From: Tony Wade
To: <erg-xl@cox.net>,<pshastings@duke-energy.com>,<ronald.hagen@eia.doe.gov>,<bob.brown@ge.com>,<Chris.maslak@ge.com>,<David.hinds@ge.com>,<patriciaL.campbell@ge.com>,<Steven.hucik@ge.com>,<James.beard@gene.ge.com>,<Tom.miller@hq.doe.gov>,<jgutierrez@morganlewis.com>,<ksutton@morganlewis.com>,<sfrantz@morganlewis.com>,<jim@ncwarn.org>,<RidsRgn2MailCenter@nrc.gov>,"Christian Araguas" <CJA2@nrc.gov>,<RidsAcrsAcnwMailCenter@nrc.gov>,<RidsNrrDeEgcb@nrc.gov>,<RidsNroLAKGoldstein@nrc.gov>,<RidsNroDnrlNwe1@nrc.gov>,<RidsOgcMailCenter@nrc.gov>,"Joseph Hoch" <JAH6@nrc.gov>,"Margie Kotzalas" <MXK5@nrc.gov>,"R Brad Harvey" <RBH@nrc.gov>,"Mark Notich" <mdn@nrc.gov>,<RidsNroDnrl@nrc.gov>,"Scott Morris" <SAM1@nrc.gov>,"Seshagiri Tammara" <SRT@nrc.gov>,"Stephen Raul Monarque" <SRM2@nrc.gov>,<Tom.miller@nuclear.energy.gov>,<crpierce@southernco.com>,<Tomccall@southernco.com>,<mark.beaumont@wsms.com>
Date: 3/6/2007 9:54:09 AM
Subject: Request for Additional Information Letter No.4 - Southern Nuclear Operating Company (SNC)

Early Site Permit (ESP) Application for the Vogtle ESP Site.

To: J. A. "Buzz" Miller
From: Christian Araguas
Date: March 6, 2007
Accession No.: ML070470270

Hearing Identifier: Vogtle_Non_Public
Email Number: 1668

Mail Envelope Properties (4607C4C0.HQGWDO01.TWGWPO04.200.2000010.1.74F09.1)

Subject: Request for Additional Information Letter No.4 - Southern Nuclear Operating Company (SNC)
Creation Date: 3/6/2007 9:54:09 AM
From: Tony Wade

Created By: TLW3@nrc.gov

Recipients
<erg-xl@cox.net>
<pshastings@duke-energy.com>
<ronald.hagen@eia.doe.gov>
<bob.brown@ge.com>
<Chris.maslak@ge.com>
<David.hinds@ge.com>
<patriciaL.campbell@ge.com>
<Steven.hucik@ge.com>
<James.beard@gene.ge.com>
<Tom.miller@hq.doe.gov>
<jgutierrez@morganlewis.com>
<ksutton@morganlewis.com>
<sfrantz@morganlewis.com>
<jim@ncwarn.org>
<RidsRgn2MailCenter@nrc.gov>
"Christian Araguas" <CJA2@nrc.gov>
<RidsAcrsAcnwMailCenter@nrc.gov>
<RidsNrrDeEgcb@nrc.gov>
<RidsNroLAKGoldstein@nrc.gov>
<RidsNroDnrlNwe1@nrc.gov>
<RidsOgcMailCenter@nrc.gov>
"Joseph Hoch" <JAH6@nrc.gov>
"Margie Kotzalas" <MXK5@nrc.gov>
"R Brad Harvey" <RBH@nrc.gov>
"Mark Notich" <mdn@nrc.gov>
<RidsNroDnrl@nrc.gov>
"Scott Morris" <SAM1@nrc.gov>
"Seshagiri Tammara" <SRT@nrc.gov>
"Stephen Raul Monarque" <SRM2@nrc.gov>
<Tom.miller@nuclear.energy.gov>
<crpierce@southernco.com>
<Tomccall@southernco.com>
<mark.beaumont@wsms.com>

