



United States Department of the Interior



FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

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RULES AND DIRECTIVES

Chief, Rulemaking and Directives Branch
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop: TWB-05-B01M
Washington, DC 20555-0001

Attn: Sarah Lopas, Project Manager

Re: Comments on the Draft Environmental Impact Statement for Combined Licenses
For William States Lee III Nuclear Station Units 1 and 2, ER11/1166, Cherokee County,
South Carolina, FWS Log No. 2012-CPA-0041

Dear Sir/Madam:

The U.S. Fish and Wildlife Service (Service) on behalf of the Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) for the William States Lee III Nuclear Station Units 1 and 2 (Project) near Gaffney, Cherokee County, South Carolina. On December 12, 2007, Duke Energy Carolinas, LLC (Duke) submitted to the Nuclear Regulatory Commission an application for two combined construction permits and operating licenses. The Department of the Interior (DOI) submits the following comments in accordance with the provisions of the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e); section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543); the Migratory Bird Treaty Act (16 U.S.C. 1536, 1538); the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*); the Clean Water Act (33 U.S.C. 1251 *et seq.*); and the Atomic Energy Act (42 U.S.C. 2011 *et seq.*).

The Project site is located on the Broad River adjacent to the Federal Energy Regulatory Commission (FERC) Ninety-Nine Islands Dam and reservoir, also owned, and operated by Duke. The proposed Project will construct on the site of the former Duke Power Company Cherokee Nuclear Station. The proposed project consists of construction and operation of two nuclear reactors of the Westinghouse Advanced Passive 1000 (AP1000) Pressure Water Reactor design. All of the construction and operation related to the proposed project would be within the confines of the Lee Nuclear Station, except the transmission systems, and an off-site reservoir (Make-Up Pond C), which is proposed to ensure the existing limits for downstream minimum flows at the Ninety-Nine Islands project are met according to its FERC license, Project No. 2331. On-site construction would include the containment vessel, shield building, the auxiliary building, and all structures included in the standard Westinghouse AP1000 design. Four other principle structures include the turbine building, diesel generator building, radioactive waste building, and the annex building. Each of the proposed AP1000 units have a thermal power

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rating of 3,400 MW(t). Duke indicates that additional baseload generating capacity is needed to meet the demands for energy in the next 20 years within its service area.

General Comments

In review of the DEIS, the Service has several concerns pertaining to adverse impacts to aquatic communities of the Ninety-Nine Islands reservoir, the Broad River downstream of the dam, and the London Creek watershed. These concerns include the direct and cumulative effects from consumptive water loss from Units 1 and 2, evaporative loss from ponds, aquatic effluent discharge from cooling tower blowdown, and the loss of aquatic habitat and species from the damming of London Creek. Additional concerns include impacts to approximately 1,200 total acres of terrestrial and wetland habitats.

Consumptive water loss associated with the operation of Units 1 and 2 has been estimated as a minimum of 54.8 cubic feet per second (cfs) and a maximum 64.8 cfs. The South Carolina Department of Health and Environmental Control (SCDHEC) use the 7Q10 flow to determine potential impacts of consumptive water use. The consumptive 7Q10 flow at the Project is 464 cfs. The evaporative use of the proposed units compared to the 7Q10 flow of 464 cfs is 7.2 percent. However, flows in the Broad River have historically been as low as approximately 220 cfs. If anticipated consumptive loss from Units 2 and 3 is subtracted from average daily flow during periods of flow as low as 220 cfs, the percent loss of Broad River flow increases to 28 percent. It is unclear what the instantaneous impacts to aquatic resources would be during low flow and drought periods from consumptive water loss.

In addition, evaporative losses would occur from each of the Make-Up Ponds. Duke estimates that during the month of July the evaporative loss from Make-Up Pond C would be 4.24 acre feet (ac-ft) per day. All ponds combined the evaporative losses during the month of July would be 5.71 ac-ft per day or 177 ac-ft for the entire month.

The Broad River sub-basin has been designated within the *Santee River Basin Accord* as the primary sub-basin, within the Santee River system, for restoration of diadromous fish. The Service is concerned with the potential impacts to restoration activities from the proposed discharge effluent, particularly the recruitment and survivability of diadromous fish larvae and out-migrating juveniles, and the catadromous American eel. A thermal discharge into Ninety-Nine Islands reservoir, and into the Broad River, may compromise ongoing restoration efforts for both anadromous and catadromous fishes, as well as rare freshwater species including the robust redhorse sucker, freshwater mussels, snails, and crayfish. It should be noted that the robust redhorse sucker, which has been stocked in the Broad River by the South Carolina Department of Natural Resources is currently under a Federal 90-day Petition Finding for Listing under the Endangered Species Act.

According to the DEIS, fish surveys were conducted in 2006 in the Ninety-Nine Islands reservoir, its tailrace, and in the Broad River below the dam. In the reservoir, including its backwaters, two of the species collected were South Carolina State Conservation species of "High Priority" including the quillback, *Carpoides cyprinus*, and Carolina fantail darter, *Etheostoma brevispinum*. Additionally, two species of "Moderate" priority, the V-lip redhorse, *Moxostoma pappillosum*, and the Notchlip redhorse, *Moxostoma collapsum*, were also collected.

