UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before the Licensing Board:

G. Paul Bollwerk, III, Chairman
Nicholas G. Trikouros
Dr. James Jackson

In the Matter of	**) Docket No. 52-011-ESP**
Southern Nuclear Operating Company	**) ASLBP No. 07-850-01-ESP-BD01**
(Early Site Permit for Vogtle ESP Site	**) October 17, 2007**

SOUTHERN NUCLEAR OPERATING COMPANY'S STATEMENT OF UNDISPUTED FACTS IN SUPPORT OF APPLICANT'S MOTION FOR SUMMARY DISPOSITION OF INTERVENORS' ENVIRONMENTAL CONTENTION 1.2 (COOLING SYSTEM IMPACTS ON AQUATIC RESOURCES)

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In accordance with 10 C.F.R. § 2.710(a), Southern Nuclear Operating Company ("SNC") submits this Statement of Undisputed Facts in support of its motion for summary disposition of EC 1.2.

1. SNC submitted an Environmental Report ("ER") with its initial Early Site Permit ("ESP") application for two additional units at the existing Vogtle Electric Generating Plant ("VEGP") dated August 14, 2006.

2. On December 11, 2006, Intervenors filed a request for hearing and petition to intervene, seeking to admit five contentions and subsequently designated all of those as environmental contentions.

3. On January 10, 2007, SNC and the NRC Staff both responded to the petition, and on January 24, Intervenors filed their reply. On February 13, 2007, the Board conducted a pre-hearing conference regarding standing of the Intervenors and admissibility of their contentions.

4. On March 12, 2007, the Board issued its Ruling on Standing and Contentions, and admitted EC 1.2 as follows: "The ER fails to identify and consider direct, indirect, and cumulative impingement/entrainment and chemical and thermal effluent discharge impacts of the proposed cooling system intake and discharge structures on aquatic resources."

5. In admitting EC 1.2, the Board found that Intervenors' submission of Dr. Shawn Paul Young's declaration provided "sufficient factual support for the admission" of EC 1.2. March 27, 2007 Memorandum and Order (Ruling on Standing and Contentions) at 17.

6. On September 10, 2007, as part of its NEPA obligations, the NRC staff released the Draft Environmental Impact Statement, ("DEIS"), which incorporated data from the original and subsequently revised ER, SNC's responses to the RAIs and information the staff compiled from other sources. Draft NUREG-1872.

7. The NRC staff's description of SNC's proposed cooling system design for Vogtle Units 3 and 4 is accurate. DEIS §§ 3.2.2, 5.4.2.2.

8. As support for EC 1.2, Intervenors assert that the ER does not include empirical data on the existing units' impact on the level of mortality from impingement and entrainment in the new intake structure. Young Decl. ¶ A.9.

9. Intervenors' assert that the ER does not include mortality rate data from the Department of Energy's Savannah River Site field studies on entrainment. Young Decl. ¶ A.11.

10. Section 5.4.2.2 of the DEIS considers a number of factors, such as the type of cooling system proposed by SNC, the design and location of the intake structure, and the amount of water withdrawn from the source waterbody to estimate the degree of impingement and entrainment expected from the new intake structure.

> With regard to entrainment, NRC staff relied on its evaluation of entrainment at Vogtle Units 1 and 2 in 1985 as part of its Final Environmental Impact Statement. That analysis concluded that a 1 to 3.5 percent removal proportion would have an insignificant effect on the drift organisms, aquatic community, and resident fish in the vicinity of Vogtle Units 1 and 2. In the DEIS, NRC staff concluded that a similar estimate could be applied to entrainment for proposed Units 3 and 4, because of the

