

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	Docket Nos. 52-025-COL
)	and 52-026-COL
Southern Nuclear Operating Company)	
)	
(Vogtle Electric Generating Plant, Units 3)	September 12, 2011
and 4))	

Testimony of Dale Lane Fulton

Background

Q1. Please state your name, occupation and business address.

A1: My name is Dale Lane Fulton. I am the Nuclear Development Environmental Project Manager for Southern Nuclear Operating Company ("SNC"). I am the Environmental Project Manager for Vogtle Units 3 and 4 combined license ("COL") and have been acting in that capacity since November 2009. My business address is 42 Inverness Center Parkway, Birmingham, AL 35242.

Q2. Please describe your educational and professional background.

A2: I earned my BS degree from Auburn University in Geology in 1997, and I now have approximately 15 years in the environmental field as a Project Manager with a focus on site contamination assessments and remediation, environmental site assessments, large scale construction projects, and National Environmental Policy Act ("NEPA") assessments for Federal, State, and local agencies and the private sector. I began developing NEPA assessments in 2002 for projects involving Federal and State agencies, for example the Federal Transit Administration, the Federal Aviation Administration, and the Mississippi Department of

Transportation. I worked with SNC as an Environmental Specialist from 2006 through September 2010, which entailed serving as the Environmental Project Manager in the Vogtle Units 1 and 2 License Renewal project and providing technical and regulatory support to develop the Vogtle Units 3 and 4 Early Site Permit (“ESP”) and COL applications and responses to requests for additional information during the review process for those applications. I have held my current position at SNC since September 2010, where I am responsible for environmental compliance, governance and oversight during the construction of Vogtle Units 3 and 4 and have the overall responsibility for securing all necessary environmental permits and licenses. This includes coordination, reporting and all recordkeeping associated with environmental permits and environmental compliance or governance activities assigned to the construction contractor(s). I am also responsible for providing support to licensing, engineering and the Vogtle Units 3 and 4 site organization with regard to activities associated with environmental, chemistry and radiological programs. Additionally, my responsibilities include the day-to-day activities for the SNC corporate and site Environmental, Chemistry and Health Physicist personnel during construction and for transition to operation. Along with the Vogtle Units 3 and 4 activities, I am responsible for new plant siting efforts.

I have been involved with the environmental activities associated with the Vogtle Units 3 and 4 licensing project since 2006, working on the ESP and COL. I have acted as the SNC Environmental Project Manager through the development of the COLA Environmental Report (“ER”) and continuing new and significant information review activities. I am also the primary contact for coordinating all environmental activities with the NRC. This includes leading the audits, developing responses to requests for additional information, developing the ERs for the ESP license amendment requests, and coordinating all new and significant evaluations.

Q3. Please state the purpose of your testimony.

A3: The purpose of my testimony is to describe the NEPA assessment and review process for the Vogtle Units 3 and 4 COL Application (“COLA”), and to explain how that assessment and review meets the applicable Nuclear Regulatory Commission (“NRC”) regulations. I will summarize the process and explain where integral portions of the analysis are documented.

Q4. Does your testimony have any attachments?

A4: Yes. Attachment 1 to my testimony is my curriculum vitae.

Overview of COLA Environmental Review Process

Q5. Please describe the environmental review process for the COLA.

A5: The environmental review for a COLA is governed by 10 C.F.R. Part 51 and 10 C.F.R. Part 52, Subpart C. As part of its COLA, SNC was required by 10 C.F.R. § 52.80(c) to submit an ER in accordance with 10 C.F.R. § 51.50(c). As discussed more fully below, because the COLA referenced the ESP, the information required to be submitted in the COLA ER was limited by 10 C.F.R. § 51.50. Pursuant to 10 C.F.R. § 51.75(c), NRC Staff then prepared a supplement to the ESP Environmental Impact Statement (“SEIS”) in accordance with 10 C.F.R. § 51.92(e).

Q6. How are matters resolved during the ESP process handled during the COLA process?

A6: Pursuant to 10 C.F.R. § 52.39, matters resolved in the ESP proceeding are considered resolved for purposes of the COLA, absent any new and significant information or variances.

10 C.F.R. § 51.50 (Environmental Report)

Q7. Please describe the regulatory requirements for the ER included with the COLA.

A7: As required by 10 C.F.R. § 52.80(c), SNC submitted an ER as part of its COLA. Pursuant to 10 C.F.R. § 51.50(c)(1), for a COLA that references an ESP, the ER “need not contain information or analyses submitted to the Commission in [the ESP ER], or resolved in the Commission’s [ESP EIS]” The COLA ER must contain (1) information that demonstrates the plant falls within the parameters specified in the ESP; (2) information that resolves any significant environmental issue not resolved in the ESP proceeding; (3) any new and significant information for issues resolved in the ESP proceeding; (4) a description of how the applicant identified new and significant information; and (5) information that demonstrates that all environmental terms and conditions included in the ESP will be satisfied by the date of issuance of the COL, or otherwise set forth as conditions of the COL. 10 C.F.R. § 51.50(c)(1)(i)-(v).

Also, 10 C.F.R. § 51.50(c)(2) provides that if a COLA references a standard design certification, the COLA ER “may incorporate by reference the environmental assessment previously prepared by the NRC for the referenced design certification.” The COLA ER “must contain information to demonstrate that the site characteristics for the combined license site fall within the site parameters in the design certification environmental assessment.” As allowed by the regulations cited above, the ER for the COLA incorporated the information from the ESP proceeding as well as the design certification. The COLA ER also adequately explained that the plant falls within the parameters specified in the ESP, listed any and all new and significant information for issues resolved in the ESP and the processes utilized to identify any such information, and contained information explaining that all environmental terms and conditions included in the ESP will be satisfied by the date of issuance of the COL. Lastly, no significant environmental issue was identified that was not resolved in the ESP proceeding. Thus, no such issues required further resolution or further explanation in the COLA ER.

Q8. An applicant referencing an ESP EIS must provide the status of environmentally related authorizations and permits potentially required to construct and operate new nuclear units. Please describe how the COLA ER met this requirement.

A8: Tables 1.5-1 through 1.5-5 of the COLA ER provided the status of authorizations and permits required during various stages of the licensing process, which include requirements during ESP, site preparation, site redress, and construction and operation at Vogtle.

