

October 24, 2001

Mr. Sam D. Hamilton  
Regional Director  
United States Department of the Interior  
Fish and Wildlife Service  
1875 Century Boulevard  
Atlanta, Georgia 30345

Dear Mr. Hamilton:

In a letter dated July 18, 2001, you provided comments on the U.S. Nuclear Regulatory Commission (NRC) staff's "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," (GEIS, NUREG-1437), Supplement 4, regarding the Edwin I. Hatch Nuclear Plant (HNP), Units 1 and 2. This final supplemental environmental impact statement (FSEIS) was published in May 2001. In this letter the staff responds to your comments.

Your comments related to two specific areas; (1) the adequacy of the data used to evaluate the impacts of the entrainment and impingement of fish and (2) the adequacy of the data used to evaluate the impacts of the thermal plume from the HNP cooling water discharge on species in the Altamaha River. For both issues, you recommended additional studies by the Southern Nuclear Operating Company (SNC, the licensee for HNP) to better define the impacts on river biota. The staff responded to these concerns in Appendix A to the FSEIS (see pages A-36 to A-37 and A-39 to A-40). In addition, the staff: (1) prepared a biological assessment related to the shortnose sturgeon (see Appendix E in the FSEIS), (2) met with the National Marine Fisheries Service and Mark Bowers in the Athens Field Office of the Fish and Wildlife Service (FWS) at HNP on March 22, 2001, and (3) sent a separate response letter dated June 6, 2001, to Mr. James H. Lee in the Atlanta office of FWS. The following summarizes the staff's response.

#### Entrainment and Impingement

As set forth in your letter, FWS expressed two basic concerns related to entrainment and impingement; (1) the original studies did not collect sufficient data with two units in operation and (2) the licensee did not provide sufficient information concerning intake velocities.

During the initial studies for HNP the majority of the entrainment and impingement data were taken during single unit operation. After Unit 2 began operation, a more limited set of data was taken with both units in operation. The basis for this approach relates to the design of the HNP river intake. Each unit has its own intake. Therefore, the intake velocity (a key factor affecting impingement of fish on the intake screens) is the same with two units in operation as it is with one unit running. Fish too small to be impinged on the screens can be entrained into the plant cooling system. The amount of entrainment is expected to be directly proportional to the amount of cooling water that flows into the plant. Therefore, entrainment with two units in operation would be expected to be twice that with one unit in operation.

The limited studies with two units running were used to confirm that entrainment and impingement were as expected in this configuration. The results of the studies were accepted at the time they were performed by the regulatory agencies, including NRC and FWS. The staff believes that the basis for the original licensing decision is still valid and does not believe that additional testing is necessary.

With respect to intake velocities, SNC provided the additional information that was requested during the March 22, 2001, meeting at the HNP in a letter to the NRC dated April 25, 2001. A copy of this letter was provided to Mr. Mark Bowers of the FWS staff.

### Thermal Discharge

FWS also indicated that it did not feel that the thermal plume data taken during initial licensing of HNP was sufficient to characterize the impacts of two-unit operation on the river. FWS pointed out that 7 of the 12 field surveys that were performed were inconclusive.

First, it is important to note that HNP uses cooling towers to dissipate almost all of the waste heat from the plant. Therefore, the amount of heated water returned to the river, and the temperature difference between the river water and the discharge water are limited. The licensee used a computer model to predict the thermal plume in the river. The field surveys were performed to verify that the results from the model reasonably represented the actual conditions in the river. The licensee concluded that the results of seven of the surveys could not be used, for the following reasons:

1. During three of the surveys one of the units was not discharging to the river because of a biocide treatment. This condition invalidates the results and so the licensee did not use them.
2. During three of the surveys, the temperature of the plant discharge was so close to that of the river that the plume could not be detected. This result is an indicator of the effectiveness of the cooling towers at reducing the impacts to the river.
3. The remaining inconclusive survey was excluded because, according to the licensee, a secondary thermal plume obscured the result. This item was explained further during the March 22, 2001, meeting at HNP. During this survey the licensee was unable to detect the plume because the river temperature just upstream of the discharge was higher than the river temperature at the intake. The licensee believed that this unusual situation was caused by solar heating of the relatively shallow water just upstream of the discharge.

Using the remaining field surveys, the licensee validated the predictions of the model. The thermal plume study was accepted by the affected regulatory agencies at the time of licensing and, again, the NRC has not seen any information which would lead it to call that decision into question. The staff believes that the basis for the original licensing decision is still valid and does not believe that additional testing is necessary.

S. Hamilton

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If you have any questions concerning these responses, please contact Andy Kugler of my staff at (301) 415-2828.

Sincerely,

**Original Signed By: CACarpenter**

Cynthia A. Carpenter, Chief

Risk Informed Initiatives, Environmental,

Decommissioning, and Rulemaking Branch

Division of Regulatory Improvement Programs

Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

cc: See next page

S. Hamilton

- 3 -

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\*See previous concurrence

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Southern Nuclear Operating Company  
Edwin I. Hatch Nuclear Plant Units 1 and 2

Docket Nos.: 50-321, 50-366

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