Post Office	**Route**
TWGWPO04.HQGWDO01	nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	167	3/6/2007 9:54:09 AM
ML070470270.pdf	94415	3/26/2007 1:04:00 PM

Options
Priority: Standard

Reply Requested:	No
Return Notification:	None
	None
Concealed Subject:	No
Security:	Standard

February 23, 2007

Mr. J. A. “Buzz” Miller, Senior Vice President
Nuclear Development
Southern Nuclear Operating Company, Inc.
40 Inverness Center Parkway
P.O. Box 1295
Birmingham, AL 35201

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 4 - SOUTHERN NUCLEAR OPERATING COMPANY EARLY SITE PERMIT (ESP) APPLICATION FOR THE VOGTLE ESP SITE

Dear Mr. Miller:

By letter dated August 14, 2006, Southern Nuclear Operating Company, Inc. (SNC), submitted an application for an early site permit (ESP) for the Vogtle ESP site. Subsequently, Southern Nuclear Operating Company (SNC) submitted changes to the Vogtle ESP application by a letter dated September 13, 2006, and on November 13, 2006, submitted Revision 1 to the application.

The U.S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of your ESP application and has determined that it needs additional information to continue portions of the safety review. Therefore, the NRC staff is requesting additional information with respect to the application. The topics covered in the requests for additional information (RAIs) contained in Enclosure 1 are related to Section 2.3 of the site safety analysis report in the ESP application.

The NRC staff sent the RAIs as a draft via electronic mail on February 15, 2007, and held follow up teleconferences on February 20, 2007, and February 23, 2007. During both teleconferences, the NRC staff addressed all clarification questions, and no major issues resulted from the discussions.

Receipt of the requested information, within 30 days of the date of this letter, will support the NRC’s efficient and timely review of the SNC ESP application. Please note that failure to respond in a timely fashion may delay the completion of the staff’s safety evaluation report.

If you have any questions or comments concerning this matter, you may contact me at (301) 415-3637 or cja2@nrc.gov.

Sincerely,

/RA/

Christian Araguas, Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-011

Enclosure:
As stated

cc: See next page

If you have any questions or comments concerning this matter, you may contact me at (301) 415-3637 or cja2@nrc.gov.

Sincerely,

/RA/

Christian Araguas, Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-011

Enclosure:
As stated

cc: See next page

DISTRIBUTION:
Public
CAraguas
RidsNroLaKGoldstein
RidsNroDnrlNwe1
RidsNroDnrl
RidsRgn2MailCenter
MNotich
RidsAcrsAcnwMailCenter
RidsOgcMailCenter (BPoole)
MKotzalas
RKaras
RBHarvey
JHoch
SRMonarque

ADAMS Accession No.: ML070470270

OFFICE	DNRL/NWE1:LA	DNRL/NWE1:PM	TECH ED	OGC:NLO	DNRL/NWE1:BC
NAME	KGoldstein	CAraguas	Helen Chang	BPoole	SCoffin
DATE	2/21/07	2/23/07	02/21/07	2/21/07	2/23/07

