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MAY 19 2015

Docket Nos.: 50-424
50-425

NL-15-0441

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

Vogtle Electric Generating Plant – Units 1 & 2
License Amendment Request to Revise the Minimum
Nitrogen Cover Pressure Specified in Technical
Specifications Surveillance Requirement 3.5.1.3

Ladies and Gentlemen:

In accordance with the provisions of 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Southern Nuclear Operating Company (SNC) is submitting a request for an amendment to the Technical Specifications (TS) for Vogtle Electric Generating Plant (VEGP) Units 1 and 2.

The proposed amendment requests a revision to the minimum indicated nitrogen cover pressure required per TS Surveillance Requirement (SR) 3.5.1.3 from the current requirement of 626 pounds per square inch gauge (psig) back to the previous requirement of 617 psig. In a letter dated July 26, 2011 from SNC to the NRC, a revision to the minimum indicated nitrogen cover pressure required per TS SR 3.5.1.3 was requested in accordance with NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety." This request was approved via NRC letter to SNC dated August 14, 2012. The revision was necessary to compensate for an increase in indication uncertainty associated with the pressure transmitters installed at that time. These transmitters have since been replaced to correct the indication problem, and the currently installed transmitters exhibit a lower uncertainty that is bounded by the original Westinghouse accident analysis on which the original TS SR 3.5.1.3 value of 617 psig was based.

Enclosure 1 to this letter provides the basis for the proposed change to the VEGP TS described above. Enclosure 2 provides the VEGP TS markup pages associated with the proposed changes, and Enclosure 3 provides the VEGP clean typed pages showing the proposed change.

SNC requests approval of the proposed license amendments by May 31, 2016. The proposed changes would be implemented within 90 days of the issuance of the amendments.

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

Mr. Chuck Pierce states he is the 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.

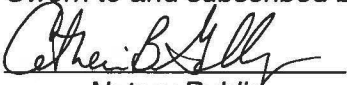
Respectfully submitted,



C. R. Pierce
Regulatory Affairs Director

CRP/EGA

Sworn to and subscribed before me this 19th day of May, 2015.


Notary Public

My commission expires: 1/2/2018

References:

1. SNC letter to the NRC dated July 26, 2011, NL-11-1004, *Vogtle Electric Generating Plant License Amendment Request to Revise the Minimum Nitrogen Cover Pressure Specified in Technical Specification Surveillance Requirement 3.5.1.3 and Make an Administrative Change to Technical Specification Surveillance Requirement 3.6.2.1*, ML112160414
2. NRC letter to SNC dated August 14, 2012, *Vogtle Electric Generating Plant, Units 1 and 2, Issuance of Amendments Regarding Revising the Minimum Nitrogen Cover Pressure in Technical Specification Requirement 3.5.1.3 (TAC Nos. ME6759 and Me6760)*, ML12219A056

- Enclosures:
1. Evaluation of Proposed Change
 2. Technical Specifications Markup Pages
 3. Technical Specifications Clean Typed Pages



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cc: Southern Nuclear Operating Company

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Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer

Mr. D. R. Madison, Vice President – Fleet Operations

Mr. M. D. Meier, Vice President – Regulatory Affairs

Mr. B. K. Taber, Vice President – Vogtle 1 & 2

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Mr. G. W. Gunn, Regulatory Affairs Manager – Vogtle 1 & 2

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U. S. Nuclear Regulatory Commission

Mr. V. M. McCree, Regional Administrator

Mr. R. E. Martin, NRR Senior Project Manager – Vogtle 1 & 2

Mr. L. M. Cain, Senior Resident Inspector – Vogtle 1 & 2

State of Georgia

Mr. J. H. Turner, Director- Environmental Protection Division

**Vogtle Electric Generating Plant – Units 1 & 2
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Enclosure 1

Evaluation of Proposed Change

1. SUMMARY DESCRIPTION

This evaluation supports a request to amend Operating Licenses NPF-68 and NPF-81 for Vogtle Electric Generating Plant (VEGP).

