Corrected on: March 6, 2009
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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)	)	**January 9, 2009**

SOUTHERN NUCLEAR OPERATING COMPANY'S TESTIMONY OF JEFFREY NEUBERT, BENJAMIN SMITH, AND DAVID SCOTT CONCERNING EC 6.0

Q1. **Please state your name and address.**

A1. My name is Jeffrey L. Neubert ("JLN"). My business address is: 4350 Northern Pike, Monroeville, PA 15146.

My name is Benjamin B. Smith, Jr. ("BBS"). My business address is: 4170 Highway 165, Yonges Island, SC 29449.

My name is Captain H. David Scott ("HDS"). My business address is: 220 Battery Circle, Savannah, GA 31410.

Q2. **Please state your employer, position, and current responsibilities.**

A2. (JLN) I am currently employed by Westinghouse Electric Company ("WEC") as the Director of Logistics for Nuclear Power. In this capacity, I am responsible for activities related to the delivery of components for Westinghouse's AP1000™ design nuclear power plant being supplied under EPC (Engineering, Procurement and Construction) Contracts, including with respect to the delivery of such components logistics planning, transportation, warehousing and inventory management.

(BBS) I am currently employed by Stevens Towing Company, Inc. ("STC") as the Operations Manager. In this capacity, I am responsible for planning and supervising all operations, both inland and offshore, for a fleet of nine tugs and twenty-five barges.

(HDS) I am currently employed by Southeastern Marine Surveying Company ("SMS") as the Owner, President, and Principal Surveyor. In this capacity, I am the principal surveyor and am responsible for general oversight of the company.

Q3. **Please summarize your education and professional qualifications.**

A3. (JLN) I earned a Bachelor of Science degree in Engineering Mechanics from Pennsylvania State University and an Executive Masters of Business Administration from University of Pittsburgh. I have over 35 years of experience in all aspects of logistics management. I have extensive experience in transportation management, physical distribution and logistics. Early in my career at Westinghouse Electric Corporation, I was involved in delivery of major components to more than 40 nuclear power plant construction sites, including Plant Vogtle Units 1 & 2. I am knowledgeable about all types of transportation, and have taught transportation management, logistics management, and supply chain management at the university level. My consulting projects include physical distribution networks, distribution center site locations, electronic data interchange (EDI) information exchange networks, dedicated fleet development, contract logistics procurement, and supply chain management strategy development and implementation. *See* Exhibit SNC000043 (Jeffrey L. Neubert Curriculum Vitae).

(BBS) I earned a Bachelor of Arts degree in History from The University of the South, Sewanee, Tennessee, and a Masters of Business Administration from The Citadel. I have

over 20 years of experience planning and supervising all operations, both inland and offshore, for a midsize barge transportation company that includes a fleet of nine tug boats and 25 barges. I have personally supervised operations on all of the navigable rivers in the Southeast, including the Savannah River, delivering large manufactured pieces, transformers, generators, turbines, and chemical plant vessels. I am extensively versed in shallow water tug and barge operations and the practices and techniques required for successful deliveries of difficult project cargo. *See* Exhibit SNC000044 (Benjamin B. Smith, Jr. Curriculum Vitae).

(HDS) I earned a Bachelor of Science degree in Nautical Science from Maine Maritime Academy. I have over 30 years of experience in the shipping trade and maritime industry. I hold the following licenses and certifications: Master of Vessels, 1600 Gross Tons or Less, Upon Oceans; Third Mate of Vessels, Unlimited Tonnage, Upon Oceans; and First Class Pilot, Unlimited Tonnage, Savannah River. I have spent the past 26 years with, and am the Owner and President of, a marine surveying company that provides comprehensive expert marine surveying services to maritime interests. In this capacity, I am the principal surveyor for the company and am a member of the National Association of Marine Surveyors (NAMS). *See* Exhibit SNC000045 (Captain H. David Scott Curriculum Vitae).

Q4. **What is the purpose of your testimony?**

A4. (All) This testimony describes the optimal and desired method of delivery of heavy components to the Plant Vogtle Units 3 & 4 construction site via barge and our current estimate of the extent of dredging of the Savannah River that will be required to accomplish barge delivery of the components. The testimony responds to the assertion

made by the Intervenors' witness, Dr. Donald F. Hayes, that an estimated 116 miles of the Federal navigation channel in the Savannah River would need to be dredged and approximately 2 million cubic yards of sediment removed.

