

American Rivers

South Carolina Department of Natural Resources May 8, 2006

U.S. Department of Agriculture, Forest Service May 8, 2006

On June 22, 2006, SCPSA filed its response to the above comments, terms and conditions, recommendations, and prescriptions. In addition, on June 7, 2006, SCPSA filed alternative section 18 fishway prescriptions and a request for trial-type hearing with the U.S. Department of the Interior (Interior) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), in accordance with provisions of the Energy Policy Act of 2005. On November 17, 2006, SCPSA filed a Letter of Intent of Settlement with the Commission, which included draft settlement agreement (DSA) terms and conditions that SCPSA, FWS, and SCDNR recommend be included as conditions of a license. The DSA describes measures for fish passage, minimum flows, and enhancement of the Santee National Wildlife Refuge (Santee NWR). The DSA, if finalized, would modify Interior's preliminary fishway prescription, but NMFS is not a party to the DSA and has not modified its preliminary fishway prescription.

All comments filed are addressed in the appropriate resource area sections of section 3.0 of this draft EIS. Some of the comments address jurisdictional and legal issues, which we do not address. As appropriate, these issues would be addressed in any order issuing a license for the Santee Cooper Project.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 NO-ACTION ALTERNATIVE

For a relicense, the Commission defines the no-action alternative as continuing to operate the project under the terms and conditions of the existing license, with no additional environmental protection, mitigation, or enhancement measures implemented. The environment as it exists today is the baseline against which we assess the benefits and costs of any measures that would be applied under a new license.

2.1.1 Existing Project Facilities and Operation

The jurisdictional, SCPSA-owned part of the Santee Cooper Project comprises several facilities and associated lands and waters along the Santee and Cooper rivers. SCPSA owns more than 32,151 acres of lands, 19,989 acres of which are contained within the project boundary (figure 2, appendix A). The project boundary along Lake

Marion either follows a metes-and-bounds⁷ description, or is set at 30 linear feet from the high water mark at elevation 76.8 feet National Geodetic Vertical Datum (NGVD). The project boundary begins at the confluence of the Congaree and Wateree rivers and includes the Upper Santee Swamp, 35,780 acres of predominantly forested wetlands contained within the 100-year floodplain at the headwaters of Lake Marion, and lands downstream of Santee dam containing the project works. The project boundary at Lake Moultrie also either follows a metes-and-bounds description, or is set at 30 linear feet from the high water mark at elevation 75.5 feet NGVD. The project boundary includes the 19,989 acres of lands, 35,780 acres of the Upper Santee Swamp, and about 160,000 acres of reservoirs for a total of about 215,769 acres. As described above, the project boundary also includes some lands and waters leased to FWS for the Santee NWR.⁸

The project structures consist of Santee dam (also known as Wilson dam) on the Santee River, Pinopolis dam on the Cooper River, the Diversion canal, the Santee Spillway Hydroelectric Station, and the Jefferies (formerly known as Pinopolis) Hydroelectric Station.

Santee dam impounds Lake Marion on the Santee River. Lake Marion is about 40 miles long and has an area of about 100,000 acres at a normal pool elevation of 75.0 feet NGVD. The dam consists of the North dam earthen embankment, the gated Santee spillway section, and the South dam earthen embankment. The Santee Spillway Hydroelectric Station is located near Pineville just downstream of the abutment of the Santee spillway to the South dam. The station contains a single, vertical-shaft, turbine-generator with a capacity of 1.92-MW, a rated net head of 46 feet and a maximum hydraulic capacity of 660 cubic feet per second (cfs). Annual generation for the 10-year period ending in 1999 averaged 13,823 MWh. The station is used to maintain a minimum flow of 500 cfs in the Santee River.

Most of the water impounded by Santee dam exits Lake Marion through the 5-mile-long Diversion canal to Lake Moultrie. The canal is 200 feet wide at the bottom (elevation 48.0 feet) and nearly 400 feet wide at the surface (normal water surface elevation is 74.0 to 74.8 feet). There is no control structure in the Diversion canal, and all flow not passed by Santee dam enters Lake Moultrie through the canal.

