J. A. "Buzz" Miller
Executive Vice President
Nuclear Development

Southern Nuclear Operating Company, Inc.
42 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.5754
Fax 205.992.6165

SOUTHERN COMPANY

JAN 0 7 2010

Docket Nos.: 52-025
52-026

ND-10-0008

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application
Response to Request for Additional Information Letter No. 044

Ladies and Gentlemen:

By letter dated March 28, 2008, Southern Nuclear Operating Company (SNC) submitted an application for combined licenses (COLs) for proposed Vogtle Electric Generating Plant (VEGP) Units 3 and 4 to the U.S. Nuclear Regulatory Commission (NRC) for two Westinghouse AP1000 reactor plants, in accordance with 10 CFR Part 52. During the NRC's detailed review of this application, the NRC identified a need for additional offsite electrical power system information required to complete their review of the COL application's Final Safety Analysis Report (FSAR) Section 8.2, "Offsite Power System." By letter dated December 8, 2009, the NRC provided SNC with Request for Additional Information (RAI) Letter No. 044 concerning this offsite electrical power system information need. This RAI letter contains one RAI question numbered 08.02-13. The enclosure to this letter provides the SNC response to this RAI.

If you have any questions regarding this letter, please contact Mr. Wes Sparkman at (205) 992-5061.

DO92
NRO

Mr. J. A. (Buzz) Miller states he is an Executive Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Joseph A. (Buzz) Miller

Sworn to and subscribed before me this 7th *day of* January, *2010*

Notary Public: Deborah A. Jaworska

My commission expires: October 24, 2012

JAM/BJS/dmw

Enclosure: Response to NRC RAI Letter No. 044 on the VEGP Units 3 & 4 COL Application Involving the Offsite Electrical Power System

cc: Southern Nuclear Operating Company
Mr. J. H. Miller, III, President and CEO (w/o enclosure)
Mr. J. T. Gasser, Executive Vice President, Nuclear Operations (w/o enclosure)
Mr. D. H. Jones, Site Vice President, Vogtle 3 & 4 (w/o enclosure)
Mr. T. E. Tynan, Vice President - Vogtle (w/o enclosure)
Mr. D. M. Lloyd, Vogtle 3 & 4 Project Support Director (w/o enclosure)
Mr. M. K. Smith, Technical Support Director (w/o enclosure)
Mr. C. R. Pierce, AP1000 Licensing Manager
Mr. M. J. Ajluni, Nuclear Licensing Manager
Mr. J. D. Williams, Vogtle 3 & 4 Site Support Manager
Mr. J. T. Davis, Vogtle 3 & 4 Site Licensing Manager
Mr. W. A. Sparkman, COL Project Engineer
Document Services RTYPE: AR01.1053
File AR.01.02.06

Nuclear Regulatory Commission
Mr. L. A. Reyes, Region II Administrator
Mr. F.M. Akstulewicz, Deputy Director Div. of Safety Systems & Risk Assess. (w/o enclosure)
Mr. R. G. Joshi, Lead Project Manager of New Reactors
Ms. T. E. Simms, Project Manager of New Reactors
Mr. B. C. Anderson, Project Manager of New Reactors
Mr. M. M. Comar, Project Manager of New Reactors
Ms. S. Goetz, Project Manager of New Reactors
Mr. J. M. Sebrosky, Project Manager of New Reactors
Mr. D. C. Habib, Project Manager of New Reactors
Ms. D. L. McGovern, Project Manager of New Reactors
Ms. T. L. Spicher, Project Manager of New Reactors
Ms. M. A. Sutton, Environmental Project Manager
Mr. M. D. Notich, Environmental Project Manager
Mr. L. M. Cain, Senior Resident Inspector of VEGP

Georgia Power Company
Mr. O. C. Harper, IV, Vice President, Resource Planning and Nuclear Development

Oglethorpe Power Corporation
Mr. M. W. Price, Executive Vice President and Chief Operating Officer
Mr. K. T. Haynes, Director of Contracts and Regulatory Oversight

Municipal Electric Authority of Georgia
Mr. S. M. Jackson, Vice President, Power Supply

Dalton Utilities
Mr. D. Cope, President and Chief Executive Officer

Bechtel Power Corporation
Mr. J. S. Prebula, Project Engineer (w/o enclosure)
Mr. R. W. Prunty, Licensing Engineer

Tetra Tech NUS, Inc.
Ms. K. K. Patterson, Project Manager

Shaw Stone & Webster, Inc.
Mr. K. B. Allison, Project Manager (w/o enclosure)
Mr. J. M. Oddo, Licensing Manager
Mr. D. C. Shutt, Licensing Engineer