In particular, this testimony summarizes the analysis of the dredging and snag removal needs of the Federal navigation channel in the Savannah River based on a survey of the river conducted by Capt. David Scott.

Q5. **What conclusion do you reach in this testimony?**

A5. (All) We conclude that substantially less than 2 million cubic yards of sediment will need to be removed from the Savannah River. To the contrary, we identified 8 locations along the Savannah River where a total of only approximately 36,500 cubic yards of dredged material would need to be removed.

Q6. **What is the preferred method of transporting the heavy components for construction of Plant Vogtle Units 3 & 4?**

A6. (JLN) The most efficient and cost-effective method of delivery of heavy components to the Plant Vogtle Units 3 & 4 ("Vogtle 3 & 4") construction site at Vogtle Electric Generating Plant ("VEGP") is to deliver them by barge. The largest and heaviest single component of Vogtle 3 & 4 is the WEC AP1000™ steam generator weighing approximately 730 tons.

Q7. **Approximately when would the barge deliveries take place?**

A7. (JLN) Although at one time we considered beginning barge deliveries as early as June 2010, the dates that we are currently using for planning purposes at this time are approximately March, 2012 for the earliest barge shipment and approximately November, 2014 for the latest barge shipment.

Q8. **How were the components of Plant Vogtle Units 1 & 2 delivered?**

A8. (JLN) In the 1970s, the major components of Plant Vogtle Units 1 & 2 were delivered to the VEGP site by barge using the Federal navigation channel on the Savannah River.

Q9. **Can construction of Vogtle 3 & 4 proceed without delivery of components by barge?**

A9. (JLN) Yes. Although barging on the Savannah River is the preferred method for delivering the components, construction of Vogtle 3 & 4 does not depend on delivery of the components by barge.

Q10. **How many barge loads would be required for delivery of the components for construction of Vogtle 3 & 4?**

A10. (JLN/BBS) The number of barge loads is dependent on the flow of the Savannah River. A greater number of lighter barge loads would be required for low flow conditions, whereas a fewer number of heavier barge loads could be used in greater flow conditions. The draft of the barge increases as the load on the barge increases. Under the current drought conditions on the Savannah River, however, the minimal dredging discussed below would be needed even if only one barge load was required.

Q11. **What size barge would be required for the transport of components to the VEGP site?**

A11. (BBS) A barge measuring 220 feet in length and 55 feet in width is the largest barge that could reasonably navigate the Savannah River in its current state and accommodate the weight of the largest single component, the WEC AP1000 steam generator.

Q12. **What is the expected operational draft of a barge of this size and load?**

A12. (BBS) The expected operational draft of a barge of this size loaded with one steam generator would be 5 1/2 feet.

Q13. **Was a survey of the Savannah River conducted?**

A13. (JLN) Yes. WEC commissioned Capt. David Scott of SMS to conduct an updated survey of the Savannah River. Capt. Scott conducted the survey between the Savannah harbor and the VEGP site in July of 2008.

Q14. **Describe the circumstances that led to the commissioning of an updated survey of the Savannah River between the Savannah harbor and the VEGP site.**

A14. (JLN/BBS) In mid-June 2008, on behalf of WEC, we met with representatives of Southern Nuclear Operating Company ("SNC"), Southern Company, and the Shaw Group at the offices of SNC in Birmingham, Alabama, to discuss issues related to the logistics of transporting the components for construction of Vogtle 3 & 4. The Federal navigation channel on the Savannah River between the Savannah harbor and the VEGP site has not been maintained by the U.S. Army Corps of Engineers since 1979 because of disuse. Accordingly, the meeting participants agreed that a survey of the Savannah River was needed in order to have current information for analyzing the potential need for dredging and snag removal. This led to our commissioning Capt. Scott to conduct the survey.

Q15. **Is the Savannah River between the Savannah harbor and the VEGP site currently considered navigable?**

A15. (BBS/HDS) No. Parts of the Savannah River in this area are not navigable in the river's current state. The navigation channel of the Savannah River between the Savannah harbor and VEGP has not been dredged since 1979. Furthermore, the Savannah River has been in drought condition for the past 6 to 7 years, which puts the flow of the river (calculated in cubic feet per second ("cfs")) at a historical low.

