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*Energy to Serve Your World<sup>SM</sup>*

January 30, 2008

Docket Nos.: 50-424  
50-425

NL-08-0106

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

**Vogtle Electric Generating Plant  
Supplemental Information Supporting Review of the  
Measurement Uncertainty Recapture Power Uprate Amendment Request**

Ladies and Gentlemen:

On August 28, 2007, Southern Nuclear Operating Company (SNC) submitted a request to change the licensed maximum power level for Vogtle Electric Generating Plant (VEGP) Units 1 and 2 (letter NL-07-1020). SNC proposed to increase the licensed maximum power level by 1.7% by performing a measurement uncertainty recapture power uprate (MURPU). On December 21, 2007, SNC submitted responses (letter NL-07-2346) to requests for additional information (RAI) from the NRC dated November 20, 2007, and November 29, 2007.

Subsequent to responding to the RAIs, SNC was requested to provide the NRC with the Technical Requirements that will be incorporated into the VEGP Unit 1 and Unit 2 Technical Requirements Manual (TRM), stipulating actions to be taken when the Leading Edge Flow Meter (LEFM) based calorimetric is not functional. The Technical Requirements are included in the enclosure.

The TRM is incorporated by reference in Section 16.3.9 of the VEGP Unit 1 and Unit 2 Updated Final Safety Analysis Report (UFSAR). As discussed in UFSAR Section 16.3.9, changes to the TRM are controlled by SNC in accordance with the processes in 10 CFR 50.59.

(Affirmation and signature are provided on the following page.)

L. M. Stinson states he is a 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.

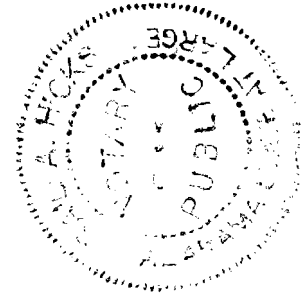
This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY



L. M. Stinson  
Vice President Fleet Operations Support



Sworn to and subscribed before me this 30<sup>th</sup> day of January, 2008.

  
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Notary Public

My commission expires: July 5, 2010

LMS/DRG/daj

Enclosure: Technical Requirement 13.3.7 Ultrasonic Mode Calorimetric

cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. T. E. Tynan, Vice President – Vogtle  
Mr. D. H. Jones, Vice President – Engineering  
RType: CVC7000

U. S. Nuclear Regulatory Commission  
Mr. V. M. McCree, Acting Regional Administrator  
Mr. S. P. Lingam, NRR Project Manager – Vogtle  
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

State of Georgia  
Mr. N. Holcomb, Commissioner – Department of Natural Resources

Vogtle Electric Generating Plant

Enclosure

Technical Requirement 13.3.7 Ultrasonic Mode Calorimetric

13.3 Instrumentation

TR 13.3.7 Ultrasonic Mode Calorimetric

TR 13.3.7 The Ultrasonic Mode Calorimetric shall be FUNCTIONAL with:

- a. The Caldon LEFM CheckPlus system FUNCTIONAL, and
- b. The Integrated Plant Computer (IPC) calorimetric (UQ1118) FUNCTIONAL.

APPLICABILITY: MODE 1 with THERMAL POWER > 3565 MWt.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LEFM CheckPlus system not FUNCTIONAL.	A.1 Switch UQ1118 calorimetric display from the Ultrasonic Mode (Ccal) to the Normalized Venturi Mode (Ncal).	Immediately
	<u>AND</u> A.2 Restore the LEFM CheckPlus system to FUNCTIONAL status.	48 hours
B. Required Actions and associated Completion Times of Condition A not met.	B.1 Switch UQ1118 calorimetric display from the Normalized Venturi Mode (Ncal) to the non-normalized Venturi Mode (Vcal).	Immediately
	<u>AND</u> B.2 Reduce reactor core power to $\leq$ 3565 MWt.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. IPC Calorimetric (UQ1118) not FUNCTIONAL for reasons other than Condition A.</p>	<p>C.1 Verify reactor core power <math>\leq 3625.6</math> MWt by ensuring the higher of average Power Range NIS or Delta-T indications <math>\leq 100</math> %RTP.</p> <p><u>AND</u></p> <p>C.2 Restore the IPC Calorimetric (UQ1118) to FUNCTIONAL status.</p>	<p>1 hour</p> <p>Prior to performing the next required power range channel calorimetric heat balance comparison per SR 3.3.1.2</p>
<p>D. Required Actions and associated Completion Times of Condition C not met.</p>	<p>D.1 Reduce reactor core power to <math>\leq 3565</math> MWt ensuring the higher of average Power Range NIS or Delta-T indications <math>\leq 98.3\%</math> RTP.</p>	<p>Immediately</p>

TECHNICAL REQUIREMENT SURVEILLANCES

SURVEILLANCE	FREQUENCY
TRS 13.3.7.1 Verify that the most recent performance of SR 3.3.1.2 is based on an Ultrasonic Mode Calorimetric (Ccal).	Prior to exceeding 3565 MWt.
TRS 13.3.7.2 Locally verify LEFM CheckPlus system FUNCTIONAL.	With LEFM CheckPlus system FUNCTIONAL, once within 4 hours with the Main Control Board (MCB) LEFM trouble annunciator illuminated or not FUNCTIONAL.  <u>AND</u>  Every 4 hours thereafter.
TRS 13.3.7.3 Perform LEFM CheckPlus electronics and system maintenance in accordance with plant procedures.	Once per 18 months
TRS 13.3.7.4 Perform calibration of instrumentation and IPC computer points to support calorimetric (UQ1118) in accordance with plant procedures.	Once per 18 months

B TR 13.3.7 Ultrasonic Mode Calorimetric

**BASES**

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The reactor core power levels discussed in this Technical Requirement (TR) are based on the reactor core power level assumed in the reactor safety analysis and the magnitude of the calorimetric power determination uncertainty which is a function of the calorimetric method.