The Pinopolis dam impounds Lake Moultrie. Lake Moultrie is about 10 miles long and has an area of about 60,000 acres at a normal pool elevation of about 74.0 feet. The Pinopolis dam structures consist of the West dam, West dike, East dam, East dam

⁷ Metes and bounds refers to specific distance measurements (metes) and definite boundary markers (bounds). This system of land description uses physical features of local geography, along with directions and distances, to define and describe the boundaries of the parcel of land.

⁸The Commission is currently reviewing FWS' claim that it has section 4(e) conditioning authority.

extension, East dike, North dike, Pinopolis lock, and the Jefferies Hydroelectric Station, which is located near Pinopolis. The 380-foot-long by 185-foot-wide station has an integral intake structure and contains one 8-MW unit and four 27-MW units, with a total maximum hydraulic capacity of 28,000 cfs. The Jefferies Hydroelectric Station was designed to accommodate an additional 27-MW generating unit to allow for potential expansion of generation capacity. The station is operated in a semi-peaking mode in accordance with agreements between SCPSA and the U.S. Army Corps of Engineers (Corps) Cooper River Rediversion Project (see below). Discharge through Jefferies Station typically is restricted to an average weekly flow of 4,500 cfs, although additional discharges may be made to mitigate high saline levels in the downstream Bushy Park industrial complex, or to provide cooling water for the operation of the applicant's adjacent steam generating station. Some flow is also used for the operation of the Pinopolis lock for boat and upstream fish passage. Annual generation at the Jefferies Station for the 10-year period ending in 1999 averaged 210,204 MWh.

The non-jurisdictional Corps' Cooper River Rediversion Project includes a Rediversion canal that returns water from Lake Moultrie back to the Santee River, an 84-MW hydroelectric station located near the town of St. Stephen, and a fish lift to allow fish to pass upstream beyond the St. Stephen Hydroelectric Station. SCPSA operates the St. Stephen Station in a semi-peaking mode, but the federally-owned facility is not a part of the Santee Cooper Project. The St. Stephen Station uses the remainder of the discharge from Lake Moultrie not utilized by the Jefferies Hydroelectric Station and the Pinopolis lock.

2.1.2 Project Safety

The project has been operating for over 27 years under the existing license and during this time, Commission staff has conducted operational inspections focusing on the continued safety of the structures, identification of unauthorized modifications, efficiency and safety of operations, compliance with the terms of the license, and proper maintenance. In addition, the project has been inspected and evaluated every 5 years by an independent consultant and a consultant's safety report has been submitted for Commission review. As part of the relicensing process, the Commission staff would evaluate the continued adequacy of the proposed project facilities under a new license. Special articles would be included in any license issued, as appropriate. Commission staff would continue to inspect the project during the new license term to assure continued adherence to Commission-approved plans and specifications, special license articles relating to construction (if any), operation and maintenance, and accepted engineering practices and procedures.

2.1.3 Current License Requirements

Current operational requirements include a continuous minimum flow of 500 cfs from the Santee Spillway Hydroelectric Station, and an average weekly flow of 4,500 cfs from the Jefferies station. The Jefferies station is operated in accordance with the Cooper

River Rediversion Agreement between the applicant and the Corps (Contract No. DACW60-77-C-005, and supplemental agreements). This agreement specifies that flow requirements at the Santee and Jefferies stations are met first, and any remaining flows are discharged through the Corps-owned St. Stephen Station. While St. Stephen Station is owned by the Corps, it is operated by SCPSA via contract agreement with the Corps.

2.2 PROPOSED ACTION

2.2.1 Project Facilities and Operation

The applicant is not proposing any changes in project structures and proposes minor changes in operations.