Q9. Was any NRC guidance used to prepare the supplemental analyses presented in the COLA ER?

A9: Yes, NUREG-1555, “Standard Review Plans for Environmental Reviews for Nuclear Power Plants,” was used to prepare the supplemental analysis. NUREG-1555 is generally consistent with the guidance in Regulatory Guide 4.2.

Q10. Please describe the outline of the COLA ER.

A10: Chapter 1 of the COLA ER contains the purpose and need for the proposed action, alternatives to the proposed action, the status of regulatory compliance and consultation activities, and the methodology used to prepare the ER. Chapter 2 describes the proposed site and environment that would be affected by the addition of two new reactors at Vogtle. Chapter 3 describes the characteristics of the AP1000 power plant and its interfaces with the environment that are the bases for evaluating environmental impacts. Chapter 4 examines the environmental impacts of construction, and Chapter 5 evaluates the environmental impacts of operations to determine the suitability of the Vogtle site for the new units. Chapter 6 evaluates the impacts of the uranium fuel cycle, transportation associated with constructing and operating the facility, and decommissioning of the units at the end of plant life. Chapter 7 evaluates the cumulative impacts of the proposed action, and other past, present and reasonably foreseeable actions in the vicinity

of Vogtle. Chapter 8 examines the need for power. Chapter 9 examines alternatives to the proposed action, alternative locations, and alternative energy sources. Chapter 10 compares the proposed action with alternatives, and Chapter 11 summarizes the findings and conclusions.

Q11. How does the COLA ER conform to the regulatory requirements described above?

A11: As outlined in Table 1.7-1 of the COLA ER, Table 3.0-1 contains information sufficient to demonstrate that the design of the facility falls within the site characteristics and design parameters specified in the ESP. Table 3.0-1 also demonstrates that the application is bounded by the ESP site characteristics and by the AP1000 design values. With respect to the requirement that the ER contain information sufficient to resolve any significant environmental issue that was not resolved in the ESP proceeding, the NRC staff did not identify any unresolved issues in the preparation of the EIS for the ESP. Section 1.7.2 of the COLA ER describes the process used to determine whether information was new and significant. No new and significant information was identified.

Q12. Describe the process SNC used to identify any new and significant information.

A12: The process for identifying new and significant information was implemented to capture new and significant information subsequent to publication of the draft ESP EIS. This included the time period during the NRC writing session for the draft ESP EIS and will continue until issuance of the COL. Information was considered “new” if it became available after the development of the draft ESP EIS (including writing session) or was not generally available or known during the preparation of the ESP ER or EIS.

As described in section 1.7.2 of the COLA ER, SNC’s process for identifying new and significant information began with a systematic review of the ESP EIS conclusions and supporting information to identify the ESP EIS “key inputs,” which are information or

assumptions that the NRC staff relied on to support its findings and conclusions in the ESP EIS. Appendix J of the ESP EIS contains the key assumptions and Appendix I of the COLA SEIS contains the key site characteristics, AP1000 Design Control Document (“DCD”) parameters and site interface values from SNC’s ESP ER the NRC considered during the development of the ESP EIS.

Subject Matter Experts (“SMEs”) were identified and assigned specific topics to review. SMEs were SNC and contractor technical personnel with expert knowledge in their designated subject areas. For each topic, the SMEs reviewed recent publications, news releases, and project documents and contacted resource agencies or government offices to inquire if the inputs used in the original analysis were still valid. Any new information was documented and analyzed to determine whether it was significant enough such that it could possibly affect the conclusions of the EIS. A review team of senior SMEs reviewed each topical area with the SME to concur or dispute the SME’s conclusions. Documentation at each step of the process was retained and made available to the NRC for review.

Q13. What was the conclusion of SNC’s new and significant information review?

A13: SNC identified no new and significant information; therefore, the ER relies entirely on the conclusions of the ESP EIS. SNC reviewed each chapter of the ESP EIS and each chapter of the COLA ER provides a summary of information covered by the chapter, and where relevant, updated information.

Q14. Please describe each chapter of the COLA ER in more detail and explain where updated information was provided.

A14: Chapter 2, Affected Environment, describes the site and the vicinity or region for each environmental topic potentially affected by construction or operation of two new units. For each

of the subparts of Chapter 2 – Site location; Land; Meteorology and Air Quality; Geology; Radiological Environment; Water; Ecology; Socioeconomics; Historic and Cultural Resources; Environmental Justice; and Related Federal Projects and Consultation – the ESP EIS did not identify any significant issues that were not resolved, and, using the process described above, SNC identified no new and significant information.

Chapter 3, Site Layout and Plant Description, describes the two AP1000 units and their auxiliary systems. Table 3.0-1 demonstrates that the site characteristics, site parameters and site interface values fall within those described in the ESP or within Rev. 17 of the AP1000 DCD. In section 3.1, External Appearance and Layout, SNC identified the following new information: the independent spent fuel storage installation is now planned for a site southeast of the Units 1 and 2 cooling towers and a low level radioactive waste storage facility has been completed northwest of the Units 1 and 2 cooling towers. Figure 3.2-1 provides the most recent plant layout. In section 3.2, Plant Description, the ESP EIS did not identify any required information or analyses that were not resolved. In section 3.2.1, SNC identified the following new information: the plant water use presented in section 3.2.1 of the COLA ER differs from that presented in the ESP ER and the EIS; cooling tower heat load has increased from 7.55E9 Btu/hr per unit to 7.63E9 Btu/hr per unit, and cooling water flow rate has increased to 631,000 gallons per minute from 600,000, as described in section 3.2.2; also in section 3.2.2, the dimensions of the intake structure have been modified and are presented in figures 3.2-1 and 3.2-2; with respect to section 3.2.3, Radioactive Waste Management System, the independent spent fuel storage installation is now planned for a site southeast of the Units 1 and 2 cooling towers and a low-level radioactive waste storage facility has been completed northwest of the Units 1 and 2 cooling towers to store low-level radioactive waste. No new information was identified relevant

to section 3.2.4, Nonradioactive Waste Systems, and the ESP EIS did not identify any required information or analyses that were not resolved. Similarly, SNC identified no new information related to section 3.3, Power Transmission System, and the ESP EIS did not identify any required information or analyses that were not resolved.