Operation at indicated core power levels above 3565 MWt requires a calorimetric power uncertainty determination of less than 2.0%. This is only possible if the Ultrasonic Mode calorimetric (Ccal) is functional. The Ccal is unique in that it receives feedwater mass flow, feedwater temperature, and feedwater pressure inputs directly from the Caldon LEFM CheckPlus system. The LEFM system measures and transmits this data with lower uncertainty than the functionally equivalent instrumentation from the feedwater Venturi Mode calorimetric. The reduced uncertainty that is characteristic of the Ultrasonic Mode calorimetric requires a FUNCTIONAL LEFM System to provide the feedwater parameters listed above as well as a FUNCTIONAL IPC Calorimetric (UQ1118) for performing the thermal power calculations. The Normalized Venturi calorimetric (Ncal) will support operation above 3565 MWt and the required Power Range NIS channel adjustments for power level monitoring for up to 48 hours while the LEFM system is not FUNCTIONAL. Upon the expiration of the 48-hour allowed outage time, reactor core power is reduced to  $\leq 3565$  MWt. Use of a non-normalized venturi-based calorimetric does not support operation above 3565 MWt.

BASES (continued)

FUNCTIONALITY REQUIREMENTS

LEFM CheckPlus System

For this TR, "FUNCTIONAL" is defined as the ability of the system to calculate and communicate feedwater mass flow, feedwater temperature and pressure at the required uncertainty level to be used as input for the IPC Ultrasonic Mode calorimetric calculation (Ccal). The LEFM electronics package and the IPC/LEFM data link application perform extensive self monitoring and diagnostics to ensure proper operation. Conditions which impact the LEFM status, LEFM/IPC communication status, or electronics cabinet internal temperature will trigger a MCB annunciator. An available IPC screen may be reviewed to determine what condition has caused the annunciator to alarm. More detailed diagnostic information is available locally at the LEFM electronics cabinet display screen.

MCB Annunciator Condition	Discussion	LEFM System Status
LEFM/IPC Data communication link has failed	The data from the LEFM cabinet is not communicating properly to the IPC. The IPC Ultrasonic Mode for calorimetric determination is impacted. Alarm condition.	NOT FUNCTIONAL
LEFM meter in non-normal status (Alert or Failure status)	The LEFM system has experienced a failure affecting the uncertainty requirements for the Ultrasonic Mode Calorimetric. Specific cause of the status is available locally at the LEFM electronics display.	NOT FUNCTIONAL
LEFM Electronics cabinet internal temperature is above the high setpoint.	The temperature of the LEFM electronics cabinet is above the high temperature setpoint. The LEFM system can continue to meet the uncertainty requirements for the Ultrasonic Mode Calorimetric. MCB annunciator will be triggered when High Temperature limit has been exceeded to allow monitoring and corrective action prior to exceeding the Hi-Hi limit.	FUNCTIONAL

Failure to restore the LEFM CheckPlus system to FUNCTIONAL status will result in reducing the reactor core power to  $\leq 3565$  MWt.



BASES (continued)

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IPC Calorimetric (UQ1118)

For this TR, "FUNCTIONAL" condition of the IPC Calorimetric (UQ1118) is defined as the ability of the IPC to perform the following calculations for the UQ1118 thermal power indication:

1. IPC Ultrasonic Mode calorimetric calculation (Ccal) (See Note Below)
2. IPC Normalized Venturi Mode calorimetric (Ncal) calculation if in Action A.1
3. IPC non-normalized Venturi Mode calorimetric (V-cal) calculation if in Action B.1

When the IPC Calorimetric (UQ1118) is not FUNCTIONAL, reactor core power limitations for this TR are based on the higher of the average Power Range NIS or Delta-T indications. Operation at 100% power may continue until the next Tech Spec required power range channel calorimetric heat balance comparison per SR 3.3.1.2, which could be up to 24 hours from entry into Condition C. Failure to restore the IPC Calorimetric (UQ1118) to FUNCTIONAL status will result in reducing the core power to  $\leq 3565$  MWt ( $\leq 98.3\%$  RTP based on the higher of the average Power Range NIS or Delta-T indications). For the purpose of power level monitoring, adjustments of the Power Range NIS indication based on the use of a manual non-normalized venturi-based calorimetric does not support operation above 3565MWt.

Note: A condition causing the LEFM CheckPlus system to be not FUNCTIONAL (Condition A) does not require entry into Condition C.

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