2.2.2 Environmental Enhancement Measures

SCPSA proposes to implement the following environmental protection and enhancement measures:

- (1) Formalize the rule curve for reservoir operations.
- (2) Continue providing a weekly average flow of 4,500 cfs from Jefferies station to minimize shoaling in Charleston Harbor and prevent saline waters from reaching Bushy Park industrial complex.
- (3) Prepare species management plans for federally threatened and endangered species on “developable lands” within the project boundary, as appropriate, and incorporate those plans into the Comprehensive Land Management Plan (CLMP) for the project.
- (4) Prepare and implement a Shortnose Sturgeon Enhancement Plan.
- (5) Install manatee exclusion devices at Pinopolis lock and modify lock operations when manatees are present.
- (6) Provide an additional classroom at Old Santee Canal Park.
- (7) Provide additional picnic shelters and paved parking at Overton Park.
- (8) Construct a two-lane boat launch at Richard Landing at White Point (currently under construction).
- (9) Install aluminum mooring piers at Thornley (including any required excavation), Low Falls, Calhoun, and Biggins.
- (10) Prepare and implement a Programmatic Agreement (PA) and a Historic Properties Management Plan (HPMP) to guide SCPSA’s management of the project's historic properties during the term of the license.

2.3 MODIFICATIONS TO SCPSA'S PROPOSAL

2.3.1 Draft Settlement Agreement

SCPSA in conjunction with the SCDNR and FWS jointly filed a DSA with the Commission on November 17, 2006. SCPSA, FWS, and the agencies recommend that the measures included in the DSA be made conditions of any license issued. The DSA includes measures for fish passage, minimum flows, and improvements to the Santee NWR as follows:

Upstream passage at Santee dam (all phases)

- (1) Conduct a baseline population monitoring study of the annual American shad and herring spawning run in the Santee River.
- (2) Provide initial diadromous fish capture and transport during the baseline population monitoring study, such that fish captured during the study are transported above the Santee dam.
- (3) Conduct an American eel fishway study at Santee dam to aid in determining the best eel fishway location and operational period.
- (4) Operate a trap and sort facility at Santee dam.
- (5) Install and operate an eel fishway at Santee dam.
- (6) Construct and operate a fish lift facility at Santee dam to operate concurrently with the St. Stephen and Pinopolis lock facilities.
- (7) Conduct effectiveness evaluations of the eel fishway and fish lift facility.

Downstream passage at Santee dam (all phases)

- (8) Conduct a downstream passage evaluation study at Santee dam to include survivability of out-migrating target species (American shad, blueback herring, and American eel.)
- (9) Install and/or implement downstream passage measures or designs at Santee dam determined appropriate and effective by the downstream passage evaluation study.
- (10) Conduct effectiveness evaluations of the downstream passage measures at Santee dam.

Upstream passage at Pinopolis lock and dam (all phases)

- (11) Install an improved fish counting system in Pinopolis lock.
- (12) Provide an attraction flow at the navigation lock entrance.

- (13) Develop a passage operations plan at Pinopolis lock and dam to include an assessment of the timing and daily number of lock operations and initial turbine operations needed for efficient upstream passage of target species (shad, herring, and American eel).
- (14) Conduct an upstream passage effectiveness evaluation at Pinopolis lock.
- (15) Conduct an eel sampling study at Pinopolis lock and dam to aid in determining the best eel fishway location and operational period.
- (16) Install and/or implement upstream passage measures or designs at Pinopolis lock and dam determined appropriate based on the upstream passage effectiveness evaluation.
- (17) Install and operate an eel fishway at Pinopolis dam.

Downstream passage at Pinopolis lock and dam (all phases)

- (18) Conduct a confirmatory survival study for out-migrating target species at the Pinopolis lock and Jefferies Hydro Station to evaluate the turbine passage survival percentages for comparison to survival estimates included in the license application, and to provide for development of the best available and effective downstream passage measures and operations.
- (19) Conduct a downstream passage evaluation study at Pinopolis lock and dam to include consideration of survivability of out-migrating target species (American shad, blueback herring, and American eel).⁹
- (20) Install and/or implement downstream passage measures or designs at Pinopolis lock and dam determined appropriate based on the downstream passage evaluation study.
- (21) Conduct effectiveness evaluations of the downstream passage measures at Pinopolis lock and dam.

