Corrected on: March 11, 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 DR. CHARLES COUTANT CONCERNING EC 6.0

Q1: Please state your name, address and current occupation.

A1: My name is Charles Coe Coutant. I am a retired Distinguished Research Staff Member of the Oak Ridge National Laboratory, Oak Ridge, Tennessee. My combined business and home address is 120 Miramar Circle, Oak Ridge, TN 37830-8220. I now serve as a private consultant on matters of aquatic ecology and fisheries biology.

Q2: Please summarize your educational and professional qualifications.

A2: My professional and educational experience is summarized in my curriculum vitae (CV). *See* SNC000012 (Dr. Charles C. Coutant Curriculum Vitae). I received a Ph. D. in Biology (focus on ecology) from Lehigh University in 1965. I have conducted thermal effects and other cooling water studies since 1959. For 5 years post doctorate, I studied thermal effects on aquatic life of the Columbia River in Washington. At the Oak Ridge National Laboratory, since 1970, I have conducted individual research on thermal effects, entrainment and impingement on aquatic life, led a team of scientists studying these power plant cooling issues (for which I have numerous publications listed in my CV), participated in preparation of NEPA

Environmental Impact Statements for nuclear power plants for the U.S. Atomic Energy Commission, later the Nuclear Regulatory Commission (NRC), in which issues related to impacts of construction (e.g., dredging) and operation (e.g., thermal, entrainment and impingement) were analyzed (Palisades, Shoreham, Indian Point), as well as for several hydropower facilities (for the Federal Energy Regulatory Commission, FERC). I also have participated in the development of national water quality criteria for temperature (National Academies and the Environmental Protection Agency, EPA) and the interagency (NRC & EPA) implementation document for the thermal effects Section 316(a) of the Clean Water Act. I have assisted numerous electricity generators with aquatic environmental licensing issues, including Virginia Power (now Dominion) with its North Anna Nuclear Power Plant. I have served on several task forces to develop biological criteria for environmentally benign siting, design and operation of power station cooling-water facilities. I helped develop the NRC NEPA implementation rules in my role as a participant in preparation of the initial EISs for the Atomic Energy Commission Division of Regulation (predecessor to NRC). This preceded the formal NRC guidelines now in place.

Q3: Please describe your professional activities.

A3: My professional activities have included active participation in the American Fisheries Society, the dominant professional society for fisheries scientists and managers in North America. I served as President of the Society in 1996-1997, after several years of membership on the Governing Board. I was also President of the Water Quality Section, the Tennessee Chapter, and the Southern Division. For many years I was an active participant in the literature review committee of the Water Pollution Control Federation (now Water Environment Federation), producing annual reviews of thermal effects literature. I have served on panels of

the American National Standards Institute and the American Nuclear Society developing environmental standards for cold shock and entrainment, and of the American Society of Testing and Materials for contaminant transport models. I am also a member of the Ecological Society of America, in which I was an officer of the Applied Ecology Section. I have served as an advisor to international agencies with respect to power station cooling-water impacts (Germany, Sweden, Canada, New Zealand, International Atomic Energy Agency (IAEA), and Unesco). The IAEA and Unesco activities resulted in reference manuals for siting, design and operation of steam power stations to minimize detrimental aquatic environmental impacts. As a result, I have considerable familiarity and experience with evaluating and considering impacts on aquatic resources.

Q4: Are you familiar with Environmental Impact Statements ("EIS") prepared for compliance with the National Environmental Policy Act ("NEPA")?

A4: Yes; I am familiar with NEPA EISs, both in general and specifically those prepared by the NRC.

Q5: What is the basis of your familiarity with NEPA EISs?

A5: I have participated in the NEPA EIS process since 1971 and in predecessor environmental impact assessments for nuclear power stations since 1967. From 1967-1969, I was the lead aquatic ecologist at Battelle-Northwest (managing contractor for the Atomic Energy Commission's [AEC] Hanford Laboratories) in evaluations of fisheries and other aquatic impacts of proposed alternative nuclear power station sites in the Pacific Northwest. With the 1971 Calvert Cliffs decision that extended the AEC's EIS responsibilities to include non-radiological impacts, I worked with AEC's regulatory staff as a staff member of the AEC's Oak Ridge National Laboratory to develop implementation guidelines and topics for evaluation, including

thermal, entrainment and impingement impacts of the cooling system. I was lead author of aquatic assessments for AEC's EISs for Palisades and Shoreham nuclear power stations in the early 1970s, which were contracted to Oak Ridge National Laboratory. I also participated at that time in preparing EISs for Indian Point 2 and 3. I participated in peer reviews of EISs prepared for other existing or proposed power plants for the AEC and its successor regulatory agency, the Nuclear Regulatory Commission. Most of my AEC/NRC EIS contributions were accompanied by testimony before Atomic Safety and Licensing Boards. These assessments were a valuable complement to the biological research my team and I were conducting on these topics at Oak Ridge National Laboratory.

