Nuclear Regulatory Commission
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Rejected: Stricken:

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NRC000031

SOUTHERN COMPANY
Energy to Serve Your World℠

MAY 27 2008

Docket No.: 52-011

AR-08-0834

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Early Site Permit Application
Impingement and Entrainment Monitoring at Plant Vogtle

Ladies and Gentlemen:

On May 18, 2008, a conference call was held between Southern Nuclear Operating Company (SNC) and the NRC staff to discuss the status of the impingement and entrainment monitoring evaluation currently being conducted at Plant Vogtle. During the call, SNC discussed the data obtained since the monitoring began in early March 2008 and responded to questions posed by the NRC staff. The staff requested SNC provide a summary of the monitoring data collected to date to support the Final Environmental Impact Statement (FEIS). Enclosure 1, "Impingement and Entrainment Monitoring Update at Plant Vogtle", summarizes the study objectives, methodology and results to date for the impingement and entrainment monitoring program currently being conducted to generate additional data to that included in the VEGP Units 3 and 4 ESP regarding these issues. The activities are being conducted at the Vogtle Unit 1 and 2 cooling water intake structure, since the environment is expected to be essentially the same for the intake system for Vogtle Units 3 and 4. The monitoring work performed to date further supports the conclusion that impacts to the Savannah River from impingement and entrainment are SMALL.

The SNC contact for this letter is T.C. Moorer at (205) 992-5807.

D078
NRO

Mr. J. A. (Buzz) Miller states he is a Senior Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Joseph A. (Buzz) Miller

Sworn to and subscribed before me this 27th *day of* May, *2008*

Notary Public: Dana M. Williams

My commission expires: 12/29/2010

MTM/dmw

Enclosures:

1. Impingement and Entrainment Monitoring Update at Plant Vogtle

cc: Southern Nuclear Operating Company
Mr. J. B. Beasley, Jr., President and CEO (w/o enclosures)
Mr. J. T. Gasser, Executive Vice President, Nuclear Operations (w/o enclosures)
Mr. T. E. Tynan, Vice President - Vogtle (w/o enclosures)
Mr. D. M. Lloyd, Vogtle Deployment Director (w/o enclosures)
Mr. C. R. Pierce, Vogtle Development Licensing Manager (w/o enclosures)
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Nuclear Regulatory Commission
Mr. M. R. Johnson, Director of Office of Nuclear Regulation (w/o enclosures)
Mr. L. A. Reyes, Regional Administrator (w/o enclosures)
Mr. D. B. Matthews, Director of New Reactors (w/o enclosures)
Ms. S. M. Coffin, AP1000 Manager of New Reactors (w/o enclosures)
Mr. C. J. Araguas, Project Manager of New Reactors
Mr. J. E. Lyons, Director of Site and Environmental Review (w/o enclosures)
Mr. W.F. Burton, Chief – Environmental Technical Support (w/o enclosures)
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Mr. G. J. McCoy, Senior Resident Inspector of VEGP (w/o enclosures)

Georgia Power Company
Mr. O. C. Harper, Vice President, Resource Planning and Nuclear Development (w/o enclosures)

Oglethorpe Power Corporation
Mr. M. W. Price, Chief Operating Officer (w/o enclosures)

Municipal Electric Authority of Georgia
Mr. C. B. Manning, Senior Vice President and Chief Operating Officer (w/o enclosures)

Dalton Utilities
Mr. D. Cope, President and Chief Executive Officer (w/o enclosures)

Bechtel Power Corporation
Mr. J. S. Prebula, Project Engineer (w/o enclosures)
Mr. R. W. Prunty, Licensing Engineer

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Ms. K. K. Patterson, Project Manager (w/o enclosures)

Southern Nuclear Operating Company

AR-08-0834

Enclosure 1

Impingement and Entrainment Monitoring Update at Plant Vogtle

Impingement and Entrainment Monitoring Update
at Plant Vogtle

It is expected that the configuration and capacity of the cooling water intake structure for the proposed Vogtle Electric Generating Plant (VEGP) Units 3 and 4 will be similar to the existing intake for VEGP. As such, evaluation of the loss of fish through impingement and entrainment on the existing VEGP intake screens provides an accurate method to estimate the impact of impingement associated with the planned VEGP Units 3 and 4.