Chapter 4, Construction Impacts at the Proposed Site, describes the effects of constructing two new units at the Vogtle site and a new transmission line. For each of the subparts of Chapter 4 – Land Use Impacts; Meteorological and Air-Quality Impacts; Water-Related Impacts; Ecological Impacts; Socioeconomic Impacts; Historic and Cultural Resource Impacts; Environmental Justice Impacts; Non-Radiological Health Impacts; Radiological Health Impacts; Measures and Controls to Limit Adverse Impacts During Site Preparation Activities and Construction; Site Redress Plan; and Summary of Construction Impacts – the ESP EIS did not identify any significant issues that were not resolved, and, using the process described in the Answer to Question 12 above, SNC identified no new and significant information.

Chapter 5, Station Operational Impacts at the Proposed Site, describes the environmental issues associated with operating two new units at Vogtle for an initial 40-year license period. For each of the subparts of Chapter 5 – Land Use Impacts; Meteorological and Air-Quality Impacts; Water-Related Impacts; Ecological Impacts; Socioeconomic Impacts; Historic and Cultural Resource Impacts; Environmental Justice Impacts; Non-Radiological Health Impacts; Radiological Health Impacts of Normal Operations; Environmental Impacts of Postulated Accidents; Measures and Controls to Limit Adverse Impacts During Operation; and Summary of Operational Impacts – the ESP EIS did not identify any significant issues that were not resolved, and, using the process described in the Answer to Question 12 above, SNC identified no new and significant information.

Chapter 6, Fuel Cycle, Transportation, and Decommissioning, addresses the environmental effects from the uranium fuel cycle and solid waste management, the transportation of radioactive material, and the decommissioning of two new nuclear units at the Vogtle site. For each of the subparts of Chapter 6 – Fuel Cycle Impacts and Solid Waste Management; Transportation Impacts; and Decommissioning – the ESP EIS did not identify any significant issues that were not resolved, and, using the process described above, SNC identified no new and significant information.

Chapter 7, Cumulative Impacts, evaluates the effects of the proposed action, the construction and operation of two new nuclear units combined with other past, present and reasonably foreseeable future actions in the vicinity to determine the magnitude of the cumulative impacts. For each of the subparts of Chapter 7 – Land Use; Air Quality; Water Use and Quality; Terrestrial Ecosystem; Aquatic Ecosystem; Socioeconomics, Historic and Cultural Resources, Environmental Justice; Non-Radiological Health; Radiological Impacts of Normal Operation; Severe Accidents; Fuel Cycle, Transportation, Decommissioning; and NRC Staff Conclusions and Recommendations – the ESP EIS did not identify any significant issues that were not resolved, and, using the process described above, SNC identified no new and significant information.

Chapter 8, Need for Power, contains NRC's conclusion that there is a justified Need for Power in the region of interest. For each of the subparts of Chapter 8 – Description of Power System; Power Demand/Integrated Resource Planning; Power Supply/Integrated Resource Planning in the State of Georgia; and Assessment of Need for Power/NRC Findings on GPC's IRP – the ESP EIS did not identify any significant issues that were not resolved, and, using the process described above, SNC identified no new and significant information.

Chapter 9, Environmental Impacts of Alternatives, describes NRC's evaluation of alternative energy sources, cooling systems and sites. With respect to subpart 9.1, No-Action Alternative, the COLA ER addresses the scenario in which the NRC would deny the COL request. For each of the other subparts of Chapter 9 – Energy Alternatives; System Design Alternatives; Region of Interest and Alternative Site Selection Process; Evaluation of Alternative Sites; Issues Among Sites Handled Generically; and Summary of Alternative Site Impacts – the ESP EIS did not identify any significant issues that were not resolved.

Chapter 10, Comparison of Impacts of the Proposed Action and the Alternative Sites, compares the environmental effects of the proposed action to the effects of two new units at alternative sites. For the following subparts of Chapter 10 – Comparison of the Proposed Site with the Alternative Sites; Environmentally Preferable Sites; and Obviously Superior Sites – using the process described above, the ESP EIS did not identify any significant issues that were not resolved. For subpart 10.4, Comparison with the No-Action Alternative, SNC outlined the scenario in which the NRC denies SNC's request for a COL.

Chapter 11, Conclusions and Recommendations, summarizes NRC's conclusions and recommendations made throughout the EIS. With respect to each subpart of Chapter 11 – Impacts of the Proposed Action; Unavoidable Adverse Environmental Impacts; Alternatives to the Proposed Action; Relationship Between Short-Term Uses and Long-Term Productivity of the Human Environment; Irreversible and Irretrievable Commitments of Resources; and Benefit-Cost Balance – the EIS did not identify any significant environmental issues that were not resolved, and, using the process identified in the Answer to Question 12 above, SNC identified no new and significant information.

10 C.F.R. § 51.75 (c) (Draft Supplemental EIS for COLA Referencing ESP)

Q15. Please describe the NRC's regulatory requirement to prepare a Supplement to the ESP EIS.

A15: NRC regulation 10 C.F.R. § 51.75(c)(1) provides that if a COLA references an ESP, the NRC staff must prepare a draft supplemental EIS in accordance with 10 C.F.R. § 51.92(e).

10 C.F.R. § 51.92 (e) (Supplement to Final EIS)

Q16. Please describe the regulatory requirements for the Supplement to the ESP EIS.

A16: Pursuant to 10 C.F.R. § 51.92(e), a supplement to an ESP EIS must: (1) identify the proposed action as the issuance of a COL for the construction and operation of a nuclear power plant as described in the COLA at the site described in the ESP referenced in the COLA; (2) incorporate by reference the ESP EIS; (3) contain no separate discussion of alternative sites; (4) include an analysis of the economic, technical, and other benefits and costs of the proposed action, to the extent that the ESP EIS did not include an assessment of these benefits and costs; (5) include an analysis of other energy alternatives, to the extent that the ESP EIS did not include an assessment of energy alternatives; (6) include an analysis of any environmental issue related to the impacts of construction or operation of the facility that was not resolved in the ESP proceeding; and (7) include an analysis of the issues related to the impacts of construction and operation of the facility that were resolved in the ESP proceeding for which new and significant information has been identified, including, but not limited to, new and significant information demonstrating that the design of the facility falls outside the site characteristics and design parameters specified in the ESP.

Q17. Please describe your understanding of the NRC's environmental review process for the COLA.