Instream flows

- (22) Release an instantaneous minimum flow from Santee dam of 2,400 cfs from February 1 through April 30 and 1,200 cfs from May 1 through

⁹The DSA filed on November 16, 2007, states, “The Licensee shall conduct a Downstream Passage Evaluation Study for target species that includes consideration of survivability of out-migrating target species (American shad, blueback herring, American eel,) and potential available alternatives to increase survivability at the Santee Dam.” Staff notes that the downstream passage provisions specified in Section VI.B of Appendix A of the DSA actually apply to Pinopolis lock and dam. This discrepancy needs to be clarified in any final SA.

January 31, with allowances for temporary reductions in flow during drought or emergency conditions.¹⁰

- (23) Develop a Low Inflow/Emergency Contingency Plan.
- (24) Establish the Santee Basin Fisheries Enhancement Fund for the purpose of funding diadromous fisheries enhancement and restoration activities in the Santee River Basin.

Santee National Wildlife Refuge enhancements

- (25) Maintain the Santee NWR pumping stations.
- (26) Remove snags and stumps from Jack's Creek in order to clear a public marked navigational channel.
- (27) Implement aquatic nuisance weed control measures.
- (28) Implement erosion control measures.
- (29) Place large woody debris in deep water portions of the Refuge for fish habitat.
- (30) Investigate and support moist soil impoundment irrigation options on the Bluff and Cuddo Units.
- (31) Reduce the stand density of 40 acres of pine/hardwood habitat on Pine Island Unit.
- (32) Assist in the expansion of an elevated public use photo blind/bird observation structure on the Wrights Bluff nature trail.

The DSA also includes a provision for the removal of Granby dam within 6 months after issuance of the license. Granby dam is located on the Congaree River approximately 44 miles upstream of the confluence of the Wateree River, which forms the headwaters of Lake Marion. Granby dam is not part of the Santee Cooper Project.

¹⁰The DSA states that this minimum flow would be provided within 36 months of the issuance date of the license or within 30 days of the installation of a new minimum flow generating unit at Santee dam, whichever occurs first. SCPSA, however, has not yet filed a formal request to amend the license or its current application to include the new minimum flow unit, nor has provided any design details or costs for the unit. Therefore, we are not analyzing the effects of this unit in this draft EIS, other than the minimum flows that would be provided by the unit. The placement and configuration of a minimum flow unit could alter downstream flow patterns or water quality. The potential effects on aquatic resources would need to be evaluated at such time SCPSA files a request to amend its license or license application.

As such, this measure is not analyzed in this draft EIS, although the parties to the DSA may elect to pursue this measure outside of any license that may be issued for the project.

2.3.2 Mandatory Conditions

2.3.2.1 Water Quality Certification

Section 401(a)(1) of the Clean Water Act (CWA) requires an applicant for a federal license or permit for any activity that may result in any discharge into navigable waters to provide to the licensing or permitting agency a certification from the state in which the discharge originates that any such discharge will comply with certain sections of the CWA. SCPSA filed an application for water quality certification (WQC) with the South Carolina Department of Health and Environmental Control (SCDHEC) at the same time as filing its license application with the Commission. By letters dated January 10, 2005, February 20, 2006, and February 26, 2007 SCPSA withdrew and resubmitted its application for WQC, in order to “re-start” the 12-month period for SCDHEC to act on the request. SCDHEC action on the request for a WQC is pending.

2.3.2.2 Coastal Zone Management Act Consistency Certification

Section 307(c)(3) of the Coastal Zone Management Act requires that all federally licensed and permitted activities be consistent with approved state Coastal Zone Management Programs.¹¹ If a project is located within a coastal zone boundary or if a project affects a resource located in the boundaries of the designated coastal zone, the applicant must certify that the project is consistent with the state Coastal Zone Management Program.

The Santee Cooper Project is located within the South Carolina’s coastal zone boundary (Berkeley County), and SCPSA applied for a determination of consistency with provisions of the Coastal Zone Management Program at the same time as filing the license application with the Commission. SCDHEC has not yet acted on the request.