Impingement Monitoring

To support the ESP for VEGP Units 3 & 4 impingement monitoring is currently being conducted at VEGP river water intake to qualitatively identify and enumerate fish impingement rates. Georgia Power Company (GPC) biologists are currently conducting bi-weekly impingement sampling at the VEGP cooling water intake structure. The impingement monitoring began in March, 2008 and will continue every two weeks for approximately one year. Each monitoring event is divided into two 12 hour sample periods; representing a 'day' and 'night' sample. During sampling, the traveling screens and screen wash are run at the beginning of each sampling (to clean the screens), and after 12 and 24 hours. A specially designed sample basket is placed below the screen wash discharge in the existing trash basket to collect all debris from the screens including any impinged fish. After each 12 hour collection period (or periodically, depending on debris load), the collection basket is removed and the collected debris evaluated by GPC biologists. Any fish collected are identified to species level, measured and weighed. Results are recorded on data sheets for each is 12 hour 'day' and 'night' periods.

As of May 23, 2008, 6 of the 24 planned impingement monitoring events have been completed. During those six monitoring events, a total of 25 aquatic organisms representing 15 species in 9 taxonomic families have been collected. A list of the individual species and numbers collected is provided in Table 1.

Entrainment Monitoring

To support the ESP for VEGP Units 3 & 4 entrainment monitoring is also currently being conducted at the VEGP cooling water intake structure to qualitatively estimate the numbers of icthyoplankton entrained by cooling water withdrawals. The study is being performed during the spring and early summer (March-June) when planktonic fish eggs and larvae are most likely to occur in the Savannah River. The study includes sampling in the Savannah River upstream and beyond the influence of the intake in order develop site specific background icthyoplankton values. Upon completion of the study, the species and number of organisms entrained by the intake will be compared to the numbers and species collected in the Savannah River upstream of the intake at nearly the same time using the standard procedure for calculating Conditional Mortality Rates. Variations in the abundance of entrainable organisms across the Savannah River width will be identified by collecting samples near each shore and in the center channel.

Entrainment sampling is performed once every two weeks from March through June or longer if water temperatures continue to be optimal for spawning. Icthyoplankton samples taken from the intake canal are collected through the use of submersible pumps. The sample water is pumped through 500 micron plankton nets suspended in drums stationed at the top of the intake canal

bulkhead. The target sample volume is between $75m^3$ and $100m^3$ of water. Background river samples are collected with 500 micron plankton nets tows. Each sampling station (left bank, center channel, and right bank) is sampled at 1 meter intervals to a depth of 2 meters for approximately nine minutes. The mean target sample volume for the background samples is approximately $100m^3$ of water.

Icthyoplankton samples are collected every 6 hours and composited into one 12 hour "day" and one 12 hour "night" sample. All samples are preserved with 5% formalin and shipped to Normandeau & Associates for enumeration and identification down to the lowest practical taxon. The samples collected from March 2008 to May 2008 are currently being processed by Normandeau. Results are expected in July/August.

