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ND-17-1931
10 CFR 50.90
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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Supplement to Request for License Amendment and Exemption Regarding
Technical Specifications for Reactor Coolant System Vacuum Fill and
Inspections, Tests, Analyses, and Acceptance Criteria for Containment Floodup_
(LAR-17-027S1)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) previously requested an amendment to the combined licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (License Nos. NPF-91 and NPF-92, respectively). The requested amendment proposes changes to COL Appendix A, Technical Specifications (TS) and departures from plant-specific Tier 1 information (and associated COL Appendix C information).

SNC originally submitted this request by SNC letter ND-17-1558, dated September 25, 2017 [ADAMS Accession Number ML17268A188], and the license amendment request (LAR) was subsequently accepted for review.

Certain instrumentation function names discussed in the initial submittal have recently been changed as a result of VEGP Units 3 and 4 Amendments No. 87 (Unit 3) and No. 86 (Unit 4) [ADAMS Accession Number ML17233A104]. This supplement updates LAR-17-027 to reflect these nomenclature changes as show in Enclosures 5 and 6.

Enclosure 5 provides the applicable revised detailed description and technical evaluation for the proposed changes. Enclosure 6 provides the applicable revised markups depicting the requested changes to the licensing basis documents requiring NRC staff approval.

Note that the original exemption request is not impacted by these changes.

The supplemental information provided in Enclosures 5 and 6 does not change the scope of the original submittal, or alter the conclusions of the Significant Hazards Consideration Determination or Environmental Considerations in LAR-17-027.

This letter, including enclosures, has been reviewed and confirmed to not contain security-related information. This letter contains no regulatory commitments.

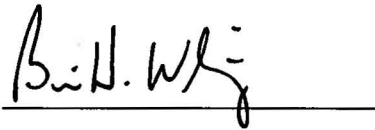
SNC requests NRC staff review and approval of the license amendment no later than March 30, 2018 (as originally requested). Approval by this date will allow sufficient time to implement licensing basis changes necessary to support procedure development in relation to conducting the necessary operator training to support plant operations. SNC expects to implement the proposed amendment within 30 days of approval of the requested changes.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this license amendment request supplement by transmitting a copy of this letter and its enclosures to the designated State Official.

Should you have any questions, please contact Mr. Wesley A. Sparkman at (205) 992-5061.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th of November 2017.

Respectfully submitted,



Brian H. Whitley
Director, Regulatory Affairs
Southern Nuclear Operating Company

- Enclosures: 1) - 4) (previously submitted with the original LAR, LAR-17-027, in SNC letter ND-17-1558)
- 5) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Supplement to Request for License Amendment Regarding Technical Specifications for Reactor Coolant System Vacuum Fill and Inspections, Tests, Analyses, and Acceptance Criteria for Containment Floodup (LAR-17-027S1)
 - 6) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Supplement to Proposed Changes to the Licensing Basis Documents (LAR-17-027S1)

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Southern Nuclear Operating Company

ND-17-1931

Enclosure 5

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Supplement to Request for License Amendment Regarding
Technical Specifications for Reactor Coolant System Vacuum Fill and
Inspections, Tests, Analyses, and Acceptance Criteria for Containment Floodup
(LAR-17-027S1)**

(This Enclosure consists of 6 pages, including this cover page.)

ND-17-1931

Enclosure 5

Supplement to Request for License Amendment Regarding TS for RCS Vacuum Fill and ITAAC for Containment Floodup (LAR-17-027S1)

Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Amendments No. 87 (Unit 3) and No. 86 (Unit 4) [ADAMS Accession Number ML17233A104] modified the Technical Specification (TS) nomenclature for the following instrumentation functions:

- TS Table 3.3.8-1, Function 15: CMT Level – Low 1 becomes CMT Level – Low 3
- TS Table 3.3.8-1, Function 16: CMT Level – Low 2 becomes CMT Level – Low 6
- TS Table 3.3.10-1, Function 1: Hot Leg Level – Low 2 becomes Hot Leg Level – Low 4
- TS Table 3.3.10-1, Function 2: Hot Leg Level – Low 1 becomes Hot Leg Level – Low 2

These changes are reflected in the following excerpts from the submittal for LAR-17-027, ND-17-1558, Enclosure 1, as **bold-underlined** text. Omitted text is indicated by *...*...*).