OFFICIAL USE ONLY

Requests for Additional Information (RAIs)
for Vogtle ESP SSAR Section 2.3

RAI Number	Reviewer	Full Text
2.3.1-1	Harvey R. B. Hoch J.	The response to information need 2.3.1-2 enclosed in Southern Nuclear Operating Company, Inc. (SNC), letter AR-07-0059 (dated January 30, 2007) explains the selection criteria for the regional climatological observing stations used in the site safety analysis report (SSAR) to characterize the regional climatology of the Vogtle early site permit (ESP) site. Please include these selection criteria in a future revision to the ESP application.
2.3.1-2	Harvey R. B. Hoch J.	Part I of SSAR Table 1-1 lists the 100-yr snowpack site characteristic value as 10 lb/sq ft. The Vogtle ESP region experienced its heaviest snowfall event on record from February 9 through February 11, 1973. The highest recorded amount of snow in the Vogtle ESP site vicinity, 22 in., occurred at Bamberg, South Carolina. The Southeast Regional Climate Center (SERCC) states that the liquid equivalent of the snowfall at Bamberg was 7.79 in. Assuming 1 in. of liquid water is equivalent to 5.2 lb/sq ft, the associated snowpack during this event was 40.5 lb/sq ft. Please justify why the 100-yr snowpack of 10 lb/sq ft listed as a site characteristic is conservative enough given the impact from this storm.
2.3.1-3	Harvey R. B. Hoch J.	(a) The staff considers the "historical maximum dry-bulb temperature with a mean coincident wet-bulb (MCWB) temperature" DCD site parameter to be equivalent to the "100-yr return period maximum dry-bulb temperature with a MCWB temperature" ESP site characteristic. SSAR Table 1.1 presents a 100-year return period maximum dry-bulb temperature as a site characteristic without a corresponding MCWB temperature. Please provide a "100-year return period maximum dry-bulb temperature with a MCWB temperature" as a site characteristic. (b) Please also provide the following site characteristics: (1) maximum normal (1 percent exceedance) dry-bulb temperature and coincident wet-bulb temperature, and (2) maximum normal (1 percent exceedance) noncoincident wet-bulb temperature.
2.3.3-1	Harvey R. B. Hoch J.	The response to information need 2.3.3-1 enclosed in SNC letter AR-07-0059 (dated January 30, 2007) states that the 5-yr hourly onsite meteorological database submitted in support of the ESP application is being revised and reformatted in response to questions regarding the meteorological database discussed during a site audit conducted on December 6, 2006. Please provide a copy of this revised hourly onsite meteorological database.
2.3.3-2	Harvey R. B.	Part II of SSAR Table 1-1 lists postulated design parameters. Please include the proposed natural draft cooling tower height and

RAI Number	Reviewer	Full Text
	Hoch J.	width as part of this table since this information is used in SSAR Section 2.3.3 to determine the potential impact of the natural draft cooling tower wake effects on the onsite meteorological measurements.
2.3.4-1	Harvey R. B. Hoch J.	The description and reference for the accident atmospheric dispersion factors listed in SSAR Table 1-1 states, in part: "The atmospheric dispersion values presented represent typical site parameter values by reactor vendors." This appears to be an inaccurate statement. Please verify that accident atmospheric dispersion factors listed in Table 1-1 represent site-specific values.
2.3.4-2	Harvey R. B. Hoch J.	SSAR Table 1-2 indicates that SSAR Section 2.3.4 is in compliance with the regulatory requirements of Appendix E to 10 CFR Part 50. Please explain how Appendix E to 10 CFR Part 50 is applicable to the development of the short-term (accident releases) atmospheric dispersion site characteristics presented in SSAR Section 2.3.4. Please also revise the SSAR as appropriate.
2.3.4-3	Harvey R. B. Hoch J.	SSAR Table 1-2 indicates that SSAR Section 2.3.4 conforms with RG 1.78. Please explain how RG 1.78 is applicable to the development of the short-term (accident releases) atmospheric dispersion site characteristics presented in SSAR Section 2.3.4. Please also revise the SSAR as appropriate.
2.3.4-4	Harvey R. B. Hoch J.	Section 2.3.4 of the SSAR states that the 0-2 hr maximum sector-dependent 0.5 percentile χ/Q values are greater than the corresponding overall site 5 percentile χ/Q values at the exclusion area boundary (EAB) and low population zone (LPZ). The staff ran the PAVAN computer code using the PAVAN input files provided during a site audit conducted on December 6, 2006 and found that the overall site 5 percentile χ/Q values at the EAB and LPZ are the limiting values for the site. Please confirm which set of χ/Q values (the maximum sector 0.5 percentile χ/Q values or the overall site 5 percentile χ/Q values) is bounding and revise the SSAR as appropriate.
2.3.4-5	Harvey R. B. Hoch J.	The response to information need 2.3.4-1 enclosed in SNC letter AR-07-0059 (dated January 30, 2007) states that the 5-year hourly onsite meteorological data used as part of the ESP Application is being revised and therefore the PAVAN input files will be affected. Please provide a copy of the updated PAVAN input file.
2.3.5-1	Harvey R. B. Hoch J.	Please provide the basis for calculation of the containment building minimum cross-sectional area and equivalent structural height, since this information has been used as input to the XOQDOQ computer code to derive the long-term (routine release) atmospheric dispersion estimates presented in SSAR Section 2.3.5. Please also revise the SSAR as appropriate.
2.3.5-2	Harvey R. B.	Are the "8.00 Day Decay" χ/Q values listed in SSAR Table 2.3-17 also "depleted" χ/Q values; that is, are these the χ/Q values