Hydraulic Zone of Influence Determination

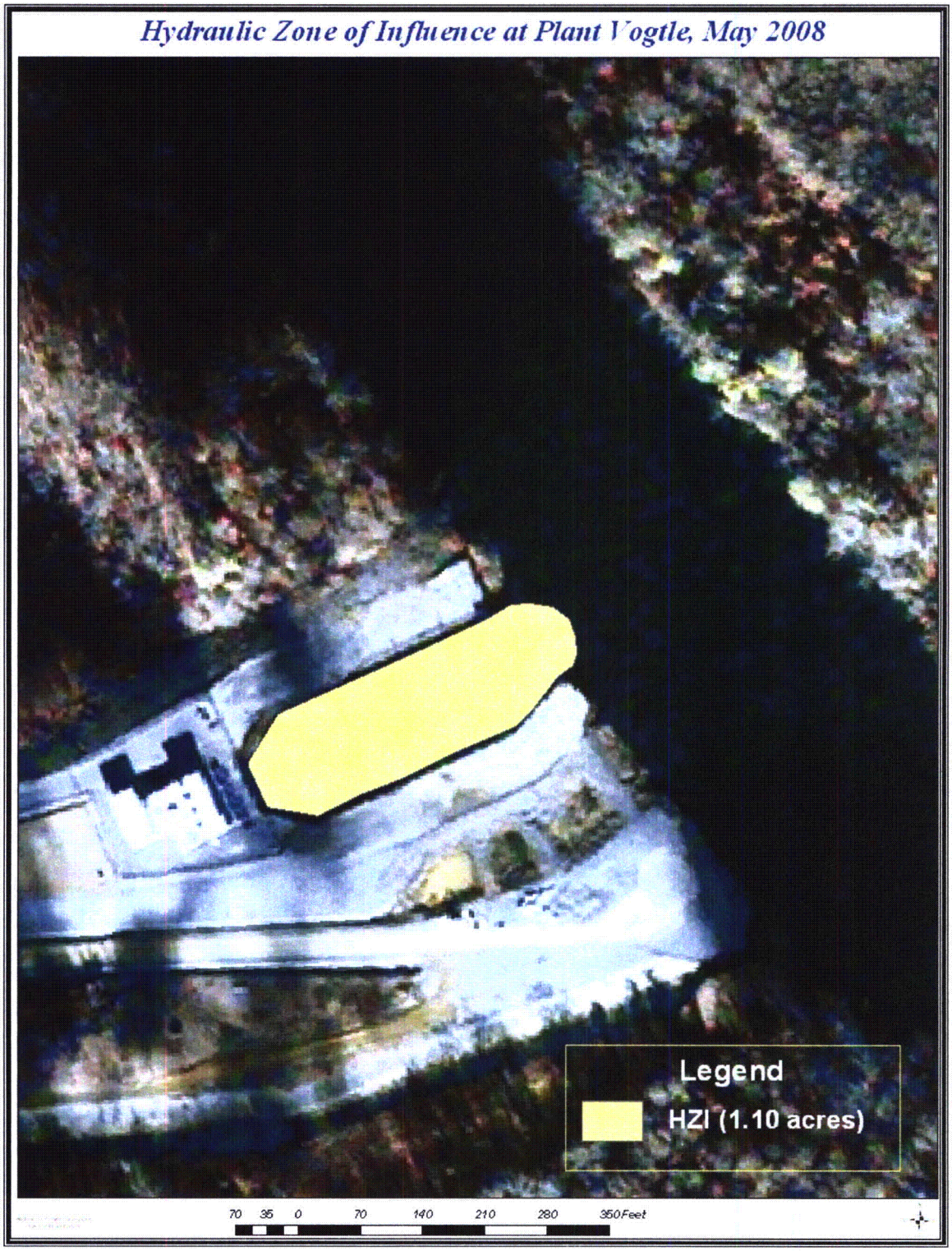
On May 7, 2008, Southern Company personnel completed a hydraulic zone of influence survey at the VEGP intake structure. During this survey event, the portion of the Savannah River adjacent to the cooling intake canal was surveyed in both the upstream and downstream direction over a sufficient distance to define the hydraulically affected zone. Acoustic Doppler Current Profiling (ADCP) data were collected by navigating the boat and ADCP unit parallel to the shoreline. The first transect was within 10 feet of the river bank or cooling water intake canal and subsequent transects were performed at 10 foot intervals and concluded half way across the river channel. A total of 11 parallel transects were collected and used to determine the hydraulic zone of influence. The boundary demarcating the area of greatest extent of hydraulic influence from VEGP was determined when the occurrence of water velocities and vectors were dominantly unrelated to the VEGP intake structure.

During normal operations, only 2 of the 4 available cooling water intake pumps are in operation. When the ADCP survey was conducted, 3 cooling water intake pumps were operating. Based on a maximum of 4 operating pumps, intake flows at full pump design capacity would be 127 MGD or 196 cfs. During the May 7, 2008 survey, the intake flow was calculated at 71.2 MGD or 110 cfs (56% of full capacity). Additionally, at the time the survey was conducted the average flow on the Savannah River, at was 4,482 cfs. A total of 6 transects were performed to measure and document the Savannah River flow (3 prior to survey and 3 after survey). The river flows varied by less than 2% (4,443 – 4,506 cfs) during the monitoring event.

Based on the intake and Savannah River flows during the May 7, 2008 survey event, the VEGP zone of hydraulic influence occupied an area of 1.10 acres which includes the entire VEGP intake canal and a small portion of the Savannah River (Figure 1). The area of hydraulic influence in the Savannah River accounted for 0.14 acres of the total zone of hydraulic influence.

TABLE 1	
Species Impinged at Vogtle Intake Structure (First 6 Monitoring Events)	Number Impinged
Bullhead (*Ameriurus sp.*)	1
Pirate perch (*Aphredoderus sayanus*)	1
Gizzard shad (*Dorosoma cepedianum*)	1
Treadfin shad (*Dorosoma petenense)*	2
Bluespotted sunfish (*Enneacanthus gloriosus*)	1
Chain pickerel (*Esox americanus*)	1
Redbreasted sunfish (*Lepomis auritus*)	4
Warmouth (*Lepomis gulosus*)	1
Bluegill (*Lepomis macrochirus*)	5
Dollar sunfish (*Lepomis marginatus*)	1
Shore shrimp (*Paeleomonetes sp.*)	1
Blackbanded darter (*Percina nigrofasciata*)	1
Black crappie (*Pomoxis nigromaculatus*)	1
Hogchoker (*Trinectes maculates*)	3
Unid. Cyprinid	1

Figure 1


Hydraulic Zone of Influence at Plant Vogtle, May 2008
Legend
HZI (1.10 acres)
70 35 0 70 140 210 280 350 Feet