similarity in design for the cooling system. NRC staff noted that this estimate is considerably higher than would be anticipated under actual conditions. *NRC staff also acknowledged other studies that have been performed focusing on entrainment rates for reactor facilities at the DOE Savannah River Site between 1982 and 1985 which estimated that between 8.3 and 12.3 percent of the ichthyoplankton that drifted past the canals were entrained.* NRC staff distinguished these studies stating that there were significant differences between the DOE Savannah River Site intakes and the existing and proposed intakes at Vogtle, namely, the volume of water withdrawn, the length of the intake canals and the intake velocity. The NRC staff concludes: "Based on the percentage of water withdrawn, the planned low-through-screen intake velocity, the closed-cycle cooling system design, the typically high fecundity of most species inhabiting rivers, the existence of multiple spawning sites within the river basin, and the high natural mortality rates of eggs and larvae, the staff finds that the impacts to the fish of the Savannah River from entrainment would be minor." DEIS at 5-23 – 5-25.

With regard to impingement, NRC Staff concluded that because the proposed design of the intake canal and structure and its placement relative to the Savannah River was similar to that of the existing Units 1 and 2, the impacts would reasonably be expected to be similar. NRC staff relied on its site visit to Vogtle Units 1 and 2 on March 8, 2007 which included an investigation of the intake and an examination of the traveling screens, the screen wash system, the debris trough that collects and channels debris washed from the screens and the collection debris basket, to conclude that impacts from impingement of fish for Units 3 and 4 would be minor. NRC staff also relied on SNC's obligation under its Environmental Protection Plan for Units 1 and 2 to notify NRC of any unusual environmental events, including fish kills or impingement events and the fact that SNC had not, to date, submitted any such report. DEIS at 5-26.

11. As support for EC 1.2, Intervenors assert that the ER does not calculate the worst-case scenarios for quantifying entrainment or thermal impacts.

12. Section 5.4.2.2 of the DEIS discusses the effect on entrainment of the percentage of flow of the Savannah River that is withdrawn. The DEIS considers the maximum withdrawal rate at varying river flows, including Drought Level 3, the maximum measurable drought. With respect to thermal discharges, the NRC staff used the Drought Level 3 flow rate and concluded that the size of the thermal plume is small in comparison to the width of the Savannah River.

13. Intervenors assert that the ER does not use maximum withdrawal rates from the existing units to estimate cumulative withdrawal impacts. Young Decl. ¶ A.14.

14. Table 7-1 of the DEIS provides maximum withdrawal rates for Units 1 and 2. DEIS at 7-4. These data are based on the maximum physical capacity of the intake pumps, as reflected in the Vogtle Units' 1 and 2 FES, and cannot be exceeded. Section 7.3.1.1 assumes maximum withdrawal rates.

15. As support for EC 1.2, Intervenors assert that the ER does not quantify or describe systematically the species composition and habitat in the vicinity of the intake and cooling structures. Young Decl. ¶ A16.

16. In section 2.7.2.1 of the DEIS, the NRC Staff states that the potential for impacts from operation of the proposed Units 3 and 4 to aquatic biota would be primarily to organisms inhabiting the Savannah River and lists these as: attached algae and aquatic macrophytes, diatoms, benthic macroinvertebrates (including mussels, clams, aquatic insects), molluscs, and fish. Relying on biological and water-quality studies of the area of the Savannah River adjacent to Vogtle conducted by the Academy of Natural Sciences of Philadelphia (ANSP) for the DOE's Savannah River Site, NRC Staff systematically describes these aquatic biota. *See* DEIS 2-73 – 2-91. Table 2-7 lists all of the native, resident, diadromous, marine and upland fish species in the Middle Savannah River (as taken from Marcy et al.). The Staff cites to nine different studies they consulted to describe the shortnose sturgeon and its composition near Vogtle. DEIS at 2-87 – 2-91. The Staff relied on a report by Bailey et al. to quantify the American shad population that had reached the New Savannah Bluff Lock and Dam. DEIS at 2-80. The ER referenced four different studies, all made available to the NRC Staff, which described and quantified the blueback herring population in the Savannah River near Vogtle. ER §§ 2.4, 5.3.