RAI Number	Reviewer	Full Text
	Hoch J.	that result from assuming the plume travels downwind with dry deposition, as well as decay with a half-life of 8.00 days? Please clarify and revise the SSAR as appropriate.
2.3.5-3	Harvey R. B. Hoch J.	SSAR Table 1-2 indicates that SSAR Section 2.3.5 complies with the regulatory requirements of Appendix E to 10 CFR Part 50. Please explain how Appendix E to 10 CFR Part 50 is applicable to the development of the long-term (routine release) atmospheric dispersion site characteristics presented in SSAR Section 2.3.5.
2.3.5-4	Harvey R. B. Hoch J.	The response to information need 2.3.5-1 enclosed in SNC letter AR-07-0059 (dated January 30, 2007) states that the 5-yr hourly onsite meteorological data used as part of the ESP application is being revised and therefore the XOQDOQ input files will be affected. Please provide a copy of the updated XOQDOQ input file.
2.3.5-5	Harvey R. B. Hoch J.	Chapter 8 of Revision 21 of the VEGP ODCM (dated October 1, 2003) presents the models used to compute the specific values of meteorological-related parameters that are referenced throughout the VEGP ODCM. ODCM Equations 8.1 and 8.3, which present the algorithms used to calculate χ/Q values for ground-level releases and elevated releases, respectively, both contain terrain recirculations factor (K_r) that were taken from Appendix A of Reference 15 (i.e., Letter to Southern Company Services from Pickard, Lowe, and Garrick, Inc., Washington, DC, April 27, 1988). (a) Please provide a copy of the terrain recirculation factors used in the VEGP ODCM. (b) Please describe the basis for the derivation of these terrain recirculation factors. (c) Please justify why the terrain recirculation factors used in the VEGP ODCM should not be used in developing the long-term (routine release) atmospheric dispersion factors presented in SSAR Section 2.3.5.
2.3.5-6	Harvey R. B. Hoch J.	Section II.D of Appendix I to 10 CFR Part 50 requires that gaseous radwaste systems for light-water-cooled nuclear power reactors include all items of reasonably demonstrated technology that, when added to the system sequentially and in order of diminishing cost-benefit return, can, for a favorable cost-benefit ratio, effect reductions in dose to the population reasonably expected to be within 50 mi of the reactor. The COL or CP applicant will be required to perform this demonstration at the COL or CP stage. Please provide annual average χ/Q and D/Q values in all 16 radial sectors from the site boundary to a distance of 50 mi from the proposed facility in accordance with Section 2.3.5 of RS-002.

Vogtle Electric Generating Plant

cc:

Mr. Jeffrey T. Gasser
Executive Vice President
Southern Nuclear Operating Company, Inc.
P.O. Box 1295
Birmingham, AL 35201-1295

Mr. Louis B. Long
Vice President Technical Support
Southern Nuclear Operating Company, Inc.
P.O. Box 1295
Birmingham, AL 35201-1295

Mr. Charles R. Pierce
ESP Project Manager
P.O. Box 1295
Birmingham, AL 35201-1295

Mr. Thomas O. McCallum
ESP Project Manager
P.O. Box 1295
Birmingham, AL 35201-1295

Mr. Steven M. Jackson
Senior Engineer - Power Supply
Municipal Electric Authority of Georgia
1470 Riveredge Parkway, NW
Atlanta, GA 30328-4684