A17: Once it received SNC's COLA, the NRC began its environmental review by publishing an Acceptance for Docketing. *See* 73 Fed. Reg. 33,118 (June 11, 2008). As explained above, SNC developed a protocol for determining whether information was new and significant, sufficient to warrant additional analysis in the Supplement to the Final EIS. The staff reviewed SNC's protocol and completed an independent review of the process. The staff determined that the process was adequate to identify new and potentially significant information concerning environmental issues addressed in the ESP EIS. The staff published its Draft Supplemental EIS in September of 2010. Following a comment-period and public hearing, the staff published its Final Supplemental EIS ("FSEIS") in March of 2011.

Q18. Please describe the outline of the FSEIS.

A18: Chapter 1 of the FSEIS contains the background, description of the proposed Federal action, purpose and need for the proposed action, alternatives to the proposed action, the status of regulatory compliance and consultation activities, and the new and significant information review process. Chapter 2 describes the affected environment. Chapter 3 describes the site layout and plant description. Chapter 4 examines the environmental impacts of construction and Chapter 5 evaluates the environmental impacts of operations. Chapter 6 evaluates the impacts of the uranium fuel cycle, transportation associated with constructing and operating the facility, and decommissioning of the units at the end of plant life. Chapter 7 evaluates the cumulative impacts of the proposed action and other past, present and reasonably foreseeable actions in the vicinity of Vogtle. Chapter 8 examines the need for power. Chapter 9 examines alternatives to the

proposed action, alternative locations, and alternative energy sources. Chapter 10 compares the proposed action with alternatives, and Chapter 11 summarizes the findings and conclusions.

Q19. How does the FSEIS conform to the regulatory requirements described above?

A19: The FSEIS includes (1) the results of the staff's analyses, which consider and weigh the environmental effects of the proposed action and of constructing and operating two additional nuclear units at the Vogtle site; (2) mitigation measures for reducing or avoiding adverse effects; (3) the environmental impacts of alternatives to the proposed action; and (4) the staff's recommendation regarding the proposed action.

Q20. Please describe each chapter of the FSEIS in more detail and explain where updated information was provided.

A20: Chapter 2, Affected Environment, describes the site and the vicinity or region for each environmental topic potentially affected by construction or operation of two new units. For each of the following subparts of Chapter 2 – 2.1 (Site Location); 2.2 (Land); 2.4 (Geology); 2.5 (Radiological Environment); 2.6 (Water); 2.10 (Environmental Justice); and 2.11 (Related Federal Projects and Consultation) – the NRC staff found no new and significant information during its review of SNC's process for identifying new and significant information or during the staff's visit to the Vogtle site.

In section 2.3, Meteorology and Air Quality, the NRC staff identified new information related to changes to the National Ambient Air Quality Standards. Specifically, in March 2008, Environmental Protection Agency ("EPA") reduced the National Ambient Air Quality Standard for ozone from 0.084 parts per million to 0.075 ppm. States were given one year from the issuance of the revised ozone standard to submit recommended designations (*i.e.*, attainment, non-attainment, or unclassified) for each of their respective counties. Burke County, Georgia,

which is where the Vogtle site is located, was designated as an attainment or unclassified for all criteria pollutants for which National Ambient Air Quality Standards have been established prior to the issuance of the revised ozone standard. Currently, Burke County is designated as unclassified/attainment with respect to the new ozone standard.

The NRC staff also discovered new information in section 2.7 with respect to Ecology. Specifically, in section 2.7.1, the staff identified the eastern indigo snake and gopher tortoise as two species that could potentially occur in the project area that were not discussed in the ESP EIS because they were not included in previous Georgia Department of Natural Resources species occurrence lists for the project area. The eastern indigo snake is listed as threatened by the Fish and Wildlife Service (“FWS”). The gopher tortoise is currently listed as a threatened species in Georgia and is currently under review by the Fish and Wildlife Service to be listed as Federally threatened. SNC submitted a draft Candidate Conservation Agreement with Assurances for the gopher tortoise at the Vogtle site, which is currently being reviewed by the Fish and Wildlife Service.

During the COL application review, SNC also provided new information regarding the occurrence of the State-threatened southeastern pocket gopher and sandhills milkvetch in borrow areas located in the west-northwest of the power-block area. These species were not previously identified in the ESP but became relevant when SNC requested the right to obtain backfill material from the borrow areas in ESP license amendment submittals.

In section 2.7.2, the National Marine Fisheries Service (“NMFS”) published in the Federal Register a proposed rule listing the Carolina and South Atlantic distinct population segments of the Atlantic sturgeon as endangered under the Endangered Species Act. The NRC staff considered the proposed listing, as well as available literature, and compiled additional

information in a conference consultation letter to NMFS. The NRC staff did not find any other new and significant information in its review of SNC's processes, the staff's audit at the Vogtle site, or contacts with representatives of various State and Federal agencies.

The NRC staff identified changes in the community characteristics of the Vogtle ESP site in section 2.8, Socioeconomics. Specifically, in section 2.8.2, the staff noted an increase in the unemployment rate for Burke, Columbia and Richmond Counties from 2005 to 2009. However, the NRC staff determined that the conclusions presented in the ESP EIS remain valid.

Lastly, the NRC staff noted new information with respect to Historic and Cultural Resources in section 2.9. During the COL application review process, it was discovered that a historic cemetery is located on the Vogtle site outside of the proposed construction footprint and the proposed new borrow areas. NRC staff initiated the process outlined in the National Environmental Policy Act of 1969 to comply with the obligations defined under Section 106 of the National Historic Preservation Act. In December 2009, NRC initiated contact with the Georgia State Historic Preservation Office and the Advisory Council on Historic Preservation and sent 25 letters to tribes, asking each entity to identify new and significant information, if any, concerning historic properties that may be impacted by the proposed COL action.

Chapter 3, Site Layout and Plant Description, provides new information relative to the key site and facility characteristics that the NRC staff used to assess the environmental impacts of the proposed action. In section 3.2.1, Plant Water Use, NRC staff identified information regarding the normal and maximum plant effluent discharges to the Savannah River that required further discussion. The normal and maximum plant effluent discharges to the Savannah River are 631 Liters/second (10,008 gpm) and 2000 L/s (31,695 gpm), respectively. The 2000 L/s estimate is a 3 percent increase from the 1941 L/s value used in the ESP EIS to evaluate water-

quality impacts of operations. NRC determined that the 3 percent increase in the discharge rate does not result in a change to the staff's impact conclusion in the ESP EIS. In section 3.2.2, NRC summarized the new information SNC provided regarding the location and design changes to its cooling water intake structure. NRC staff determined that this new information was not significant and did not warrant further analysis.