In the 1980s and 1990s, I participated in ecological analyses of hydropower plants for EISs by the Federal Energy Regulatory Commission, including the Susitna Project in Alaska, the Skagit River Project in Washington state, and Ohio River hydropower development. These EISs were contracted to the Oak Ridge National Laboratory in a manner similar to that used by the AEC/NRC. I also participated in EIS for Department of Energy facilities. More recently, I participated in resolution of aquatic ecological issues related to another Early Site Permit (North Anna additional units) on behalf of the company, Dominion Nuclear North Anna LLC.

Q6: Are you familiar with Southern Nuclear Company's ("SNC's") ESP application for Vogtle Units 3 & 4?

A6: Yes.

Q7: Have you reviewed the Petition for Intervention and supporting documents filed in this proceeding?

A7: Yes.

Q8: Are you familiar with Contention EC 6.0?

A8: Yes. I reviewed the Motion to Admit EC 6.0, SNC's and the Staff's Responses, and the Board's Order admitting EC 6.0. As admitted, EC 6.0 reads:

> *FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) FAILS TO PROVIDE ADEQUATE DISCUSSION OF IMPACTS ASSOCIATED WITH DREDGING THE SAVANNAH RIVER FEDERAL NAVIGATION CHANNEL. Because Army Corps of Engineers (Corps) dredging of the Savannah River Federal navigation channel has potentially significant impacts on the environment, the NRC staff's conclusion, as set forth in the "Cumulative Impacts" chapter of the FEIS, that such impacts would be moderate is inadequately supported. Additionally, the FEIS fails to address adequately the impacts of the Corps' upstream reservoir operations as they support navigation, an important aspect of the problem.*

Q9: Have you reviewed the "Cumulative Impacts" chapter of the EIS prepared for Vogtle Units 3 & 4?

A9: Yes.

Q10: In your opinion, is the conclusion that impacts from potential dredging by the Corps will be moderate adequately supported in the EIS?

A10: Yes. However, at the time the EIS was published, the scope of the Corps' potential dredging project was still undefined. Based on my experience with preparation of EISs, given the Staff's limited information regarding the scope of the Corps' dredging project, the Staff's conclusions are reasonable and adequately supported. The CEQ regulations provide that an agency should make clear when information is incomplete or lacking. *See* 40 C.F.R. § 1502.22. The Staff did this, including in the EIS a statement that "[a]t the present time the dredging project is incompletely defined, the amount of material to be removed is unknown, and the locations of the dredged material disposal areas have not been identified." FEIS at 7-20.

Q11: What is the purpose of your testimony?

A11: I have prepared a report, "Analysis of Impacts of Navigation Channel Maintenance for Barge Delivery of Materials for Construction of Vogtle Units 3 & 4 on the

Ecology of the Savannah River," analyzing the environmental impacts of the Corps dredging project, a true, accurate, and complete copy of which is filed as Exhibit SNCR00051 ("Analysis of Impacts of Navigation Channel Maintenance for Barge Delivery of Materials for Construction of Vogtle Units 3 and 4 on the Ecology of the Savannah River." Charles C. Coutant, Ph.D. (January 2, 2009).)

Q12: Are the scholarly or learned journals, articles or treatises referenced your report of the type commonly relied upon in your profession?

A12: Yes.

Q13: What prompted your preparation of this report?

A13: Since publication of the FEIS, further information defining the expected scope of the potential dredging of the Savannah River has been developed. Southeast Marine has surveyed the river between the VEGP and the Savannah River harbor and has provided detailed depth and width information for the river reaches between VEGP and the Savannah River harbor, identifying the areas most likely to require dredging along with the amount of dredged material. I reviewed this information and based my conclusions on this information. This analysis serves to supplement the FEIS' analysis of cumulative impacts from dredging, given that the scope of any Corps' dredging effort is now better understood.

Q14: Does your report address impacts from additional upstream reservoir releases?

A14: No. I understand that no additional releases will be requested or necessary..

Q15: What conclusions do you reach in your report regarding impacts to aquatic species from dredging?

A15: In my opinion, impacts of dredging on aquatic life will be localized, temporary and not biologically significant on a broad scale of geography or animal populations of the 110 miles of the Savannah River.

Q16: Does this conclude your testimony?

A16: Yes.

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(Early Site Permit for Vogtle ESP Site)	)	March 11, 2009

AFFIDAVIT OF DR. CHARLES C. COUTANT IN SUPPORT OF SOUTHERN NUCLEAR'S REVISED DIRECT TESTIMONY ON ENVIRONMENTAL CONTENTION 6.0

I, Dr. Charles C. Coutant, 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.

Dr. Charles C. Coutant

Subscribed and sworn to before me
this 10 day of March, 2009.

Notary Public
My Commission Expires 6.9.09