Westinghouse Electric Company, LLC
Mr. W. E. Cummins, Vice President of Regulatory Affairs & Standardization (w/o enclosure)
Mr. N. C. Boyter, Consortium Project Director Vogtle Units 3 & 4 (w/o enclosure)
Mr. S. A. Bradley, Vogtle Project Licensing Manager
Mr. R. B. Sisk, Manager, AP1000 Licensing and Customer Interface
Mr. J. L. Whiteman, Principal Engineer, Licensing & Customer Interface
Mr. D. A. Lindgren, Principal Engineer, AP1000 Licensing and Customer Interface

NuStart Energy
Mr. R. J. Grumbir
Mr. E. R. Grant
Mr. B. Hirmanpour
Mr. N. Haggerty
Ms. K. N. Slays

Other NuStart Energy Associates
Ms. M. C. Kray, NuStart
Mr. S. P. Frantz, Morgan Lewis
Mr. P. S. Hastings, NuStart & Duke Energy
Mr. J. A. Bailey, TVA
Ms. A. L. Sterdis, TVA
Mr. J. P. Berger, EDF
Mr. M. W. Gettler, FP&L
Mr. P. Hinnenkamp, Entergy
Mr. G. D. Miller, PG&N
Mr. M. C. Nolan, Duke Energy
Mr. N. T. Simms, Duke Energy
Mr. G. A. Zinke, NuStart & Entergy
Mr. R. H. Kitchen, PGN
Ms. A. M. Monroe, SCE&G
Mr. T. Beville, DOE/PM

Southern Nuclear Operating Company

ND-10-0008

Enclosure

Response to NRC RAI Letter No. 044

on the

VEGP Units 3 & 4 COL Application

Involving the

Offsite Electrical Power System

FSAR Section 8.2, Offsite Power System

eRAI Tracking No. 4067

NRC RAI Number 08.02-13:

Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," recommends that the FSAR description of offsite power should include all unusual features of the transmission lines such as crossovers or proximity of other lines (to ensure that no single event such as a tower falling or a line breaking can affect availability of offsite power to Units 3 and 4). Figure 8.2-202 of the VEGP FSAR shows several line crossings. The NRC staff is concerned that during adverse weather conditions high winds could cause the loss of both the 500 kV and 230 kV lines to supply offsite power to Units 3 and 4. Perform an analysis of each crossing of lines and demonstrate that this vulnerability is acceptable for Vogtle offsite power system design for Units 3 and 4.

SNC Response:

An analysis was performed of transmission line crossings within the area of the Vogtle site. Sixteen line crossing locations were evaluated to demonstrate that offsite power would be available to both Unit 3 and Unit 4 from at least one of the three available offsite power supplies to each unit and to confirm that Units 1 and 2 would not be affected. A nonmechanistic failure was assumed for each of the 16 transmission lines (a line is considered to be any one of the three phases) allowing it to fall on the line or lines immediately below it, resulting in a fault on each of the associated lines. In three cases, the falling line was assumed to contact two lines below. In all, 13 separate cases of falling transmission lines were evaluated. No single failures of protective relaying or breakers were assumed in this evaluation.

The evaluation demonstrated that, in each case, at least one offsite power supply remained available to both Unit 3 and Unit 4. In addition, there were no adverse effects to Unit 1 or Unit 2. The following attachments are provided as supporting information for this response. Figure 1 shows the layout of the Vogtle switchyards and associated transmission network along with the cases studied. The overhead line for each crossing is shown as the unbroken line. Table 1 summarizes the results of the evaluation. The information shown in the Application Revision section below will be incorporated into a future application revision.

