

Charles R. Pierce
Regulatory Affairs Director

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

Tel 205.992.7872
Fax 205.992.7601



August 30, 2013

Docket Nos.: 50-424
50-425

NL-13-1920

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant Units 1 and 2
Response to NRC Request for Additional Information for
License Amendment Request to Revise
Technical Specification 3.7.9 Ultimate Heat Sink (UHS)

Ladies and Gentlemen:

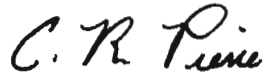
By letter dated September 1, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML112450171), Southern Nuclear Operating Company (SNC) submitted a license amendment request for a revision of Technical Specification (TS) 3.7.9 "Ultimate Heat Sink (UHS)." Subsequently, by letter dated January 11, 2012 (ADAMS Accession Number ML11355A007), the NRC submitted a request for additional information (RAI) to enable completion of the review. SNC responded to this RAI by letters dated February 10, 2012, April 30, 2012, and December 18, 2012.

By letter dated July 24, 2013, the NRC submitted an additional RAI. Southern Nuclear Operating Company responded to the RAI on August 7, 2013, and amends our response based on a conference call on August 27, 2013. The enclosure to this letter contains the amended response to that RAI.

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at (205) 992-7369.

Mr. C. R. Pierce states he is Regulatory Affairs Director 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,

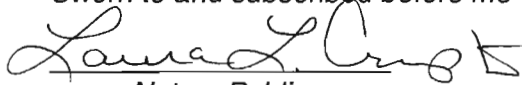


C. R. Pierce
Regulatory Affairs Director

CRP/RMJ/lac



Sworn to and subscribed before me this 30th day of August, 2013.



Laura L. Cook
Notary Public

My commission expires: 11-02-2013

Enclosure: Response to Request for Additional Information

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. T. E. Tynan, Vice President – Vogtle
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. B. J. Adams, Vice President – Fleet Operations
RType: CVC7000

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. R. E. Martin, NRR Senior Project Manager - Vogtle
Mr. L. M. Cain, Senior Resident Inspector – Vogtle

State of Georgia
Mr. J. H. Turner, Environmental Director Protection Division

Vogtle Electric Generating Plant, Units 1 & 2
Response to NRC Request for Additional Information for
License Amendment Request to Revise
Technical Specification 3.7.9 Ultimate Heat Sink (UHS)

Enclosure

Response to Request for Additional Information

RAI

Provide FSAR and TS Bases updates that clearly defines the licensing basis for tornado missile protection and tornado missile effects on the NSCW cooling towers.

RAI Response

During the original licensing of Vogtle Units 1 and 2, it was established that tornado missile protection includes inherent fan protection against direct horizontal missiles by the tower's concrete construction. The minimum height a missile would have to obtain to enter the cooling tower vertically and strike a fan is approximately 45 feet above grade, which eliminates the heavier missiles such as utility poles and automobiles from consideration. Each fan has its own opening (approximately 25 feet in diameter) so that missiles entering an opening could damage only one fan. A probabilistic study demonstrated that the frequency of tornado missiles disabling the ultimate heat sink (that is, two or more fans in the operable tower struck by missiles) is less than 10^{-7} /year. Some of the material was included in the initial FSAR. Additional information will be added to the FSAR and Technical Specification Bases as follows:

- FSAR subsection 3.5.3 "Barrier Design Procedures" will be changed to reflect language similar to the addition of the following underlined text and the deletion of the following struck through text:

The NSCW towers are inherently protected against direct horizontal missiles by the towers' concrete construction. The minimum height a missile would have to obtain to enter the cooling tower vertically and strike a fan is approximately 45 feet above grade, this eliminates heavier missiles (such as a utility pole or automobile) from consideration. Since each fan has its own opening, a single missile can damage only a single fan. A detailed probabilistic study was performed to determine the risk of the NSCW towers not being available during and following a tornado. (Note that, as stated in FSAR subsection 9.2.5.2.4, during and following a tornado, offsite power is presumed lost.) This study demonstrated that even with all incorporated conservatisms the frequency of tornado missiles disabling the NSCW system (~~loss of one tower for maintenance, and missiles disabling two or more fans in the single operating tower~~) is much lower than the acceptance criterion of 10^{-7} per year given in Standard Review Plan Section 2.2.3. Therefore, additional tornado missile protection is not required for the NSCW tower fans.

- FSAR subsection 9.2.5.1.1 "Safety Design Bases" will be changed to add an item "D" as follows:

D. The NSCW towers are designed to perform their cooling function following a loss of offsite power (LOSP) assuming the loss of one cooling tower fan from a tornado missile.

- Technical Specification Bases section B.3.7.9 “Ultimate Heat Sink (UHS)” will be changed to add the following underlined text:

Additional information on the design and operation of the system, along with a list of components served, can be found in FSAR, Subsection 3.5.3 (Ref. 4) and Subsection 9.2.5 (Ref. 1).

- and -

The operating limits are based on conservative heat transfer analyses for the worst case LOCA. Reference 1 provides the details of the assumptions used in the analysis, which include worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and worst case single active failure (e.g., single failure of a manmade structure). The operating limits also consider two fan operation resulting from a LOSP with a tornado generated missile. The UHS is designed in accordance with Regulatory Guide 1.27 (Ref. 2), which requires a 30 day supply of cooling water in the UHS.