2.3.2.3 Section 18 Fishway Prescriptions

Section 18 of the FPA provides that the Commission must require a licensee to construct, operate, and maintain such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. On May 5 and May 8, 2006, NMFS (Commerce) and FWS (on behalf of Interior) filed preliminary fishway prescriptions for upstream and downstream fish passage facilities at the Santee and Pinopolis dams, and also reserved their authority to prescribe additional fishways or modified fishways at a later date. On June 7, 2006, SCPSA filed alternative section 18 fishway prescriptions and a request for trial-type hearing with Interior and NMFS, in accordance with provisions of the Energy Policy Act of 2005. Subsequently, on September 18, 2006 SCPSA withdrew their request for a trial-type hearing. As discussed

¹¹16 U.S.C. §1456(c)(3)(A).

above, SCPSA filed a DSA on November 17, 2006, and FWS was a signatory to the DSA, noting they would revise their section 18 fishway prescription once the settlement is finalized. NMFS, however, was not a party to the DSA and by letter filed December 8, 2006, NMFS commented that they will consider the terms of the DSA during development of their modified fishway prescriptions.

NMFS and FWS prescriptions filed in May 2006 are nearly identical. The prescriptions are summarized as follows, with the NMFS's differences identified in bold:

Santee dam, upstream passage (target species American shad, blueback herring, shortnose and Atlantic sturgeon):

- (1) A 3-year baseline population survey for American shad and blueback herring below Santee dam. (**The NMFS prescription requires that the survey also consider the federally listed endangered shortnose sturgeon and the Atlantic sturgeon, a species of concern**). This study is needed to evaluate the population response to a new instream flow regime below Santee dam.
- (2) Conduct eel trapping in years 1 and 2 to determine best location for an eel fishway, and construct/operate an eel fishway at the dam in year 3.
- (3) Construct a trap/sort/transport facility for target species in year 5.
- (4) If warranted, construct a fish lift at the dam (or other appropriate upstream design).
- (5) Provide a final "zone of passage flow" as specified by FWS and NMFS for the fishway operational area.
- (6) After construction, develop and conduct effectiveness evaluations for the upstream passage facility.

Santee dam, downstream passage (target species American shad, blueback herring, American eel)

- (7) By year 2, complete an entrainment/mortality study at the dam for target species.
- (8) By year 5, if warranted (i.e. passage and survival of target species is less than 95%), construct downstream passage facilities consisting of full depth bar racks with one-inch clear bar spacing and approach velocity less than 2 feet per second, a multi-level intake, bypass, and discharge conduit to tailwater with 30-cfs operation flow.
- (9) After construction, develop and conduct effectiveness evaluations for the downstream passage facility.

Pinopolis lock and dam, upstream passage

- (10) In year 1, install a fish counting system (hydro-acoustic fish monitoring system) in the lock.
- (11) Provide a 600-cfs attraction flow at lock entrance.
- (12) In year 1, develop a passage operations plan for the lock.
- (13) In years 1 to 3, conduct a passage effectiveness evaluation of lock for shad, herring, and eel (**The NMFS prescription requires that the survey also consider the federally listed endangered shortnose sturgeon and the Atlantic sturgeon, a species of concern**).
- (14) In years 1 to 2, install eel traps to determine best location for an eel fishway. In year 3, install/operate an American eel fishway.
- (15) In year 4, construction/operation changes based on upstream effectiveness study.

Pinopolis lock and dam, downstream passage

- (16) By end of year 2, conduct a site-specific entrainment and mortality study.
- (17) In year 5, if warranted (i.e. passage and survival of target species is less than 95%), construct downstream passage facilities at lock and dam as approved by FWS and NMFS consisting of full depth bar racks with one-inch clear bar spacing and approach velocity less than 2 feet per second, a multi-level intake, bypass, and discharge conduit to tailwater with 600-cfs operation flow.
- (18) After construction, develop and conduct effectiveness evaluations for the downstream passage facility.

2.3.2.4 Section 10(j) Conditions

Under the provisions of section 10(j) of the FPA, each hydroelectric license issued by the Commission must include conditions based on recommendations of federal and state fish and wildlife agencies to adequately and equitably protect, mitigate damages to, and enhance fish and wildlife resources affected by the project. The Commission is required to include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA and other applicable law.