* ... * ... *

2. DETAILED DESCRIPTION and TECHNICAL EVALUATION

* ... * ... *

1. Group 1 Changes

* ... * ... *

Technical Evaluation

* ... * ... *

The followings changes are proposed consistent with the new definition for “VENTED”:

* ... * ... *

- Table 3.3.8-1, Function 16 (CMT Level – **Low 6**) MODE 5 Applicability is revised to add Note (h) (formerly Note (i)). Table 3.3.8-1 Note (h) is revised from “With RCS pressure boundary intact and with pressurizer level $\geq 20\%$ ” to “With RCS not VENTED.” Additionally, Function 15 (CMT Level - **Low 3**) MODE 5 Applicability is also modified by the revised Note (h) (currently Note (i)). When the RCS is not VENTED, CMT operability is required by TS 3.5.2 and TS 3.5.3, and is independent of the pressurizer level. Therefore “and with a pressurizer level $\geq 20\%$ ” has been deleted. The change from “pressure boundary intact” to “not VENTED” will require these CMT level Functions for ADS actuation when CMT OPERABILITY is required. Requiring OPERABILITY until all the required ADS stage 1, 2, and 3 flow paths are opened rather than exiting the Applicability once the first RCS opening is made (i.e., establishing RCS not intact) is a more restrictive change. These proposed changes establish consistency with the proposed Applicability for the CMT as described previously.

* * * * *

4. Changes to ESFAS Technical Specification

Design Function

* * * * *

A P-12 interlock is provided to permit mid-loop operation without CMT actuation. With pressurizer level channels less than the P-12 setpoint, the operator can manually block the Low-2 pressurizer level signal. Concurrent with blocking CMT actuation, CVS letdown isolation on RCS hot leg level **Low 2** and ADS Stage 4 actuation on RCS hot leg level **Low 4** are enabled. When the pressurizer level is above the P-12 setpoint, the pressurizer level signal is automatically enabled.

The AP1000 RCS contains level instrumentation in each hot leg with indication in the MCR. In addition to the wide-range pressurizer level instrumentation (used during cold plant operation) which provides continuous level indication in the MCR from the normal level in the pressurizer, two narrow-range hot leg level instruments are available. The hot leg level channels provide signals for CVS letdown isolation on **Low 2** level and signals for ADS stage 4 actuation and IRWST injection on **Low 4** level. Alarms are provided to alert the operator when the RCS hot leg level is approaching a low level. The CVS letdown isolation valves in the line used to reduce RCS inventory close on a low RCS level during shutdown operations. Operations required during mid-loop are performed by the operator in the MCR.

The ADS stage 4 valves are automatically opened by a signal from the protection and safety monitoring system (PMS) on a low hot leg level signal following a time delay. The IRWST injection squib valves automatically open via the same low hot leg level signal that opens the ADS stage 4 valves.

Technical Evaluation

The following revisions are proposed in COL Appendix A, TS, regarding ESFAS to improve consistency within the TS.

- a. Table 3.3.8-1, Function 15 (Core Makeup Tank (CMT) Level – **Low 3**) and Function 16 (CMT Level – **Low 6**) are not currently consistent with TS 3.5.2 and TS 3.5.3 for MODE 4. As currently written the Functions in MODE 4 require 4 channels per tank. As required by TS 3.5.2, both CMTs shall be OPERABLE in MODE 4 with the RCS not being cooled by the RNS. As required by TS 3.5.3, only one CMT is required OPERABLE in MODE 4 with the RCS cooling provided by the RNS. Therefore, TS 3.5.3 only requires the support from the 4 channels for the one required OPERABLE CMT. Therefore, the MODE 4 Applicability associated with requiring “4 channels per tank” is proposed to be modified with footnote “b” (“With the RCS not being cooled by the Normal Residual Heat Removal System (RNS)”) to align with TS 3.5.2 Applicability requiring both CMTs to be OPERABLE. Additionally, the Applicability for Functions 15 and 16 associated with requiring “4 per OPERABLE tank” is proposed to include

MODE 4 modified by footnote "d" ("With the RCS being cooled by the RNS") to align with TS 3.5.3 Applicability requiring only one CMT to be OPERABLE.

Table 3.3.8-1, Function 15 (Core Makeup Tank (CMT) Level – **Low 3**) and Function 16 (CMT Level – **Low 6**) are revised to split the MODE 4 applicability based on the "Required Channels":