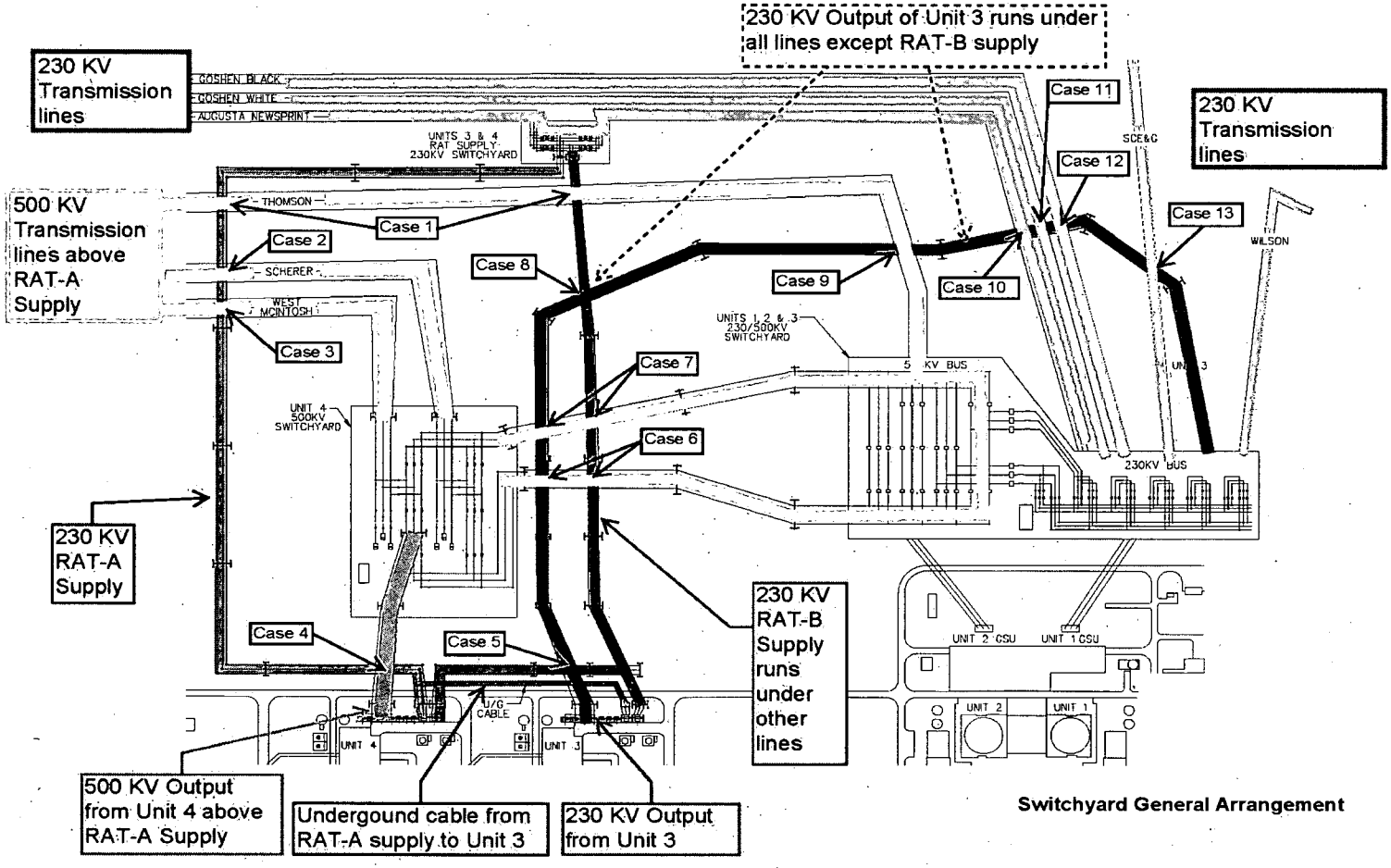
This response is PLANT-SPECIFIC for VEGP.

Associated VEGP COL Application Revision:

COLA Part 2, FSAR Chapter 8, Section 8.2.1.1, add the following new paragraph after the last paragraph under the Failure Analysis section and immediately before the section titled Transmission System Operator (TSO):

"An analysis was performed of transmission line crossings within the area of the Vogtle site. Sixteen line crossings were evaluated to demonstrate that offsite power would be available to both Unit 3 and Unit 4 from at least one of the three available offsite power supplies to each unit. A nonmechanistic failure was assumed for each of the 16 transmission lines (a line is considered to be any one of the three phases) allowing it to fall on the line or lines immediately below it. In three cases, the falling line was assumed to contact two lines below. In all, 13 separate cases of falling transmission lines were evaluated. No single failures of protective relaying or breakers were assumed in this evaluation. The evaluation demonstrated that, in each case, at least one offsite power supply remained available to both Unit 3 and Unit 4."

Figure 1
Analysis of Overhead Transmission Line Crossings



Switchyard General Arrangement

Table 1
Summary of Results

	Unit 3			Unit 4			Unit 1	Unit 2
Case #	GSU	RAT-A	RAT-B	GSU	RAT-A	RAT-B		
1	OK	Faulted	Faulted	OK	Faulted	Faulted	No effect	No effect
2	OK	Faulted	OK	OK	Faulted	OK	No effect	No effect
3	OK	Faulted	OK	OK	Faulted	OK	No effect	No effect
4	OK	Faulted	OK	Faulted	Faulted	OK	No effect	No effect
5	Faulted	OK	Faulted	OK	OK	Faulted	No effect	No effect
6	Faulted	OK	Faulted	OK	OK	Faulted	No effect	No effect
7	Faulted	OK	Faulted	OK	OK	Faulted	No effect	No effect
8	Faulted	OK	Faulted	OK	OK	Faulted	No effect	No effect
9	Faulted	OK	OK	OK	OK	OK	No effect	No effect
10	Faulted	OK	OK	OK	OK	OK	No effect	No effect
11	Faulted	OK	OK	OK	OK	OK	No effect	No effect
12	Faulted	OK	OK	OK	OK	OK	No effect	No effect
13	Faulted	OK	OK	OK	OK	OK	No effect	No effect

GSU = Generator Step-up Transformer
RAT-A = Reserve Auxiliary Transformer, "A" Supply Line
RAT-B = Reserve Auxiliary Transformer, "B" Supply Line