The proposed change would revise the Operating Licenses to amend the VEGP Technical Specifications (TS) Surveillance Requirement (SR) 3.5.1.3 by changing the minimum nitrogen cover pressure for the Safety Injection (SI) accumulators of 626 pounds per square inch gauge (psig) to 617 psig.

By letter dated July 26, 2011, Southern Nuclear Operating Company (SNC) requested a revision to the minimum indicated nitrogen cover pressure required per TS SR 3.5.1.3 in accordance with NRC Administrative letter 98-10, "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety." This request was approved via NRC letter to SNC dated August 14, 2012. The revision was a necessary interim change to compensate for an increase in the indication uncertainty associated with the pressure transmitters installed at that time. These transmitters were replaced to correct the indication problem, and the currently installed transmitters exhibit a lower uncertainty that is bounded by the Westinghouse accident analysis on which the previous TS SR 3.5.1.3 value of 617 psig was based.

SNC requests approval of the proposed license amendments by April 30, 2016. The proposed changes would be implemented within 90 days of the issuance of the amendments.

2. DETAILED DESCRIPTION

The proposed change would revise the minimum indicated nitrogen cover pressure in TS SR 3.5.1.3. The current TS 3.5.1 "Accumulators," SR 3.5.1.3 states:

"Verify nitrogen cover pressure in each accumulator
is ≥ 626 psig and ≤ 678 psig."

The proposed change would revise SR 3.5.1.3 to state:

"Verify nitrogen cover pressure in each accumulator
is ≥ 617 psig and ≤ 678 psig."

The proposed change would decrease the minimum indicated nitrogen cover pressure value from 626 psig to 617 psig. The values for the nitrogen cover pressure specified in SR 3.5.1.3 are indicated values as read on the main control board (MCB) indication.

As noted in the summary description above, the minimum nitrogen cover pressure was revised from 617 psig to 626 psig per NRC letter dated August 14, 2012. As described in the License Amendment Request (LAR) for this change, submitted July 26, 2011, this revision was requested as an interim measure to compensate for an increase in the uncertainty associated with the accumulator nitrogen cover pressure indication instrumentation, from the transmitter to the main control board (MCB) indication.

The 2011 LAR was submitted because a specific production batch of Veritrak/Tobar transmitters was shown to exhibit a Temperature Compensation (T/C) shift effect of

1.58%. Of the sixteen pressure transmitters installed in VEGP Units 1&2, fifteen were Veritrak/Tobar transmitters. Due to an inability to determine if the installed transmitters were part of the production batch in question, a conservative decision was made to increase the TS minimum indicated value. Subsequent to the issuance of that amendment, the higher uncertainty transmitters were replaced with a different model, which was also evaluated. As a result of the transmitter replacement, the uncertainty of the affected instrumentation was restored to the value assumed in the Westinghouse accident analysis. Therefore, a decrease of the indicated minimum nitrogen pressure value specified in the TS is requested.

Only the minimum nitrogen cover pressure is affected by the accumulator pressure indication instrumentation uncertainty. The minimum nitrogen cover pressure is assumed in the safety analyses as discussed in Section 3 below. The maximum accumulator nitrogen cover pressure is not assumed in the safety analyses and only serves to prevent accumulator relief valve actuation. The relief valve setpoint is 700 psig. The current SR 3.5.1.3 indicated maximum pressure value of 678 psig has been shown, by operating experience, to be sufficient to prevent accumulator relief valve actuation.

There are no TS Bases changes corresponding with the TS changes described above.

3. TECHNICAL EVALUATION

The SI accumulators are pressure vessels partially filled with borated water and pressurized with nitrogen gas. During normal operation each accumulator is isolated from the Reactor Coolant System (RCS) by two check valves in series. Should the RCS pressure fall below the accumulator pressure, the check valves open and borated water is forced into the RCS. One accumulator is attached to each of the cold legs of the RCS. Mechanical operation of the swing-disc check valves is the only action required to open the injection path from the accumulators to the core via the cold legs.