Section 3.2.3 provides descriptions of SNC's liquid, gaseous, and solid radioactive waste-management systems for the AP1000 reactor. The summaries provided in the ESP EIS were augmented due to a more detailed description of the waste-management systems provided in Chapter 11 of Revision 17 of the AP1000 DCD produced by Westinghouse in 2008. The descriptions of changes to the waste-management systems contained in Revision 17 are not significant with respect to environmental review. Thus, in sections 3.2.3.1 and 3.2.3.2, NRC staff determined that the dose calculation results provided in the ESP EIS for liquid and gaseous radioactive waste-management systems, respectively, remain valid and show that all the dose projected to the maximally exposed individual is within applicable regulatory limits. Sections 3.2.3.3 and 3.2.3.4 provide that no new and significant information was found by NRC staff with respect to the solid radioactive waste-management system and nonradioactive waste systems, respectively. NRC staff did note, however, that Section 6.1 of the SEIS sets out NRC's assessment of the potential environmental impacts that might occur if permanent disposal facilities for low-level solid radioactive waste remain unavailable to Vogtle and SNC's contingency plans must be implemented to handle such waste.

In Section 3.3, Power Transmission System, NRC noted SNC's indication in the ESP EIS that one additional 500-kV transmission line in a new transmission line right-of-way would be required. The precise route for the right-of-way has not yet been determined but will be within a

previously defined Representative Delineated Corridor. No new and significant information regarding the route for the new right-of-way was provided by SNC in its COL ER and NRC staff found no additional new and significant information in its review process and Vogtle site audit.

Chapter 4, Environmental Impacts of Construction, describes the effects of constructing two new units at the Vogtle site and a new transmission line. In section 4.1.1, the staff's review of potential new and significant information resulted in the following additional information being reviewed: 1) the site land area impacted on a long-term basis increased from 131 ha to approximately 153 ha; 2) the site area impacted on a short-term basis increased to a total of 200 ha; and 3) the entire site has been designated an Energy Product District in the Burke County Comprehensive Plan. The staff determined that this information did not change the conclusions in the ESP EIS. In section 4.1.2, the staff verified there was no new and significant information and determined that the staff's conclusion in the ESP EIS that impacts on the transmission line right of way would be MODERATE remains bounding and valid. In section 4.2, the staff identified new information related to potential changes in construction traffic and changes to the NAAQS for ozone. The staff concluded that this information was not significant and did not change the conclusions reached in the ESP EIS. Section 4.3 included an analysis of new information identified by SNC regarding the proposed intake structure design. The staff also evaluated new information regarding additional onsite borrow areas. The staff determined that the conclusions in the ESP EIS remain valid. In section 4.4.1, the staff identified and evaluated new information related to construction related impacts to wildlife habitat, wetlands, and Federal and State-listed species. The staff also identified and evaluated information related to onsite and offsite infrastructure alterations in connection with how the large reactor components and other materials would be delivered to the site. The staff evaluated information from the FWS related

to Federally listed species and critical habitat that may have changed since the 2008 consultation that served as the basis for the conclusions in the ESP EIS. FWS identified four species which were further analyzed in the FSEIS: the red-cockaded woodpecker, the wood stork, the Canby's dropwort and the eastern indigo snake. Also identified and analyzed were the bald eagle and gopher tortoise. Section 4.4.2 summarizes the staff's conclusions with respect to terrestrial impacts of construction. In section 4.4.3, the staff verified there was no new and significant information, but SNC subsequently provided new information on three additional onsite borrow areas from which it sought to obtain backfill material via license amendment. The staff incorporated by reference its analysis in the License Amendment Request ("LAR") environmental assessments ("EAs") for Amendments 1 and 2. The staff also noted a proposed rule listing the Carolina and South Atlantic distinct populations of the Atlantic Sturgeon under the Endangered Species Act. The staff also noted SNC's receipt of a section 404 permit for the Vogtle site. Based on its review of this additional information, the staff concluded that the conclusions presented in the ESP EIS remain valid. In section 4.5.1, the staff verified that there was no new and significant information related to physical impacts and determined that the ESP EIS conclusions remain bounding and valid. In section 4.5.2, the staff identified the following new information: need for additional onsite and offsite backfill material. The staff incorporated by reference its analysis in the LAR EAs. The staff concluded that the conclusions in the ESP EIS remain bounding and valid. In section 4.5.3, the staff's review identified the following new information: unemployment rates in Burke, Richmond and Columbia Counties and statewide in Georgia have risen recently. The staff concluded that its conclusions in the ESP EIS remain valid. In section 4.5.4, the staff evaluated an updated traffic study but concluded that the conclusion in the ESP EIS with respect to transportation impacts remains valid. The staff also

verified that there was no new and significant information related to infrastructure and community-service impacts. In section 4.6, the staff identified the following new information: (1) identification of a historic cemetery located on the Vogtle site outside the proposed construction footprint; (2) new proposed borrow areas; and (3) possibility of needing additional backfill material delivered by truck from an offsite source. The staff concluded that the conclusions presented in the ESP EIS remain valid. In section 4.7, the staff noted that its review of new and significant information identified information related to the impacts on traffic, but concluded that its conclusions in the ESP EIS remain bounding and valid. In section 4.8.1, the staff verified there was no new and significant information, but, subsequently, SNC provided new information on three additional onsite borrow areas. The staff evaluated that information and concluded that the conclusions in the ESP EIS remain bounding and valid. In section 4.8.2, the staff verified there was no new and significant information identified during the new and significant information review, but that subsequent to the site audit, SNC had determined that it would need to obtain backfill material from onsite borrow areas other than those previously specified in the ESP site safety analysis report. The staff incorporated by reference its analysis in the LAR EA for Amendment 2 of the ESP. The staff also evaluated SNC's identification of potentially seeking to obtain engineering grade backfill materials from an offsite borrow source and the effects of such. The staff concluded that even when considered in combination with the minor increase in traffic fatality risk analyzed in the ESP EIS, the increase remains small and the conclusions related to the nonradiological impacts of transporting construction material and personnel to and from proposed Units 3 and 4 presented in the ESP EIS remain valid. In section 4.9.1, the staff evaluated SNC's identification of three additional borrow areas from which it seeks to obtain backfill material via license amendment. The staff incorporated by reference its

