility dated September 10, 1999, and filed with the final license application. Design modifications should include: (1) construction of a small tower to accommodate multilevel entrances; (2) addition of a vent pipe at the top of the 48 inch discharge pipe to reduce suction head and related surging; and (3) operation of the generating units (7 units) in a sequenced manner so that the unit nearest the bypass (Unit 7) is the first on line and last offline.
2. Effectiveness studies to be undertaken by licensee may show the need for

removable overlay screen panels at the existing trash racks and/or periodic generation restrictions during the peak periods of downstream migration.

D. Reservation of Authority to Prescribe Fishways - National Marine Fisheries Service

Pursuant to Section 18 of the Federal Power Act, as amended, the Secretary of the Department of Commerce, as delegated to the National Marine Fisheries Service, exercises its authority under Section 18 by reserving the authority to prescribe the construction, operation and maintenance of such fishways deemed necessary, including measures to evaluate the need for fishways, and to determine, ensure, or improve the effectiveness of such fishways. This reservation includes authority to prescribe fishways for existing riverine fish species, any fish species (including American eels and shortnose sturgeon) to be managed, enhanced, protected, or restored in the basin during the term of the license.

Also, authority is reserved for the National Marine Fisheries Service to modify these Prescriptions for Fishways at any time before licenses are issued, as well as any time during the term of any license issued, after review of new information or for other pertinent reason.

II. U.S. DEPARTMENT OF THE INTERIOR

A. General Terms and Conditions for Fishways

To ensure the immediate and timely contribution of the proposed fishway to the Santee Basin fish restoration effort, the following measures are included and shall be incorporated by the licensee to ensure the effectiveness of the fishway pursuant to Section 1701 (b) of the 1992 National Energy Policy Act (P.L. 102-0486, Title XVII, 106 Stat. 3008).

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2. The design population for each target species is:

	Upstream fishway design populations*	
Target species	Ultimate basin goal	Existing and near future needs**
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*Calculated using Table 1 of the Santee Basin Plan.

**Calculated using Table 1 of the Santee Basin Plan assuming passage at Columbia and the next upstream dam.

3. Upstream fishways shall be operational during the designated migration period at river flows up to 21,000 cfs (14,600cfs spilling over the dam at full generation), as measured at the Broad River at Alston Gage (Gage No. 02161000).
4. Fishways shall be fully operational as soon as possible but no later than three years after the date of issuance of a new license so that continuing impacts of the project may be mitigated and benefits of passage improvements realized as soon as practicable. The licensee shall (1) notify and (2) obtain approval from the Services for any extensions of time to comply with the provisions included in the Departments' prescriptions for fishways. A detailed schedule and time line for all work required shall be developed in coordination with the Service and NMFS (Services).
5. Fishways shall be maintained and operated, at the licensee's expense throughout the upstream and downstream migration periods for the target species. The downstream fishway shall be operated year round during generation to provide safe and timely downstream passage for diadromous target species and riverine species. The migration periods for diadromous target species are as follows:

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7. The licensee shall provide personnel of the Services, SCDNR, and other Services' designated representatives, access to the project site and to pertinent project records for the purpose of inspecting the fishways to determine compliance with the fishway prescriptions and for general evaluation and overview observations.
8. The licensee shall develop in consultation with, and submit for approval by the Services, all functional and final design plans, construction schedules, and any hydraulic model or other studies for the fishways described herein.
9. A continuous minimum zone-of-passage flow of 900 cfs shall be provided in the reach below the spillway during the designated upstream passage periods.
10. The licensee shall develop plans for, and conduct fishway effectiveness evaluations in consultation with the Services and SCDNR on both upstream and downstream facilities. Plan development shall follow the framework of the Fishway Effectiveness Testing Recommendations for Anadromous Fish Passage at the Columbia Hydroelectric Project (FERC No.1895) developed by the resource agencies and submitted to the licensee by letter of January 27, 2000 (see Administrative Record). The plans and results of effectiveness studies shall be submitted to the Services and SCDNR for review and comment prior to being filed for approval by the Commission. If the licensee disagrees with any of the comments and recommendations from the agencies, it shall provide an explanation in its filing with the Commission.

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Operating Range	Up to 21,000 cfs river flow
Counting Station	Side view window type at upstream end of fishway
Fishway entrances	8 - 10' wide primary entrance with downward operating slide gate and 4' wide gated side entrance.
Trash Boom	Floating trash boom required to keep debris from entering fishway

Attraction Flow Up to 200 cfs at the primary and side fishway entrances

This fishway is similar to the vertical slot fishway proposed by the licensee with modifications proposed by the Services. When and if the capacity of this fishway is reached (approximately 250,000 shad run), construct a second Phase 2 fishway. Other design parameters are provided in attached Figure 3, Item # 1 and Figure 4.

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Trash Boom	Floating trash boom required to keep debris from entering fishway.
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below the powerhouse via a smooth gated conduit. Provide up to 120 cfs operating flow at this bypass facility. Up to 75% of this flow can be recirculated back to forebay for power generation via mixer pumps. See Figure 3, Item #5. This design is similar to the conceptual design provided by Kleinschmidt Associates in the drawings issued for agency review on September 9, 1999, and the downstream fish passage features, flows and other notes on pages 4 of 5 and 5 of 5 of the Draft Design Memorandum for Conceptual Design of Upstream and Downstream Fish Passage Facility dated September 10, 1999, and filed with the final license application. Design modifications should include: (1) construction of a small tower to accommodate multilevel entrances; (2) addition of a vent pipe at the top of the 48 inch discharge pipe to reduce suction head and related surging; and (3) operation of the generating units (7 units) in a sequenced manner so that the unit nearest the bypass (Unit 7) is the first on line and last offline.

2. Effectiveness studies to be undertaken by licensee may show the need for removable overlay screen panels at the existing trash racks and/or periodic generation restrictions during the peak periods of downstream migration.

E. Reservation of Authority to Prescribe Fishways - U.S. Department of the Interior

Pursuant to Section 18 of the Federal Power Act, as amended, the Secretary of the Department of the Interior exercises its authority under Section 18 by reserving the authority to prescribe the construction, operation and maintenance of such fishways deemed necessary, including measures to evaluate the need for fishways, and to determine, ensure, or improve the effectiveness of such fishways. This reservation includes authority to prescribe fishways for existing riverine fish species, any fish species (including American eels and shortnose sturgeon) to be managed, enhanced, protected, or restored in the basin during the term of the license.

Also, authority is reserved for the U.S. Fish and Wildlife Service to modify these Prescriptions for Fishways at any time before licenses are issued, as well as any time during the term of any license issued, after review of new information or for other pertinent reason.