Below the Ninety-Nine Island Dam, surveys collected the Quillback (High Priority). Seven species of "Moderate" priority were collected including the Fieryblack shiner, *Cyprinella pyrrhomelas*, Thicklip chub, *Hybopsis labrosa*, Greenfin shiner, *Notropis chloristius*, V-lip redhorse, flat bullhead, *Ameiurus platycephalus*, highback chub, *Hybopsis hypsinotus*, and the Snail bullhead, *Ameiurus brunneus*. In 2003-2004, the DEIS published that fish surveys conducted below the Ninety-Nine Island Dam collected the Santee chub, *Hybopsis zanema*, which is also a species designated as "High Priority."

Freshwater mussel surveys below Ninety-Nine Island Dam collected four species of "Moderate Priority" including the Eastern elliptio, *Elliptio complanata*, Eastern creekshell, *Villosa delumbis*, yellow lance, *Elliptio lanceolata*, and Carolina lance, *Elliptio angustata*. It should be noted that the yellow lance is currently under a Federal 90-day Petition Finding for listing under the Endangered Species Act.

The Service recommends that a more intensive survey for freshwater mussels be conducted downstream of the Ninety-Nine Islands Dam. We also recommend a survey for freshwater snails be conducted along with the mussel survey, because the DEIS does not contain information regarding gastropod surveys in the Broad River, the reservoir, or London Creek and its tributaries.

The Service is especially concerned with the effects of the proposed cooling tower blowdown discharge on the aquatic community and ecosystem of the Ninety-Nine Islands Reservoir and the Broad River downstream of the dam. The blowdown discharge would contain biocides, chemical additives, radioactive waste, and thermal effluent. The chronic and cumulative effect of chemicals and radioactive waste would adversely affect fish and invertebrate spawning and recruitment in the vicinity of the discharge within the reservoir, and downstream of the dam, particularly during periods of low flow. The thermal effluent would affect fish and invertebrate spawning, and biological systems through stress and/or direct mortality. It would especially affect non-motile or slow moving invertebrates such as freshwater mussels and other aquatic invertebrates. In addition, we are concerned with the levels of copper and zinc proposed in the liquid effluent that exceed the SCDHEC criterion maximum concentration for these metals, and violate South Carolina Water Classifications and Standards Regulation 61-68, established maximum concentrations for freshwater.

Chronic and Cumulative Impacts

The applicant has proposed damming of the London Creek watershed to create Make-Up Pond C. The proposed intention of this pond is to provide additional water to both Make-Up Ponds A and B during low flow conditions and prolonged drought. The proposed work would impound 6 miles of London Creek to create a 620-acre reservoir.

London Creek is a headwater Piedmont stream with bedrock, cobble, and coarse substrates, sinuosity, riffle/pool habitat, leaf packs and woody debris. The dominant source of energy for production in southeastern rivers is the terrestrially derived plant and organic material that is collected, processed, and exported downstream by headwater streams (Minshall et al. 1983, Webster et al. 1995). Detrital resources provide a primary energy source for macro-invertebrate production including aquatic insects, which supplies the food base for upper trophic levels (Freeman 2005). Hydroelectric projects throughout the Broad River basin have disproportionately eliminated and cumulatively affected riffle and shoal habitats, including

headwater stream habitats. The creation of Make-Up Pond C would cause irreparable and irretrievable loss of Piedmont stream habitat and the species whose life cycles depend on those habitats.

Surveys conducted in London Creek collected 22 fish species. One species, the greenhead shiner, *Notropis chlorocephalus*, is a South Carolina State Conservation species of "High Priority" and three additional species of "Moderate" priority including the greenfin shiner, *Cyprinella chloristia*, highback chub, and flat bullhead, were collected. These species would not survive the complete inundation of stream habitat to create a large reservoir habitat. This would result in the direct loss of these species, whose populations are already in decline.

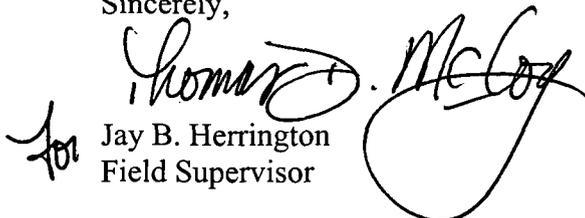
Recommendations

Based on the Service's review of the DEIS, we believe additional information is required to provide a complete analysis of the effects of the proposed project on fish and wildlife resources. We recommend the following:

- 1) A survey for snails be conducted in London Creek and its tributaries, and downstream of the Ninety-Nine Island Dam in the Broad River.
- 2) A comprehensive survey for the yellow lance below the dam in the Broad River, and downstream areas affected by the discharge from the hydroelectric project, because the mussel is currently under a 90-Day Petition Finding for listing under the Endangered Species Act.
- 3) The applicant should develop and implement a plan to collect the South Carolina State Conservation High and Moderate priority fish species in London Creek and relocate to nearby suitable streams prior to construction of Pond C.

The Service appreciates the opportunity to comment on the DEIS for the Lee III Nuclear Station. If you have any questions, or need further assistance, please contact Mr. Mark Caldwell at (843) 727-4707 ext. 215, or Ms. Amanda Hill at (843) 727-4707 ext. 303.

Sincerely,


Jay B. Herrington
Field Supervisor

JBH/MAC/AKH

cc: Ms. Lisa Treichel, Office of Environmental Policy and Compliance, Washington, DC
Ms. Stephanie Nash, U.S. Fish and Wildlife Service, Washington, DC
Ms. Christine Willis, U.S. Fish and Wildlife Service, Atlanta, GA