Q16. **Please describe the manner by which the survey of the Savannah River was conducted.**

A16. (HDS) I conducted a survey in July, 2008 of the Savannah River stretching from the Savannah harbor to the VEGP site, a distance of approximately 110 miles, using vessel-based equipment that utilized differential global positioning system ("GPS") technology. Beginning at mile post 22 (the lower limit of tidal flow in the river system), I took soundings every 1/10 mile in a perpendicular cross-hatch. A baseline or known reference point was established using designated river gauge stations that are tracked by the U.S. Geological Survey. The baseline is necessary in order to determine the depth of the water in the river at varying river levels. My findings were reduced to a survey report, a true, accurate, and complete copy of which is attached to this testimony as Exhibit SNC000046.

Q17. **What were the conditions of the river when the survey was conducted?**

A17. (HDS) The conditions of the river were optimal for a "worst case scenario" navigation analysis, since the Savannah River has been in a drought condition for 6 to 7 years. The flow of the river at the time the survey was conducted was 3700 cfs.

Q18. **Did you analyze the survey to determine whether dredging and/or snag removal was needed?**

A18. (All) Yes. We reviewed the entire survey and noted the locations where the depth of the practical navigational channel was less than 6 feet.

(HDS) My survey team also visually observed and noted locations along the river where snag removal was needed. Due to the drought conditions of the Savannah River, snags (principally downed trees) were readily identifiable.

Q19. **Describe what assumptions you made in analyzing the data.**

A19. (All) We analyzed the data using minimal operational criteria under the current drought conditions. We assumed that the flow of the river would be approximately 3700 cfs. Our analysis assumed the use of a barge 210 feet in length and 55 feet in width, which could accommodate the largest single component, the WEC AP1000 steam generator. We assumed that all barge loads would be held to the cargo weight of the steam generator, approximately 730 tons. The expected operational draft for a barge of this size with 730 tons of cargo weight is 5 1/2 feet. We assumed the use of two smaller tug boats with operational drafts of less than 5 feet. We analyzed the data assuming a practical navigation channel of 90 feet in width. The width of the channel extended to as much as 120 feet in tight bends in the river, due to the length and inflexibility of the barge.

Q20. **What were the results of your analysis of the potential need for dredging and snag removal?**

A20. (All) We identified eight (8) locations between the Savannah harbor and the site of the proposed barge slip for Vogtle 3 & 4 where the depth of the river was 6 feet or less, indicating a need for dredging at the location. In each location, we estimate that no more than 2 feet of depth would need to be added to the channel. Based on our analysis, we believe that a total of roughly 36,500 cubic yards of dredged material would need to be removed from the entire 110 mile stretch of river and placed in a spoil disposal area. Our findings are set forth in more detail in the following table:

Statutory Mile	Depth	Width	Length	Cu. Yds.
51.3	2'	90'	800'	5,333
66.2	2'	80'	700'	4,148
89.7	2'	120'	800'	7,111
97.7	2'	60'	700'	3,111
111.4	2'	120'	600'	5,333
121.6	2'	90'	500'	3,333
128	2'	50'	400'	1,481
140.7	2'	90'	1000'	6,667
Total				36,517

Snags that interfere with navigation also would need to be removed at various locations throughout the 110 mile stretch of river that was surveyed. A total of 277 trees were identified that need to be removed at 180 different locations along the river.

Q21. **Where do you expect the dredged material (spoil) to be disposed of?**

A21. (All) Based on our collective experience, we believe that the dredged material would be disposed of in a regulated spoils area.

Q22. **Based on your recent navigation of the river in connection with conducting the survey, approximately what percentage of trees will not need to be removed?**

A22. (HDS) Approximately 70% of the snags in the river do not need to be removed.

Q23. **What is the current flow of the Savannah River?**

A23. (JLN) As of January 5, 2009, the flow in the Savannah River was 3790 cfs. I determined this by checking the instantaneous value for the flow of the Savannah River on the "Water Resources of Georgia" section of the U.S. Geological Survey website (http://ga.water.usgs.gov/). Specifically, I selected location 02197000, "Savannah River at Augusta, GA," on the "Streamflow Conditions in Georgia" map to reveal the river flow as shown on the Augusta Gauge as of January 5, 2009.

Q24. **Would release of water from upstream reservoirs be necessary to transport the components to the VEGP site if the necessary dredging is accomplished?**

A24. (JLN/BBS) No. Our dredging estimate is based on the assumption that the U.S. Army Corps of Engineers ("ACE") will maintain a flow rate of at least 3700 cfs during times of navigation for delivery of Vogtle 3 & 4 components. On this basis, navigation of the Federal navigation channel can occur with the noted minimal dredging and no special release of water from upstream reservoirs. Nevertheless, an increase in the flow of the river could minimize (or eliminate) the need for dredging the Federal navigation channel.