- For the MODE 4 Applicability associated with requiring "4 channels per tank," Note (b) is added to MODE 4 which states "With the RCS not being cooled by the Normal Residual Heat Removal System (RNS)."
 - The associated Condition H is changed to Condition F to provide Actions that align with the applicability change.
 - For the Applicability associated with requiring "4 per OPERABLE tank," MODE 4 is added as an applicable MODE with Note (d) which states "With the RCS being cooled by the RNS."
- b. The ESFAS Functions actuated by low Pressurizer Water Level may be manually blocked during shutdown operations when the Pressurizer Water Level is reduced to below P-12. Above P-12, these functions are automatically unblocked. At the same time when the low Pressurizer Water Level Functions are manually blocked below P-12, the ADS Stage 4 actuation on Hot Leg Level – **Low 4** is enabled. Since below P-12, the manual block is permitted, but not immediately required, the transition of the active function from low Pressurizer Water Level to Hot Leg Level – **Low 4** does not occur until the block is applied. Therefore, Table 3.3.8-1 and Table 3.3.10-1 are revised to specify the manual block state (blocked or unblocked) for these two functions.
- Table 3.3.8-1, Function 7 (Pressurizer Water Level – Low 2) MODE 5 applicability is revised to add "and CMT actuation on Pressurizer Water Level – Low 2 not blocked" to Note (e) (refer to "Group 1" changes for other changes to Note (e)). Normally, the RCS will be VENTED during mid-loop operations when CMT actuation on Pressurizer Water Level – Low 2 is blocked to preclude inadvertent CMT actuation. However, during vacuum fill operations, the RCS will be made intact (i.e., not VENTED) while CMT actuation on Pressurizer Water Level – Low 2 remains blocked. This proposed change to Note (e) allows not entering the Applicability for Function 7 even when the RCS is not VENTED during the vacuum fill operation, provided the Function remains blocked. During the vacuum fill operation when Function 7 is not enabled, CMT actuation continues to be supported by the CMT manual actuation required by TS Table 3.3.9-1, Function 2. Once the RCS vacuum fill operation establishes pressurizer level above P-12, Function 7 will be reenabled, with the Applicability entered requiring OPERABILITY of Function 7.

- Table 3.3.10-1, Function 1 (Hot Leg Level – **Low 4**) MODE 5 applicability is revised to add note “With CMT actuation on Pressurizer Water Level – Low 2 blocked”. This function is only enabled when the Pressurizer Water Level – Low 2 block is inserted.
- c. Table 3.3.10-1, Function 1 (Hot Leg Level – **Low 4**) MODE 4 Applicability includes note (a) which requires “With the RCS being cooled by the RNS.” Table 3.3.10-1, Function 2 (Hot Leg Level – **Low 2**) MODE 4 applicability includes notes (a) and (c) which require “With the RCS being cooled by the RNS” and “Below the P-12 (Pressurizer Level) interlock.” Function 1 (Hot Leg Level – **Low 4**) and Function 2 (Hot Leg Level – **Low 2**) would always be blocked from actuation during MODE 4.

The RCS Hot Leg Level ESF actuations are provided for automatic protection during mid-loop operation following shutdown operations. The channels provide signals for CVS letdown isolation on **Low 2** level and for ADS stage 4 actuation and IRWST injection on **Low 4** level during shutdown operations. The CVS letdown isolation on **Low 2** level is blocked until pressurizer water level is reduced below the P-12 interlock (approximately 16% level), where it is automatically reset enabling the function. ADS stage 4 actuation and IRWST injection on Hot Leg Level – **Low 4** is blocked until the CMT actuation of Pressurizer water level Low-2 has been manually blocked, which is only permitted by the PMS logic when below the P-12 interlock. One additional restriction is applied by TS 3.4.13 for ADS stage 1, 2, and 3 flow paths, which requires their opening prior to entering the Applicability at $\leq 20\%$ pressurizer level. Opening the ADS stage 1, 2, and 3 flow paths necessitates the RCS be in cold shutdown (MODE 5) conditions. Additionally, the Pressurizer water level Low 2 function is required to be OPERABLE per TS Table 3.3.8-1, Function 7, in all of MODE 4, thereby precluding blocking the function while in MODE 4. Together, these features preclude operating with the pressurizer level below P-12 in MODE 4 (i.e., prior to achieving MODE 5). Therefore, the TS 3.3.10 Functions 1 and 2 MODE 4 Applicability (including Footnote "a") is deleted since the Functions cannot be enabled in MODE 4. Furthermore, MODE 5 is proposed to be modified with a new Footnote "a" that states: "With CMT actuation on Pressurizer Water Level - Low 2 blocked," which is consistent with the design of the PMS logic.

With these Applicability changes, the corresponding Actions are also proposed to be revised for consistency. Since Action C now only applies during MODES 5 and 6, Required Action C.2 ("Be in MODE 5") is no longer necessary or appropriate. The Completion Time for being in MODE 5 was provided as 12 hours, which is also reflected in current Required Action C.3. In removing Required Action C.2, since the plant will already be in at least MODE 5, the 12 hours is also removed from current Required Action C.3 (renumbered as C.2).

- Table 3.3.10-1, Function 1 (Hot Leg Level – **Low 4**) is revised to remove MODE 4 applicability.
 - TS 3.3.10 Required Action C.2 is deleted consistent with the change to removed MODE 4 applicability. Required Action C.3 is changed to C.2.