Several measures relating to project operations, shoreline management, and aquatic and terrestrial habitats were recommended by agencies under section 10(j). By letters filed between May 8 and May 9, 2006, Interior, NMFS, and SCDNR filed comments and recommendations in response to the March 3, 2006 Notice of Application Ready for Environmental Analysis (REA). The agency 10(j) conditions include:

- (1) Provide higher seasonally varied flows typically ranging from 1,600 to 5,600 cfs, based upon development and inflows, as detailed below.

From March 1 through April 30 of each year, a continuous minimum flow of 5,600 cfs would be released from the Corps' St. Stephen development into the Rediversion Canal for fish passage. From May 1 to January 31, 25 percent of project inflow, less the Cooper River flow requirement, would be released into the Santee River. From February 1 to April 30, 30 percent of project inflow, less the Cooper River flow requirement, would be released into the Santee River. Year round requirements would be 4,500 cfs (weekly average) at the Jefferies development and a minimum of 1,600 cfs at Santee dam.

- (2) Implement a modified rule curve¹² that would target full pool elevation during December and January.
- (3) Develop a Drought Contingency Plan¹³ for the operation of the Project during low inflows and/or drought.
- (4) Develop an Adaptive Management Program to assess the effectiveness of flow alternatives in providing aquatic habitat and navigation.¹⁴
- (5) Construct fish passage and protection measures according to the prescriptions provided by NMFS and FWS.
- (6) Conduct water quality monitoring and remediation, as necessary, in Lake Marion and the Santee River.¹⁵

¹²Recommendations for a modified rule curve vary between agencies and interested parties, but generally call for stable lake levels and a curve that provides an earlier drawdown and refilling to achieve full impoundment levels during the winter months.

¹³This plan has been referred to by some agencies as the Low-Inflow Protocol.

¹⁴SCPSA would monitor flows over the next 10 years to determine if the flow regimen has met ecological and navigational objectives such as fish staging and spawning, sandbar and floodplain inundation, salinity abatement, and aquatic habitat. If objectives are met, SCPSA would continue monitoring for the next 10 years. If the objectives are not met, SCPSA would implement an alternative flow regimen that apportions between 20 and 40 percent of project inflow to the Santee River and release that flow from the Santee Spillway Development for the next 10-year period.

¹⁵SCDNR recommends a DO and water temperature-monitoring program be established in Lake Marion and the Santee River, which is designed to detect low DO levels. When low DO levels are detected, SCDNR recommends management measures be implemented to enhance water quality to meet state standards.

- (7) Develop and implement Rare, Threatened, and Endangered (RTE) Species Management Plans for those species known to occur near the project or affected by project operations.
- (8) Develop and implement an Aquatic Plant Management Plan that addresses controlling non-native invasive aquatic plants.
- (9) Provide the following recreational amenities during the first 10 years of the new license:^{16,17}
 - a. improved bank fishing access and parking on the Diversion Canal, in the Pinopolis dam tailrace, below Wilson dam, the Duck Pond Access off Highway 6, and the Old Highway 301 Causeway and Bridge;
 - b. develop an additional boat navigation channel across Lake Marion; and
 - c. install enhanced channel markers.
- (10) Review and update the Recreation Plan every 10 years for the life of the license.
- (11) Develop a comprehensive Shoreline Management Plan (SMP) and update the plan every 10 years for the life of the license.
- (12) Analyze an increased geographic scope to include upstream to at least the extent of sedimentation caused by Lake Marion and downstream in the Santee River from the Wilson dam 87 miles to the Atlantic Ocean, to include the St. Stephen Project.¹⁸
- (13) Analyze an increased temporal scope to achieve an environmental baseline that accounts for all continuing and future project related impacts, including those of the St. Stephen project.

The DSA measures, if finalized, would significantly alter the 10(j) recommendations made by FWS and SCDNR for flows and project operation.

¹⁶Recreational measures are not measures for the protection of fish and wildlife resources, but are considered under Section 10(a) of the FPA.

¹⁷ Inadequate information has been provided for staff to evaluate and make a recommendation regarding these measures. SCDNR provides no details on the design or specific location for bank fishing sites, nor identifies the location or why an additional boat navigation channel across Lake Marion is necessary.