Q25. **Did you share your survey analysis with the U.S. Army Corps of Engineers and what was its reaction?**

A25. (All) Yes. On August 5-6, 2008, we met with ACE to discuss Capt. Scott's survey and our analysis of the dredging and snag removal needs of the Federal navigation channel in the Savannah River. Representatives of ACE indicated that the magnitude of the project was considerably less than they originally contemplated. Representatives of ACE also indicated that our survey and analysis were done in accordance with their expectations and that they were comfortable with the preliminary results reported.

Q26. **What are your conclusions and recommendations?**

A26. (All) A conservative estimate is that no more than 36,500 cubic yards of dredging material would need to be removed. This opinion is based on our knowledge of the physical characteristics and navigational requirements of the required AP1000 component deliveries to the VEGP site, and Capt. Scott's survey of the river. Although the precise volume of dredged material that may need to be removed in order to navigate the Savannah River to the VEGP site cannot be determined with certainty unless and until

ACE conducts its own analysis, it is our opinion, that far less than 2 million cubic yards of sediment will need to be removed as indicated by the Intervenor's witness, Dr. Hayes. Before any dredging can occur, we would expect the ACE would establish the exact volumes of dredged material that would need to be removed. Further, dredging may not be necessary at all if the flow of the Savannah River increases from its current historical lows. Snag removal, however, is needed regardless of the flow of the river.

(BBS) We can barge the components for Vogtle 3 & 4 using the Federal navigation channel on the Savannah River with the snag removal and minimal dredging discussed herein.

Q27. **Does this conclude your testimony?**

A27. (All) Yes.

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	)	
(Early Site Permit for Vogtle ESP Site)	)	March 6, 2009

Commonwealth of Pennsylvania)
County of Allegheny County) ss.

AFFIDAVIT OF JEFFREY L. NEUBERT IN SUPPORT OF SOUTHERN NUCLEAR'S REVISED DIRECT TESTIMONY ON ENVIRONMENTAL CONTENTION 6.0

I, Jeffrey L. Neubert, do hereby state as follows:

1. I have read the foregoing prepared testimony regarding environmental matters at the Plant Vogtle Site.

2. I attest to the accuracy of those statements, support them as my own, and endorse their introduction into the record of this proceeding. I declare under penalty of perjury that those statements, and my statements in this affidavit, are true and correct to the best of my knowledge, information and belief.

Jeffrey L. Neubert

Subscribed and sworn to before me
this 6th day of March, 2009.

Phyllis Wirth
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Phyllis Wirth, Notary Public
Franklin Twp., Butler County
My Commission Expires Aug. 17, 2012
Member, Pennsylvania Association of Notaries

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AFFIDAVIT OF BENJAMIN B. SMITH, JR. IN SUPPORT OF SOUTHERN NUCLEAR'S REVISED DIRECT TESTIMONY ON ENVIRONMENTAL CONTENTION 6.0

I, Benjamin B. Smith, Jr., do hereby state as follows:

1. I have read the foregoing prepared testimony regarding environmental matters at the Plant Vogtle Site.

2. I attest to the accuracy of those statements, support them as my own, and endorse their introduction into the record of this proceeding. I declare under penalty of perjury that those statements, and my statements in this affidavit, are true and correct to the best of my knowledge, information and belief.

Benjamin B. Smith, Jr.

Subscribed and sworn to before me
this 6th day of March, 2009.

Frances W Ketchone
Notary Public

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AFFIDAVIT OF CAPTAIN H. DAVID SCOTT IN SUPPORT OF SOUTHERN NUCLEAR'S REVISED DIRECT TESTIMONY ON ENVIRONMENTAL CONTENTION 6.0

I, Captain H. David Scott, do hereby state as follows:

1. I have read the foregoing prepared testimony regarding environmental matters at the Plant Vogtle Site.

2. I attest to the accuracy of those statements, support them as my own, and endorse their introduction into the record of this proceeding. I declare under penalty of perjury that those statements, and my statements in this affidavit, are true and correct to the best of my knowledge, information and belief.

Captain H. David Scott

Subscribed and sworn to before me
this 6th day of March, 2009.

Notary Public
Commission Expires: 9/1/2009