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Ms. Cynthia A. Carpenter, Chief, Risk Informed Initiatives
Environmental, Decommissioning, and Rulemaking Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Ms. Carpenter:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter dated October 26, 2001, regarding our comments concerning potential adverse impacts on aquatic resources under purview of the Service. Southern Nuclear Operating Company (SNC) has submitted an application for license renewal to the U.S. Nuclear Regulatory Commission (NRC) to renew the operating license for their Edwin I. Hatch Nuclear Power Plant located on the Altamaha River in Appling County, Georgia. We are providing the following comments in accordance with provisions of the Fish and Wildlife Coordination Act, (FWCA)(16 U.S.C. 661 et seq.).

Fish and Wildlife Resources

Fishery resources of particular concern to the Service are interjurisdictional and commercially important anadromous species including American shad, hickory shad, blueback herring, striped bass, Atlantic sturgeon, and shortnose sturgeon. American shad, striped bass and sturgeon have historically been a significant commercial fishery along the Altamaha River, and populations of all of these species have experienced dramatic declines. We are also concerned about potential adverse impacts to other resident species including largemouth bass, redbreast sunfish and native riverine suckers, including the robust redhorse (Moxostoma robustum), a State-listed species. The Altamaha River provides important recreational opportunities and sources of income for the residents of Georgia. The Altamaha River is an economically significant resource and the destination for many out-of-state anglers, and these riverine resources are a critical element of the natural heritage of Georgia.

Fish Entrainment and Mortality

We remain concerned that the entrainment and mortality of fish at Plant Hatch has not been appropriately evaluated for the combined two-unit operation that began in late 1979. In our letter dated November 8, 1999, we indicated our concern about fish entrainment and mortality at Plant Hatch and requested additional information to evaluate the potential impacts of project license renewal. On December 7, 1999, we received a response from SNC that included a Biological Information Update, the 1981 Thermal Plume Model Verification Study, and the 1981 316(b) Demonstration Study to evaluate fish entrainment at the plant. We still contend that these studies

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are flawed in design and method and are out of date. Entrainment of aquatic species must be evaluated for existing river conditions that reflect existing plant operations and species composition in the Altamaha River.

Construction of Plant Hatch Unit 1 began in 1968 and commercial operation began in December, 1975. Plant Hatch Unit 2 construction began in 1972 and commercial operation began in September, 1979. Entrainment samples for Plant Hatch were collected in 1974, 1975, 1976, 1979 and 1980. These were years when populations of American shad were extremely low compared to the present. Samples were collected weekly from 1974 through 1976 and monthly in 1979 and 1980. During nearly all of the sampling period, 1974 through September, 1979, only Unit 1 was operating at Plant Hatch. Unit 2 began operating in September, 1979 and the only data on fish entrainment and mortality at Plant Hatch under normal two-unit operation was during the monthly sampling conducted in 1980. Given that the information on fish entrainment and mortality at Plant Hatch is over 20 years old and only represents one year of monthly collections under normal two-unit operation, these data are not adequate to reflect the actual fish entrainment potential at Plant Hatch and cannot be reliably used in evaluating the potential adverse effects on fishery resources in the Altamaha River.

SNC reports that intake velocities increase with lower river levels, but these values are not reported for evaluation. Based on some of the intake velocities reported in the 1981 316 (b) Report, it is likely that two-unit operation at Plant Hatch may have significant adverse impacts on fishery resources through increased entrainment of eggs, larvae and juvenile fish. These impacts would be most adverse during spawning season and especially in years with lower than usual flows such as occurred in 1999, 2000, and 2001. We continue to recommend that SNC conduct an updated assessment of fish entrainment and mortality at Plant Hatch under various flow conditions that reflect actual normal two-unit operation and two-unit operation at low river flows.

Thermal Discharge

The existing NPDES permit for Plant Hatch limits the thermal discharge to 90 °F or 5 °F above ambient. Twelve thermal plume monitoring surveys were conducted during 1980. Seven of these twelve monitoring surveys showed inconclusive results according to the 1981 report. Three of these surveys were conducted with only one cooling tower releasing heated water. Three additional surveys did not detect a thermal plume. The remaining survey postulates that on August 12, 1980, a "secondary thermal plume" was the cause of "excessive solar heating" of adjacent shallow water, and that the survey of the thermal plume from Plant Hatch was biased due to hot weather. These results cannot be considered reliable due to the limited field verification of the nearly 30-year-old model in which seven of only twelve field surveys of the thermal plume were "inconclusive". The notion that a secondary plume had developed near a sandbar during a hot August day must be rejected since this is a natural occurrence during the summer months, and the purpose of the model and the study was to determine whether Plant Hatch would be expected to adversely impact aquatic resources of the Altamaha River regardless of natural conditions. The thermal impacts of the heated discharge may also become exacerbated during low flows.

It is our view that the results of the Thermal Plume Model and the field verification survey do not characterize adverse impacts to the river by temperature deviations resulting from the full two-unit operation of Plant Hatch during low summer and fall flows. Actual field data on heated water discharges from Plant Hatch is critical during low flow periods when the river experiences drought or near drought conditions. Low flow periods have the greatest potential for adverse impacts to aquatic species in the Altamaha River. These acute impacts must be considered cumulatively in light of higher ambient water temperatures, reduced dilution of wastewater from upstream sources, increased percentage of river flow consumed at Plant Hatch, and significantly reduced dilution potential for the heated effluent. Two years of field studies of the thermal discharge should be conducted, at a minimum, on a daily basis during various river conditions and the critical low flow periods in summer and fall when ambient water temperature is highest and dissolved oxygen is lowest.

As the Federal agency responsible for the protection and conservation of fish and wildlife resources in the Altamaha River, we recommend that the NRC require a current and thorough fish entrainment and mortality study be conducted to adequately characterize fish entrainment under full two-unit generating conditions prior to any license renewal for Plant Hatch. We further recommend that thorough field studies be conducted to evaluate current actual thermal discharges under full two-unit generating conditions during low flow periods for at least two years.

We appreciate the opportunity to reiterate our serious concerns regarding potentially adverse impacts to aquatic resources due to continued operation of Plant Hatch. If you have any questions or need additional information please contact staff biologist Mark D. Bowers of the Georgia Ecological Services Field Office at (706) 613-9493.

Sincerely,

Sandra S. Tucker

Sandra S. Tucker
Field Supervisor

cc: file
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