analysis in the Amendment 2 EA. The staff also evaluated the fact that SNC indicated that a new low-level waste storage area had been developed northwest of the existing Unit 2 cooling tower to accommodate wastes from the existing units as well as Units 3 and 4. The staff concluded that the conclusions presented in the ESP EIS remain valid. In sections 4.9.2, 4.9.3 and 4.9.4, the staff evaluated information related to the three additional borrow areas and determined that the conclusions presented in the ESP EIS remain valid. In section 4.10, the staff identified a Memorandum of Understanding between SNC and the Georgia State Historic Preservation Officer (“SHPO”) related to measures and controls to limit adverse impacts to cultural resources. The staff also evaluated impacts associated with additional onsite backfill borrow sources. The staff concluded that the conclusions in the ESP EIS remain valid. In section 4.11, the staff verified that the site redress plan discussed in the ESP EIS would adequately redress the impacts of the activities requested under the second Limited Work Authorization (“LWA”) and therefore the staff’s conclusion is bounding and valid.

Chapter 5, Environmental Impacts of Operation, identifies new information considered by the staff related to the environmental issues associated with operating two new units at Vogtle for an initial 40-year license period. In section 5.1, the staff verified that there was no new and significant information and that the conclusions in the ESP EIS remain bounding and valid. In section 5.2, the staff identified the following new information: changes to the NAAQS for ozone warranted further review. The staff concluded that the conclusions in the ESP EIS remain bounding and valid. In section 5.3, the staff noted that, since the ESP EIS, SNC had provided new information on the proposed intake structure design but that this did not change the assessment of operations-related impacts described in the ESP EIS. The staff identified information on the total effluent discharge to the Savannah River that warranted further review

and concluded that the conclusions in the ESP EIS remain valid. In section 5.4.1, the staff verified there was no new and significant information. However, on January 7, 2010, NRC requested information regarding Federally listed species and critical habitat that may have changed since the 2008 consultation that served as the basis for the conclusions in the ESP EIS. FWS identified four species which were further analyzed in the FSEIS: the red-cockaded woodpecker, the wood stork, the Canby's dropwort and the eastern indigo snake. Also identified and analyzed were the bald eagle and gopher tortoise. Based on this new information, the staff concluded that the conclusion that operational impacts would be SMALL remains bounding and valid. In section 5.4.2, in the COL ER, SNC identified that there would be a 3% increase in discharge flow. The staff reviewed this information and determined it would not change the conclusions in the ESP EIS. SNC notified the staff that the design and location of the cooling water intake structure had changed. The staff evaluated information related to this change and determined there was no change to impacts as discussed in the ESP EIS. The staff also noted a proposed rule listing the Carolina and South Atlantic distinct populations of the Atlantic Sturgeon under the Endangered Species Act. None of the information evaluated by the staff resulted in a change in conclusions from the ESP EIS. In sections 5.5, 5.6, 5.7 and 5.8, the staff verified that there was no new and significant information and that the conclusions in the ESP EIS remain valid and bounding. In section 5.9.1, the staff verified that there was no new and significant information but noted that a new dairy being developed near Girard, GA will be the nearest dairy being monitored. Exposure pathways considered in the ESP EIS remain valid. In section 5.9.2, the staff verified that there was no new and significant information but noted the updated analysis with respect to radiological impacts associated with Revision 17 of the AP1000 Standard Reactor Design. The staff evaluated SNC's statement in the COL ER that a new low-

level waste storage area had been developed. The staff concluded that the conclusions in the ESP EIS regarding radiation doses to the public remain valid. In sections 5.9.3, 5.9.4, 5.9.5 and 5.9.6, the staff verified there was no new and significant information and that the conclusions in the ESP EIS remain valid. In section 5.10.1, with respect to design basis accidents, the units proposed in the COLA are situated entirely within the area assumed in the ESP application. The staff concluded that the ESP EIS conclusion that environmental consequences of Design Basis Accidents for an AP1000 reactor at Vogtle are SMALL and remain valid. In section 5.10.2, the staff verified that there was no new and significant information. The staff evaluated the significance of new information related to the Probabilistic Risk Assessment for Revision 17 of the AP1000 DCD and concluded that the conclusions in the ESP EIS remain valid. In section 5.10.3, the COL ER contained an update of information on severe accident mitigation alternatives (“SAMAs”) associated with the proposed revision to AP1000 design. The staff incorporated by reference the Environmental Assessment accompanying the design certification rulemaking for 10 C.F.R. Part 52, Appendix D. The staff concluded that the characteristics of the Vogtle site are bounded by those considered in the generic severe accident design mitigation alternatives review or the AP1000 Probabilistic Risk Assessment and reaffirmed and adopted the ESP EIS conclusions. The staff also concluded that the SAMAs were appropriately considered in the ESP EIS. In section 5.10.4, the staff concluded that the ESP EIS conclusions regarding Design Basis Accidents (“DBAs”), severe accidents and SAMAs remain valid. In section 5.11, the staff analyzed the following new information: 1) the Memorandum of Understanding between SNC and the Georgia SHPO regarding protection of archaeological site 9BK416; and 2) the draft Environmental Protection Plan (“EPP”) for the site. The staff concluded that the measures and controls to limit adverse impacts during operation as presented in the ESP EIS

remain valid and that SNC's EPP is appropriate, noting that if the COL is issued the EPP will be part of the license.

Chapter 6, Fuel Cycle, Transportation, and Decommissioning, verifies the conclusions in the ESP EIS related to the environmental effects from the uranium fuel cycle and solid waste management, the transportation of radioactive material, and the decommissioning of two new nuclear units at the Vogtle site. In section 6.1, the staff verified there was no new and significant information. However, SNC submitted additional information regarding its low-level waste disposal options and associated contingency plans. The staff evaluated this information and concluded that the environmental impacts of radioactive waste storage and disposal associated with units 3 and 4 would be minor and that the conclusions in the ESP EIS remain valid. In section 6.2, the staff verified there was no new and significant information, but noted that on March 3, 2010, the Department of Energy withdrew its application for a permanent geologic repository at Yucca Mountain, Nevada. The staff concluded that additional impacts associated with any new planned repository would be no greater than double the distance evaluated in the ESP EIS and therefore concluded that the environmental impacts of a double estimate would still be SMALL. In section 6.3, the staff verified there was no new and significant information related to decommissioning.