Connections are provided for remotely adjusting the level and boron concentration of the borated water in each accumulator during normal plant operation as required. The accumulator water level may be adjusted either by draining to the Refueling Water Storage Tank (RWST) or by pumping borated water from the RWST to the accumulator. Additionally, the accumulator pressure is maintained by a supply of nitrogen gas and can be adjusted as required during normal plant operation. However, the accumulators are normally isolated from this nitrogen supply. Gas relief valves on the accumulators protect them from pressures in excess of design pressure. Both the accumulator level and pressure are monitored by indicators and alarms. The operator can take action as required to maintain plant operation within the requirements of the TS 3.5.1, "Accumulators."

As discussed in the July 26, 2011 LAR, a T/C shift bias of 1.58% was added during an uncertainty calculation reconstitution for Veritrak/Tobar accumulator pressure transmitters. The revised uncertainty calculation for the accumulator nitrogen pressure indication instrumentation (from the transmitter to the MCB indication) resulted in an uncertainty value of 28.8 psi. The accumulator pressure assumed in the large and small break Loss of Coolant Accident (LOCA) analyses is 596.6 psig, with an uncertainty value of 20.4 psi. The previous TS value of 617 psig specified for the minimum indicated accumulator pressure was based on the LOCA analyses assumptions (i.e., 596.6 psig + 20.4 psi). Therefore, the revised accumulator pressure indication instrumentation uncertainty was the basis for modifying the TS required minimum indicated value of 617 psig to 626 psig (617 psig + 8.4

psi, rounded up to 626 psig) because it was non-conservative by 8.4 psi (28.8 psi- 20.4 psi) with respect to the assumptions in the large and small break LOCA analyses. The large and small break LOCAs are the DBAs that establish the acceptance limits for the accumulators. These DBA analyses are performed at the minimum accumulator nitrogen cover pressure.

The Veritak/Tobar accumulator pressure transmitters discussed above were replaced with Rosemount pressure transmitters during Unit 1 Refueling Outage 17 (1R17) and Unit 2 Refueling Outage 16 (2R16) in 2012 and 2013, respectively. The revised uncertainty calculation for the accumulator nitrogen pressure indication instrumentation, also mentioned above, included analyses of Veritak/Tobar transmitters with the T/C shift bias of 1.58%, Veritak/Tobar transmitters without the T/C shift bias of 1.58%, and Rosemount transmitters (also without the T/C bias of 1.58%). The conclusion of this calculation stated that the Veritak/Tobar transmitters without the T/C shift bias as well as the Rosemount transmitters were both bounded by the LOCA analyses assumptions (i.e., 596.6 psig + 20.4 psi). As such, the proposed change is consistent with the uncertainty value associated with Rosemount pressure transmitters, supporting reduction of the indicated minimum pressure value specified in the TS to the value previously specified in the TS and based on the LOCA analyses assumptions discussed above. Thus, the proposed change is acceptable because it preserves the accumulator pressure assumption in the small break LOCA DBA analyses that establish the acceptance limits for the accumulators.

4. SIGNIFICANT HAZARDS CONSIDERATION

The proposed change would revise the minimum nitrogen cover pressure specified for the accumulators in SR 3.5.1.3 from 626 to 617 psig. The proposed change is necessary to return the quantity to its previous limit since the Veritak/Tobar transmitters were replaced with Rosemount transmitters. The uncertainty associated with accumulator pressure indication using the Veritak/Tobar transmitters was compensated for by using 626 psig in SR 3.5.1.3, as implemented from the 2011 LAR.

