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 15, 2007**

AFFIDAVIT OF JAMES W. CUCHENS

State of Alabama)

Shelby County)

BACKGROUND

1. My name is James W. Cuchens. I hold the position of Principal Engineer for Southern Company Generation Engineering and Construction Services ("SCG Engineering") in Birmingham, Alabama. SCG Engineering, a division of Southern Company Services, is a sister company of Southern Nuclear Company ("SNC") in the Southern Company System. My business address is: Inverness Office Park, Birmingham, Alabama 35201. I am the main author of "Feasibility of Air-Cooled Condenser Cooling System for the Standardized AP1000 Nuclear Plant" ("the Report"), which I attach to this affidavit as Exhibit 1. The Report, which this affidavit summarizes,

studied the feasibility of incorporating a dry cooling system into the design for an AP1000 reactor in South Georgia, the location of the proposed Vogtle units.

2. I have worked as an engineer at Southern Company for 34 years. My experience encompasses all phases of power plant design and construction: conceptual design studies, equipment design specifications, and equipment bid evaluations. I have designed the thermal cycle equipment, boiler and draft system equipment, and plant cooling system equipment for various types of units, namely, nuclear, fossil, and co-generation. As relevant to this proceeding, in the area of cooling, I have been involved in the development of equipment technical specifications, bid evaluations, and applied research of systems equipment technologies. I have amassed expertise in the design of various types of cooling cycles, including closed loop, once-through, and/or cooling ponds, serving nuclear units, fossil units, and cogeneration units. My job requires operating knowledge of the optimization of the cooling system equipment (towers, pumps, and condensers) for new and/or existing units, taking into consideration performance, capital cost, and operation and maintenance. I have developed computer programs for selection of cooling cycle equipment design as well as the analysis of equipment and/or plant performance. I have long experience with modeling cooling system/cycles and performance analysis for simulation of various cooling system(s), including mechanical and draft, and wet and dry. I have performed feasibility studies for modifying and/or upgrading existing towers for enhancing tower performance and reducing operations and maintenance costs.

3. I earned a B.S. in Mechanical Engineering from Mississippi State University in 1973 and hold Registered Professional Engineering licenses in Alabama, (PE # 13752), Florida (PE # 37700), Georgia (PE # 16164) and Mississippi (PE # 09905).

4. I contribute my expertise to various professional engineering organizations including the American Society of Mechanical Engineer ("ASME") and the Cooling Technology Institute ("CTI"). With the ASME, I served on PTC 23, Cooling Tower Test Code Committee, and PTC 30, Air Cooled Condenser Test Code Committee. With CTI, I sat as a member of the Codes and Standards Committee. Besides my committee work for CTI, I had the honor of serving as the organization's President and Chairman of the Board (2000), Vice President (1999), and a member of the Board of Directors (1995-1997 and 1999-2001). For the past two years, I have served as the Education Program Chairman of CTI. I attach my full CV below.

5. As I stated earlier, I drafted the Report. My colleague at SCG Engineering, Chris Lazenby, whose CV I attach below as well, assisted me in performing the research for and in drafting Exhibit 1. We researched the literature, industry experience, spoke with colleagues in the industry and relied on our own experience in designing cooling systems for various types of electrical generating facilities concerning operating characteristics of dry cooling systems. In particular, we compared the operating characteristics of an air cooled condenser to those of the standard turbine specified for a Westinghouse AP1000 nuclear reactor, particularly in the hot climate of South Georgia. Finally, because no one ever designed, let alone built, a dry cooling system for an AP1000 reactor, we researched past experience and obtained vendor input to develop a theoretical model of a dry cooling system that would produce turbine backpressures

similar to those of the current steam surface condenser/wet cooling tower system proposed for the Vogtle units.

6. The Report comes to the following conclusions: 1) Dry cooling is not a feasible alternative for use with an AP1000 reactor in South Georgia from an operability and reliability standpoint; 2) A dry cooling system would entail prohibitive costs and require significant additions to the project site footprint, such that SNC would have to fill in ponds, appropriate significant acreage and destroy a significant numbers of trees; and 3) A dry cooling system would require major deviations from and modifications in the design of the turbine island for the proposed Vogtle units, contrary to the Nuclear Regulatory Commission's policy of standardization for new nuclear plants.

(Original signed by James W. Cuchens)

James W. Cuchens, Affiant

DATED: October 15, 2007

SWORN TO AND SUBSCRIBED BEFORE ME on this the 15th day of October, 2007.

(Original signed by Shirley N. Owens)

(SEAL)

Notary Public

My Commission Expires: March 29, 2009.