Chapter 7 of the FSEIS provides new information relative to cumulative impacts. With respect to sections 7.1, 7.3, 7.4, 7.8, 7.9, 7.10 and 7.11, the staff verified SNC's conclusion that there was no new and significant information. With respect to section 7.2, the staff identified new information related to potential changes in construction traffic and changes to the ozone NAAQS. The staff concluded that the conclusions presented in section 7.2 of the ESP EIS remain valid. In section 7.5, the staff noted that, following the publication of the ESP EIS, SNC

submitted a letter to NRC stating that large components would be transported via rail and that no dredging would be required and that, therefore, cumulative impacts would be bounded by those identified in section 7.5 of the ESP EIS. The staff also identified the following new information: the U.S. Army Corps of Engineers (“USACE”) published a draft general re-evaluation report and an EIS related to determining feasibility of improvements to the Federal navigation project at Savannah Harbor. The staff concluded that construction and operation of two new units at Vogtle would not have an adverse cumulative effect on important fish species when considered together with this new information. In section 7.6, the staff identified the following new information: (1) identification of a historic cemetery located on the Vogtle site outside the proposed construction footprint; (2) new proposed borrow areas; (3) funding provided by the American Recovery and Reinvestment Act; and (4) possibility of needing additional backfill material delivered by truck from an offsite source. The staff concluded that the conclusions in the ESP EIS remain valid. In section 7.7, the staff verified there was no new and significant information; however, subsequent to the site audit, SNC determined that it would need to obtain backfill material from onsite borrow areas other than those previously identified. The staff concluded that the conclusions in the ESP EIS remain valid.

Chapter 8, Need for Power, contains NRC’s conclusion that there is a justified Need for Power in the region of interest. The Staff determined that the conclusions regarding need for power presented in the ESP EIS remain valid.

Chapter 9, Environmental Impacts of Alternatives, describes NRC’s evaluation of alternative energy sources, cooling systems and sites. With respect to subpart 9.1, No-Action Alternative, the FSEIS addresses the scenario in which the NRC would deny the COL request. With respect to section 9.2, through its independent audit of potential new and significant

information related to energy alternatives, NRC identified two pieces of information that warranted further review: 1) Georgia Power Company expects to achieve load reduction through the implementation of existing and new demand-side management programs; and 2) SNC has no plans to reactivate any retired plants. The staff determined that this new information did not change the conclusions in the ESP EIS. The staff also noted that EPA had issued the Tailoring Rule for sources of Greenhouse Gases and that the implementation of this rule could reduce the amount of GHGs from the values listed in Table 7-1 for coal and natural gas, as well as from other alternative energy sources. The staff affirmed its conclusion that none of the viable energy alternatives would be clearly preferable to construction of new base-load nuclear power generation at Vogtle. In Section 9.3, System Design Alternatives, the FSEIS reiterates that the new information available regarding once-through cooling and dry or hybrid wet/dry cooling towers does not significantly affect the impact on the environment of the proposed cooling towers, and that the wet cooling tower design remains preferable to the alternatives considered in the ESP EIS. With respect to sections 9.4 and 9.5, no additional discussion was required to supplement the ESP EIS.

Chapter 10 of the ESP EIS included a comparison of the environmental effects of the proposed action to the effects of two new units at alternative sites. Pursuant to 10 C.F.R. § 51.92(e)(3), no additional discussion of alternative sites was required for the FSEIS for the COLA.

Chapter 11, Conclusions and Recommendations, summarizes NRC's conclusions and recommendations made throughout the FSEIS. In section 11.1, Impacts of the Proposed Action, the staff concluded that, with the exception of terrestrial ecology described in section 4.4.1, no new and significant information was identified that would change any of the conclusions stated

in the ESP EIS. In section 11.2, Unavoidable Adverse Environmental Impacts, the FSEIS noted that while SNC concluded that there was no new and significant information related to unavoidable adverse environmental impacts, SNC did note that there would be an increase in the permanently disturbed land area, from 131 ha to 200 ha. NRC noted and evaluated those changes in Chapter 4 of the FSEIS, as well as the associated impacts to the populations of two State-listed species. The staff concluded that this evaluation did not result in any change to the staff's conclusions in section 11.2 of the ESP EIS, and that no other information was identified that would change the conclusions stated in section 11.2 of the ESP EIS regarding unavoidable adverse environmental impacts. In section 11.3, Alternatives to the Proposed Action, no new and significant information was identified in the areas of energy alternatives or system designs. The no-option alternative of not issuing the COL was discussed in Section 9.1 of the FSEIS. With respect to section 11.4, Relationship Between Short-Term Uses and Long-Term Productivity of the Human Environment, and section 11.5, Irreversible and Irretrievable Commitments of Resources, the staff stated that, in its review of new and significant information, no information was identified that would change the conclusions in the ESP EIS regarding short-term uses and long-term productivity. In section 11.6, Benefit-Cost Balance, the staff noted that it identified new information in the areas of project benefits and ecological costs that warranted further analysis in the FSEIS. This new information included the following: the amended certification issued by the Georgia Public Service Commission in June 2010 (which further substantiates the conclusions in the ESP EIS concerning the benefits of the proposed action); the development of additional onsite borrow sources (which did not change the staff's conclusion); and SNC's request for a second LWA. The staff concluded that the assessment of costs and benefits in the ESP EIS remains valid. In section 11.7, Staff Conclusions and

Recommendations, the staff recommended that the Commission issue the COLs and the LWA with respect to the environmental aspects of the proposed action.

Consideration of Environmental Impacts

Q21. Please describe your understanding of the basis for the Staff's recommendation to issue the COL with respect to the environmental analysis.

A21: The Staff's recommendation is based on (1) the COLA, including the ER and responses to requests for additional information; (2) the Staff's review conducted for the ESP and documented in the ESP EIS; (3) the Staff's review conducted for the ESP license amendments; (4) consultation with Federal, State, Tribal, and local agencies; (5) the Staff's own independent review of potential new and significant information available since preparation and publication of the ESP EIS; and (6) the assessments summarized in the SEIS, including the potential mitigation measures identified and consideration of public comments received on the draft SEIS.