¹⁸These recommendations will be considered in our analysis as appropriate to assess cumulative effects of project operations.

2.3.2.5 Section 4(e) Conditions

Section 4(e) of the FPA gives the Secretaries of the Interior and Agriculture authority to impose conditions on licenses issued by the Commission for hydropower projects located on “reservations” under the respective Secretary’s supervision. See 16 U.S.C. §§ 796(2), 797(e).

By letter filed May 17, 2006 FWS submitted five preliminary 4(e) conditions, pursuant to section 4(e), to mitigate for impacts from the Santee Cooper Project on “reservations” (the Santee NWR) managed by FWS. In its response to agency terms and conditions filed June 22, 2006, SCPSA argued that 4(e) conditioning authority does not apply in this case because the Santee NWR is not a “reservation” as defined in §§ 796(2), 797(e). The FWS’ five preliminary 4(e) conditions are similar to measures submitted by Interior and SCDNR under section 10(j) and we address these measures in this draft EIS. The five preliminary section 4(e) measures are summarized as follows:

- (1) Modify project rule curve to achieve full pool at Lake Marion in winter months (December-February) to provide enhanced wintering waterfowl habitat;
- (2) Mark and remove snags to create a navigation channel through Jack’s Creek to minimize disturbances to migratory waterfowl;
- (3) Designate Polly-Cantey bay on Lake Marion as a “Natural Area”, including signage and a no wake zone;
- (4) Manage aquatic nuisance species adjacent to and/or encroaching within the Santee NWR; and
- (5) Actively manage habitat on Persanti Island for the federally endangered red-cockaded woodpecker as described in the Red-Cockaded Woodpecker Recovery Plan, including but not limited to prescribed burning, monitoring, and providing annual recovery and monitoring reports.

The DSA, filed on November 17, 2006, contains two of the original section 4(e) measures. If finalized, the DSA would modify the FWS’s preliminary 4(e) conditions.

2.3.2.6 Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally endangered or threatened species or result in the destruction or adverse modification of the critical habitat for such species. Federal agencies are required to consult with FWS or NMFS when a proposed action may adversely affect listed species.

The FWS, by letters filed Jan. 9, 2003, and March 14, 2005, stated that the federally listed endangered West Indian manatee, red-cockaded woodpecker, and shortnose sturgeon, and the federally listed threatened bald eagle are known to exist within the project boundaries. By letter filed May 8, 2006, the FWS stated that the

peregrine falcon (*Falco peregrinus anatum*) and the wood stork occur at the Santee NWR. The SCDNR Heritage Database for rare, threatened and endangered species, confirmed the presence of three federally threatened or endangered species (i.e. bald eagle, red-cockaded woodpecker, and shortnose sturgeon), as well as three species of national concern, 16 species of state concern, and one species of regional concern present within the project boundary.

Of the federally listed endangered or threatened species known to occur in the project area, we conclude that project operation has the potential to affect shortnose sturgeon, the West Indian manatee, the wood stork, and the bald eagle. The peregrine falcon was delisted in 1999 and subsequent monitoring indicates that the species has recovered (FWS 2006). We conclude that no further consultation is necessary for this species.

The bald eagle, red-cockaded woodpecker, and wood stork could be affected by shoreline land use, both directly and indirectly attributable to project operation. However, land use development programs under the existing CLMP, include measures to protect shoreline and terrestrial habitat from development. Also, the DSA proposes development of RTE species management plans which would be included in a revised CLMP. We conclude that, with the implementation of these programs and plans, operation of the project is not likely to adversely affect these species.

We make an initial determination that that the project could potentially adversely affect the shortnose sturgeon, and manatee. NMFS, by letter filed on December 8, 2006, clarified that consultation under section 7 of the ESA between NMFS and the Commission with regard to the shortnose sturgeon had not been initiated. NMFS also stated that it would consider the terms agreed upon by the signatories of the DSA during ESA consultation. After issuance of this draft EIS, the Commission intends to initiate formal consultation with NMFS for the shortnose sturgeon and with FWS for the West Indian manatee.