Mr. Reece McAlister
Executive Secretary
Georgia Public Service Commission
244 Washington Street, SW
Atlanta, GA 30334

Mr. Adrian Heymer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Attorney General
Law Department
132 Judicial Building
Atlanta, GA 30334

Mr. Laurence Bergen
Oglethorpe Power Corporation
2100 East Exchange Place
P.O. Box 1349
Tucker, GA 30085-1349

Mr. Arthur H. Domby, Esquire
Troutman Sanders
Nations Bank Plaza
600 Peachtree Street, NE
Suite 5200
Atlanta, GA 30308-2216

Resident Inspector
Vogtle Plant
8805 River Road
Waynesboro, GA 30830

Mr. Paul Gunter
Director of the Reactor Watchdog Project
Nuclear Information & Resource Service
1424 16th Street, NW, Suite 404
Washington, DC 20036

Mr. Russell Bell
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. James Riccio
Greenpeace
702 H Street, NW, Suite 300
Washington, DC 20001

Mr. Jay M. Gutierrez
Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Mr. Robert E. Sweeney
IBEX ESI
4641 Montgomery Avenue
Suite 350
Bethesda, MD 20814

Ms. Vanessa E. Quinn, Chief
Radiological Emergency Preparedness Branch
Nuclear and Chemical Preparedness and Protection Division
Department of Homeland Security
1800 South Bell Street, Room 837
Crystal City-Arlington, VA 22202-3546

Mr. Paul Leventhal
Nuclear Control Institute
1000 Connecticut Avenue, NW
Suite 410
Washington, DC 20036

Mr. David Lochbaum
Union of Concerned Scientists
1707 H Street, NW
Suite 600
Washington, DC 20006-3919

Mr. Marvin Fertel
Senior Vice President
and Chief Nuclear Officer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Jim Davis
ESP Project Engineer
Southern Nuclear Company
Post Office Box 1295, BIN B056
Birmingham AL 35201

Mr. O.C. Harper IV
Vice President - Resources Planning and Nuclear Development
Geogia Power Company
241 Ralph McGill Boulevard
Atlanta, GA 30308

Ms. Bentina C. Terry
Southern Nuclear Operating Company, Inc.
Bin B-022
P.O. Box 1295
Birmingham, AL 35201-1295

Director, Consumers' Utility
Council Division
Governor's Office of Consumer Affairs
2 M.L. King, Jr. Drive
Plaza Level East; Suite 356
Atlanta, GA 30334-4600

Resident Manager
Oglethorpe Power Corporation
Alvin W. Vogtle Nuclear Plant
Electronic Mail Distribution

Mr. Thomas P. Miller
U.S. Department of Energy
Headquarters - Germantown
19901 Germantown Road
Germantown, MD 20874-1290

Mr. Joseph (Buzz) Miller
Senior Vice President
Southern Nuclear Operating Company, Inc.
P.O. Box 1295
Birmingham, AL 35201-1295

Mr. M. Stanford Blanton, Esquire
Balch and Bingham, LLP
P.O. Box 306
Birmingham, AL 35201

Ms. Sarah J. Lynch - (Meeting Notice Only)
Senior Analyst
Natural Resources and Environment
441 G Street NW
Washington, DC 20548

Email:
TOMCCALL@southernco.com
CRPIERCE@southernco.com
erg-xl@cox.net
patriciaL.campbell@ge.com
bob.brown@ge.com
mark.beaumont@wsms.com
sfrantz@morganlewis.com
ksutton@morganlewis.com
jgutierrez@morganlewis.com
tom.miller@hq.doe.gov or
tom.miller@nuclear.energy.gov
steven.hucik@ge.com
david.hinds@ge.com
James1.Beard@ge.com
chris.maslak@ge.com
jim@ncwarn.org
pshastings@duke-energy.com
ronald.hagen@eia.doe.gov
lynchs@gao.gov - (Meeting Notice Only)