In conclusion, and as stated earlier, the COLA ER fulfills the regulatory requirements set out in 10 C.F.R. § 51.50(c)(1)(i)-(v). As outlined in Table 1.7-1 of the COLA ER, Table 3.0-1 contains information sufficient to demonstrate that the design of the facility falls within the site characteristics and design parameters specified in the ESP. No significant environmental issue was identified that was not addressed and resolved in the ESP proceeding. Thus, no further explanation or information was needed to resolve any such issues in the COLA ER. Section 1.7.2 of the COLA ER describes the process used to determine whether information was new and significant. As stated earlier, no new and significant information was identified. Lastly, the COLA ER adequately established that all environmental terms and conditions included in the ESP will be satisfied by the date of issuance of the COL.

SNC's COLA ER, coupled with all of the review processes NRC's staff have undertaken to date, provide more than adequate support for the conclusion in the SEIS that the conclusions articulated in the ESP EIS remain valid and any new and significant information identified in the COLA ER and/or SEIS do not alter said conclusions. Any environmental impacts identified as a result of construction and operation of Units 3 and 4 are still considered generally small and do not warrant any alternative course of action and/or additional mitigation by SNC.

Q22. Does this conclude your testimony?

A22: Yes.

Attachment 1



Dale L. Fulton
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Current Position: Southern Nuclear Operating Company
Nuclear Development Environmental Project Manager

Education

BS Degree Geology
Auburn University

Employment History

Mr. Fulton has approximately 15 years experience in the environmental field as a Project Manager with a focus on site contamination assessments and remediation, Environmental Site Assessments, large scale construction projects, and NEPA assessments for Federal, State, and local agencies and the private sector. He has experience in preparing NEPA documents with Nuclear Regulatory Commission (NRC), Federal Transit Administration (FTA), Federal Highway Administration (FHWA), Federal Aviation Administration (FAA), and U.S. Department of Transportation (DOT), as well as state and local experience in Mississippi with MSDOT.

Mr. Fulton also has experience in development of Environmental Management Systems (EMS) under ISO Standards. Since 2009, he has been serving as the Environmental Project Manager for SNC on the Vogtle 3 and 4 COL. He also served as the Environmental Project Manager for the Vogtle 1 and 2 License Renewal project and has worked on Vogtle 3 and 4 ESP and COL since 2006.

09/10 – present: Southern Nuclear Operating Company Nuclear Development Environmental Project Manager

Mr. Fulton is responsible for environmental compliance, governance and oversight during the construction of Vogtle Units 3&4 and has the overall responsibility for securing all necessary environmental permits and licenses. This includes coordination, reporting and all recordkeeping associated with environmental permits and environmental compliance or governance activities assigned to the construction contractor(s). He is also responsible for providing support to licensing, engineering and the Vogtle Units 3&4 site organization with regard to activities associated with environmental, chemistry and radiological programs. Mr. Fulton's responsibilities also include the day-to-day activities for the SNC corporate and site Environmental, Chemistry and Health Physicist personnel

during construction and for transition to operation. In addition to the Vogtle 3 and 4 activities, he is responsible for new plant siting efforts.

12/06 – 09/10: Southern Nuclear Operating Company: Environmental Specialist

Mr. Fulton served as the Environmental Project Manager for SNC in Vogtle License Renewal project. He provided technical and regulatory support to develop Vogtle 3 and 4 ESP and COL applications and RAIs and was responsible for various environmental permitting and site preparations activities to support Vogtle 3 and 4.

5/02 – 12/06: Charbonnet & Associates, Planners and Consultants, Inc. Project Manager

Mr. Fulton headed CAPC's environmental services for the southern region, which included environmental projects for FTA, FHWA, FAA, MSDOT, Jackson-Evers International Airport, and Hawkins Field General Aviation Airport. His duties included conducting Environmental Assessments in accordance with NEPA; Phase I & II Environmental Site Assessments (ESA); Compliance Audits, developing Environmental Management Programs, Public Information Planning, Marketing, and Master Planning activities. He acted as the liaison between the CAPC client and the US Army Corps of Engineers on a Formerly Used Defense Site (FUDS) project.

5/98 – 5/02: PPM Consultants, Inc., Project Manager

Mr. Fulton's duties included: supervising field operations and technical personnel, client and regulatory agency relations, project logistics, budget control, quality control/quality assurance (QA/QC), proposals, preparing Corrective Action Plans, project status reports, permitting, project completion reports, conducting presentations to client and regulatory agency, and assisting in business development. He was also responsible for conducting UST subsurface contamination assessments (Phase I - IV CA), Phase I & II ESA, sampling activities (soil, groundwater and industrial waste), and soil/groundwater remediation activities (remediation activities include: design, install, optimize treatment efficiency, and repairs). His project management role consisted of simultaneously managing more than 10 remediation projects as well as dozens of additional MDEQ UST Trust Fund projects.

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the Matter of

Southern Nuclear Operating Company

**(Vogtle Electric Generating Plant,
Units 3 & 4)**

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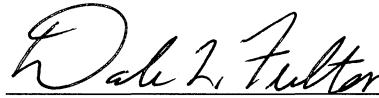
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Docket Nos. 52-025-COL and 52-026-COL

September 12, 2011

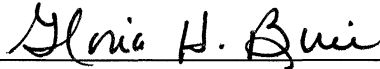
I, Dale L. Fulton do hereby state as follows:

1. I am employed as Nuclear Development Environmental Project Manager for Southern Nuclear Operating Company.
2. I attest to the accuracy of the testimony and attachments thereto, 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.



Dale L. Fulton

Subscribed and sworn before me
this 9 day of September, 2011



Notary Public

My Commission Expires: 04/01/2013

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the Matter of)	
)	
)	Docket Nos. 52-025-COL and 52-026-COL
Southern Nuclear Operating Company)	
)	
(Vogtle Electric Generating Plant,)	September 12th, 2011
Units 3 and 4))	

CERTIFICATE OF SERVICE

I hereby certify that copies of SOUTHERN NUCLEAR OPERATING COMPANY'S TESTIMONY OF DALE LANE FULTON for the Vogtle Units 3 & 4 COL Mandatory Hearing in the above-captioned proceeding have been served by electronic mail as shown below, this 12th day of September, 2011, and/or by e-submittal.

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(Original signed by M. Stanford Blanton)

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