2.3.2.7 National Historic Preservation Act

Relicensing is considered an undertaking under section 106 of the National Historic Preservation Act of 1966, as amended.¹⁹ Section 106 requires that every federal agency "take into account" how each of its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register of Historic Places (National Register).

To meet the requirements of section 106, the Commission will execute a Programmatic Agreement (PA) with the South Carolina State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Advisory Council) for the protection of historic properties from the effects of the continued operation of the

¹⁹16 U.S.C. §470 (s).

Santee Cooper Project.²⁰ The terms of the PA would ensure that SCPSA address and treat all historic properties identified within the project area through the development and implementation of an historic properties management plan (HPMP). The HPMP would include on-going consultation involving historic properties for the term of any new license. In support of these requirements, SCPSA is proposing to develop and file a PA and HPMP for the Santee Cooper Project.

2.3.3 Staff Alternative

The staff alternative includes the measures proposed by SCPSA, along with the following additional measures:

- (1) Provide higher seasonal minimum flows below Santee dam of 1,200 cfs from May through January, and 2,400 cfs from February through April.
- (2) Develop a Low Flow/Emergency Contingency Plan for the operation of the project during low inflows and/or drought;
- (3) Develop an Adaptive Management Program to assess the effectiveness of flow alternatives in providing aquatic habitat and navigation;
- (4) Develop and implement an Operations and Flow Monitoring Plan;
- (5) Form a Technical Advisory Committee for Instream Flows;
- (6) Construct fish passage facilities and implement entrainment protection measures including:
 - a. Santee dam: shad and herring population monitoring in the Santee River downstream of the dam, construction and operation of a trap and sort facility and eventually a permanent upstream fish passage facility, eel passage measures, and monitoring and effectiveness evaluation.
 - b. Pinopolis lock and dam: improved fish monitoring system, additional attraction flows, a fish passage operations plan, eel passage measures, construction of an upstream passage facility at Pinopolis dam as appropriate, a fish entrainment study, and monitoring and effectiveness evaluation.
 - c. Before construction of any facilities, prepare a fish passage implementation plan.

²⁰As part of relicensing, SCPSA conducted a Phase 1 cultural resources investigation. At the time, no further Phase 1 archaeological work was recommended. However, it was recommended that any changes in facility or land use should prompt consideration of an intensive survey of the project area and SHPO review.

- d. Post-licensing downstream fish passage studies to quantify downstream passage of diadromous fish at the Santee dam, Pinopolis lock and the Jefferies powerhouse, to determine the need for downstream passage facilities for diadromous species.
- (7) Develop and implement an Aquatic Plant Management Plan that addresses controlling non-native invasive aquatic plants.
- (8) Develop a Recreation Plan and update every 10 years for the life of the license.
- (9) Improve bank fishing access and parking on the Diversion Canal, in the Jefferies station tailrace, below Wilson (Santee) dam, the Duck Pond Access off Highway 6, and the Old Highway 301 causeway and bridge.
- (10) Enhance navigation channel markers.
- (11) Revise the existing SMP and update the plan every 10 years for the life of the license.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Alternatives to the relicensing proposal that were considered but eliminated from detailed study because they are not reasonable in this case include issuance of a non-power license and project retirement.

2.4.1 Issuing a Nonpower License

Issuing a nonpower license would not provide a long-term resolution of the issues associated with the relicensing of the Santee Cooper Project. A nonpower license is a temporary license that the Commission would terminate whenever it determines that another government agency would assume regulatory authority and supervision over the lands and facilities covered by the nonpower license. In this case, no agency has suggested its willingness or ability to do so. No party has sought a nonpower license, and we have no basis for concluding that the project should no longer be used to produce power. Thus, in these circumstances, a nonpower license is not a realistic alternative to relicensing.

2.4.2 Retiring the Project

Project retirement could be accomplished with or without dam removal. Either alternative would involve denial of a license application and surrender or termination of an existing license with appropriate conditions. Dam removal has not been recommended by any party, and we have no basis for recommending it or studying it as an alternative. The project provides a viable, safe, and clean renewable source of power to the region and contributes to the local economy by providing a source of revenue to SCPSA, and major recreational benefits to the area.