Per 10 CFR 50.91(a), SNC has evaluated the proposed change to the VEGP TS 3.5.1 using 10 CFR 50.92 criteria. SNC has determined that there is no significant hazards consideration. An analysis of the issue of no significant hazards consideration is presented below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed amendment revises the minimum nitrogen cover pressure specified for the accumulators in SR 3.5.1.3 from 626 psig to 617 psig. The accumulators are not a precursor to any accident previously evaluated. The accumulators are used to mitigate the consequences of accidents previously evaluated. The proposed change does not affect the probability or the consequences of any accident previously evaluated. Therefore, it is concluded that the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change revises the minimum nitrogen cover pressure specified for the accumulators in SR 3.5.1.3 from 626 psig to 617 psig. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The proposed change to the requirements of the TS assures that the acceptance limits of the accumulators with respect to assumptions in the LOCA analyses continue to be met. The proposed change does not adversely affect the design function or operation of any structures, systems, and components important to safety. Therefore, it is concluded that the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change revises the minimum nitrogen cover pressure specified for the accumulators in SR 3.5.1.3 from 626 psig to 617 psig. The proposed change to the indicated accumulator nitrogen cover pressure provides assurance that the requirements of the TS continue to bound the acceptance limits of the accumulators with respect to the assumptions in the LOCA analyses. Thus the proposed change to the accumulator minimum nitrogen cover pressure assures the existing margin of safety is maintained. Therefore, it is concluded that the proposed change does not involve a significant reduction in a margin of safety.

Based upon the above analysis, SNC concludes that the proposed amendment does not involve a significant hazards consideration, under the standards set forth in 10 CFR 50.92(c), "Issuance of Amendment," and accordingly, a finding of no significant hazards.

Applicable Regulatory Requirements/Criteria

The requirements of TS 3.5.1 Accumulators ensure that the following criteria established by 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for light-Water Nuclear Power Reactors," will be met following a Loss of Coolant Accident (LOCA):

- Maximum fuel element cladding temperature is $\leq 2200^{\circ}\text{F}$;
- Maximum cladding oxidation is ≤ 0.17 times the total cladding thickness before oxidation;
- Maximum hydrogen generation from a zirconium water reaction is ≤ 0.01 times the hypothetical amount that would be generated if all of the metal in the cladding cylinders surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react; and
- Core is maintained in a coolable geometry.

The accumulator size, water volume, and nitrogen cover pressure are selected so that three of the four accumulators are sufficient to partially cover the core before

significant clad melting or zirconium water reaction can occur following a LOCA. The purpose of the accumulators is to initiate the post LOCA re-flood process while the ECCS pumps are developing the flow and head necessary to assure long term core cooling. The accumulators are assumed to be operable in both the large and small break LOCA analyses performed at full power. These are the DBAs that establish the acceptance limits for the accumulators. The large and small break LOCA analyses are performed at the minimum nitrogen cover pressure, since sensitivity analyses have demonstrated that a higher nitrogen cover pressure results in a computed peak clad temperature benefit. The maximum nitrogen cover pressure limit prevents accumulator relief valve actuation.

The proposed change would revise the accumulators' minimum nitrogen cover pressure specified in SR 3.5.1.3 from 626 psig to its previous value of 617 psig. The proposed change is acceptable since it preserves the accumulator pressure assumption in the DBA analyses that establish the acceptance limits for the accumulators.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will be in harmony with the common defense and security or to the health and safety of the public.

5. ENVIRONMENTAL CONSIDERATION


A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, and would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

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Enclosure 2

Technical Specifications Markup Pages

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each accumulator isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each accumulator is ≥ 6555 gallons and ≤ 6909 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each accumulator is ≥ 626 psig and ≤ 678 psig. 	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each accumulator is ≥ 1900 ppm and ≤ 2600 ppm.	In accordance with the Surveillance Frequency Control Program <u>AND</u> For each affected accumulator, once within 6 hours after each solution volume increase of ≥ 67 gallons, that is not the result of addition from the refueling water storage tank
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator when pressurizer pressure is > 1000 psig.	In accordance with the Surveillance Frequency Control Program

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Enclosure 3

Technical Specifications Clean Typed Pages

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each accumulator isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each accumulator is ≥ 6555 gallons and ≤ 6909 gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each accumulator is ≥ 617 psig and ≤ 678 psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each accumulator is ≥ 1900 ppm and ≤ 2600 ppm.	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>For each affected accumulator, once within 6 hours after each solution volume increase of ≥ 67 gallons, that is not the result of addition from the refueling water storage tank</p>
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator when pressurizer pressure is > 1000 psig.	In accordance with the Surveillance Frequency Control Program