17. As support for EC 1.2, Intervenors assert that the ER does not quantify the potential impacts on the aquatic drift community from the cooling system thermal discharges. Young Decl. ¶ B.20, 21.

18. Sections 5.3.3.1 and 5.4.2.3 of the DEIS include a discussion of NRC staff's thermal impact assessment using CORMIX model to estimate the size and temperature of the thermal plume from the existing Units 1 and 2 as well as the proposed units 3 and 4. Section 7.5 quantifies the size of the thermal plume as 29.6 m long by 4.6 m wide, with a temperature increase of five degrees. DEIS at 7.15. The NRC staff also concludes that cold shock mortalities would be less likely at Vogtle because it is a multiple unit plant and the comparison of the volume of the discharge to the flow of the river is very small, both factors considered to decrease the likelihood of cold shock mortalities.

19. As support for EC 1.2, Intervenors assert that the ER does not disclose whether chemical constituents in the liquid effluent will be discharged at harmful levels. Petition at 12.

20. Section 5.4.2.4 of the DEIS discusses the chemical impacts expected from the chemical treatment of the cooling water. Table 5-4 of the DEIS provides a list of

the water treatment chemicals, their use, the concentration that is anticipated to be discharged from Units 3 and 4 and the toxicity data from the Material Safety Data Sheets for each of those chemicals. NRC staff summarizes that the concentrations expected in the discharge are significantly lower than the LC50 (the concentration that kills 50% of the sample population) and that the water flow from the Savannah River would further dilute the concentration of these chemicals. DEIS at 5-27 – 5-28.

21. As support for EC 1.2, Intervenors assert that there is no evaluation of the cumulative impacts of acute or chronic toxicity of the existing discharge. Petition at 13. Section 7.5 of the DEIS identifies and considers any adverse cumulative impacts that potentially would result from construction and operation of the proposed Units 3 and 4. Based on the Staff's assessment of Units 1 and 2 existing Clean Water Act obligations, the Staff specifically states in the DEIS that the potential cumulative impacts from chemical releases "would not negatively impact aquatic organisms . . . and are considered by the staff to be minor." DEIS at 7-16.

22. DEIS Section 5.4.2, entitled "Aquatic Impacts" contains eight pages of discussion of the potential impacts of the Vogtle units on aquatic ecosystems, including impingement and entrainment (pages 5-23 – 26), thermal impacts (pages 5-26 – 27), and chemical impacts (pages 5-27 – 29). Sections 2.7.2.1 and 2.7.2.2 contain 20 pages of discussion addressing the existing aquatic ecosystem, and Section 7.5 identifies and considers the cumulative impacts on the aquatic ecosystem.

23. Many of the studies and resources relied on and referenced in the DEIS are field studies performed on the Savannah River near the Vogtle site, including the ANSP studies identified in section 2.12 and the Paller and SRS studies identified in section 5.13.

24. Page 5-25 of the DEIS addresses the assumption of uniformity in the drift community and states that "[e]ggs of many freshwater riverine fish are adhesive, demersal or semi-buoyant. And early larval stages may tend to remain near the bottom of the river of otherwise not be susceptible to transport into the [intake] canal."

Respectfully submitted,

(Original signed by M. Stanford Blanton)

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Dated this 17th day of October, 2007

ATOMIC SAFETY AND LICENSING BOARD

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Nicholas G. Trikouros
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CERTIFICATE OF SERVICE

I hereby certify that copies of SOUTHERN NUCLEAR OPERATING COMPANY'S STATEMENT OF UNDISPUTED FACTS IN SUPPORT OF APPLICANT'S MOTION FOR SUMMARY DISPOSITION OF INTERVENORS' ENVIRONMENTAL CONTENTION 1.2 in the above captioned proceeding have been served by electronic mail as shown below, this 17th day of October, 2007, and/or by e-submittal.

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