- TS 3.3.10 Required Action C.2 (previously C.3) is revised from “Initiate action to establish a pressurizer level $\geq 20\%$ with the RCS pressure boundary intact” to “Initiate action to establish a pressurizer level above the P-12 (Pressurizer Level) interlock.”
 - This change would also apply to TS 3.3.10 Required Action D.2, which would make Condition D identical to Condition C. Therefore, TS 3.3.10 Condition D is deleted.
 - TS 3.3.10 Conditions E and F are re-lettered D and E respectively.
 - Table 3.3.10-1, Function 1 (Hot Leg Level – **Low 4**) MODE 5 and MODE 6 are combined in one row since both now reference Condition C.
- Table 3.3.10-1, Function 2 (Hot Leg Level – **Low 2**) is revised to remove MODE 4 applicability.
 - TS 3.3.10 Required Action D.2.1 (formerly E.2.1) “Be in MODE 5” is deleted since Table 3.3.10-1, Function 2 (Hot Leg Level – **Low 2**) is only applicable in MODE 5.
 - TS 3.3.10 Required Action D.2.2 (formerly E.2.2) is renumbered as D.2.
- TS 3.3.10, Required Action E.2.2 (renumbered as “D.2”) is revised from the requirement to establish pressurizer level “ $\geq 20\%$ ” to establish pressurizer level “above the P-12 (Pressurizer Level) interlock.” This is consistent with the Applicability for Table 3.3.10-1, Function 2 MODE 5 requirement as reflected in Note (c).
- Table 3.3.10-1, Function 2 (Hot Leg Level – **Low 2**) MODE 6 applicability is revised to remove Note (c) which states “Below the P-12 (Pressurizer Level) interlock” since Note (d) also requires “With the water level < 23 feet above the top of the reactor vessel flange.” A water level 23 feet above the top of the reactor vessel flange is approximately 11 inches above the P-12 (Pressurizer Level) interlock. Therefore, Note (d) is the more conservative applicability (i.e., a higher level) and Note (c) can be removed with no functional change to the required Applicability.

The changes to the ESFAS Technical Specifications are made for consistency and clarification and do not affect the operation of the plant.

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Southern Nuclear Operating Company

ND-17-1931

Enclosure 6

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Supplement to Proposed Changes to the Licensing Basis Documents

(LAR-17-027S1)

Additions identified by blue underlined text.

~~Deletions identified by red strikethrough of text.~~

Bold-Underline reflects text revised in this Supplement

* * * indicates omitted text that is not shown.

(This Enclosure consists of 3 pages, including this cover page.)

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Table 3.3.8-1 (page 2 of 2)
 Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
15. Core Makeup Tank (CMT) Level – Low 3	1,2,3,4 ^(b)	4 per tank	H E
	4 ^(d) ,5 ^(h)	4 per OPERABLE tank	J
16. CMT Level – Low 6	1,2,3,4 ^(b)	4 per tank	H E
	4 ^(d) ,5 ^(h)	4 per OPERABLE tank	J
17. Source Range Neutron Flux Doubling	2 ^(h) ,3 ^(h) ,4 ^(h)	4	I
	5 ^(h)	4	I
18. IRWST * * *	1,2,3,4 ^(b)	4	F
	4 ^(d) ,5	4	M
	6 ^(h) (g)	4	N

* * *

* * *

- ~~(g) Above the P-10 (RCS Pressure) interlock with the RCS not being cooled by RNS.~~
- ~~(g)(h) With upper internals in place.~~
- ~~(h)(i) With RCS not VENTED pressure boundary intact and with pressurizer level ≥ 20%.~~
- ~~(i)(j) * * *~~
- ~~(k) Below the P-11 (Pressurizer Pressure) interlock.~~
- ~~(j)(k) With unborated water source flow paths not isolated.~~
- (k) Below the P-11 (Pressurizer Pressure) interlock.

COL Appendix A, Technical Specifications, Specification 3.3.10

* * *

Table 3.3.10-1 (page 1 of 1)
 Engineered Safeguards Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS
1. Hot Leg Level – Low 4	4 ^(a) , 5 ^(a) , 6 ^(b)	1 per loop	C
	6 ^(b)	1 per loop	D
2. Hot Leg Level – Low 2	4 ^(a) , 5 ^(c)	1 per loop	E D
	6 ^(d)	1 per loop	F E

(a) With [CMT actuation on Pressurizer Water Level - Low 2 blocked](#) ~~the RCS being cooled by the RNS.~~

(b) With upper internals in place [and with CMT actuation on Pressurizer Water Level - Low 2 blocked](#).

(c) Below the P-12 (Pressurizer Level) interlock.

(d) With the water level < 23 feet above the top of the reactor vessel flange.

* * *