

## Vogle PEmails

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**From:** Habib, Donald  
**Sent:** Friday, June 22, 2018 5:00 PM  
**To:** Vogtle PEmails  
**Subject:** LAR-17-037 - Draft Reviewer's Aid - Roll-up of Original LAR plus supplements  
**Attachments:** LAR-17-037\_Roll-up of Changes in S1 - S3\_NRC Copy.pdf

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**From:** Haggerty, Neil [mailto:X2NHAGGE@SOUTHERNCO.COM]  
**Sent:** Friday, June 22, 2018 4:17 PM  
**To:** Habib, Donald <Donald.Habib@nrc.gov>  
**Cc:** Sparkman, Wesley A. <WASPARKM@southernco.com>; Redd, Jason P. <JPREDD@southernco.com>; Hicks, Thomas E. <X2TEHICK@southernco.com>; Amundson, Theodore Edwin <X2TAMUNS@southernco.com>  
**Subject:** [External\_Sender] LAR-17-037 - Draft Reviewer's Aid - Roll-up of Original LAR plus supplements

Don,

On December 21, 2017, SNC submitted LAR-17-037, which included a total of eight Enclosures providing the LAR, Exemption Request, licensing basis markups, commitments, and various reviewer's aids. NRC has provided nine RAIs, of which SNC has submitted responses to eight RAIs in three supplements (S1, S2 & S3). The RAI responses also included marked up text to be incorporated into the eight Enclosures in the original LAR. As we discussed over the past few weeks, the NRC staff reviewers have requested an aid to help provide a comprehensive understanding of how all of the markups in the RAI responses will be shown in the LAR (and other Enclosures).

In response to the Staff's request, we have prepared an aid to facilitate the reviewers' understanding of how the changes are "rolled up" into the original 8 enclosures. The attached Reviewer's Aid shows the incorporation of the changes provided in the 3 supplements submitted to date, using typical Track Changes font (blue, underlined font for inserted text; red, strike-out font for deleted text). In addition, Comments are provided in the right-hand margin describing the origin of each change (i.e., SNC letter number, Enclosure, page number and the number of the RAI resulting in the change).

Note that during the preparation of this Reviewer's Aid, it was determined that some additional changes (beyond those specifically identified in the RAI responses) were required to completely and accurately depict the changes described in the RAI response. The comments pointing to these changes identify the changes as "conforming changes" and refer to the RAI response to which they conform. Also, note that the responses to three RAIs [#3 (MCB), #4 (SCVB), and #9 (SRSB)] will result in changes to Enclosure 4, which provides a flow diagram depicting the proposed departure evaluation process. This version of the Reviewer's Aid only identifies that the flow diagram, and does not show the actual changes, because it is anticipated that additional changes will be needed when the response to the last RAI (RAI LAR-17-037-2 from SEB) is submitted and agreed upon.

It is not anticipated that this Reviewer's Aid will be revised again until it is provided in final form as updated (as appropriate) enclosures to the next, and final, supplement, LAR-17-037S4.

Please provide this document to the Staff reviewers to facilitate their review of the LAR. This document does not contain SUNSI, and may be made available to the Public in ADAMS. There is no

new technical information in this Reviewer's Aid that has not already been provided to the NRC Staff in the RAI responses in S1 – S3.

Please contact me if you have any questions regarding this message or its contents.

Thank you,

*Neil Haggerty*

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**Neil Haggerty | Southern Nuclear Operating Company**

Nuclear Development Regulatory Affairs – VEGP 3&4 Licensing

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**Hearing Identifier:** Vogtle\_COL\_Docs\_Public  
**Email Number:** 307

**Mail Envelope Properties** (BY1PR09MB0935E56FA358EB8DA3D75FDC97750)

**Subject:** LAR-17-037 - Draft Reviewer's Aid - Roll-up of Original LAR plus supplements  
**Sent Date:** 6/22/2018 4:59:36 PM  
**Received Date:** 6/22/2018 4:59:44 PM  
**From:** Habib, Donald

**Created By:** Donald.Habib@nrc.gov

**Recipients:**  
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>  
Tracking Status: None

**Post Office:** BY1PR09MB0935.namprd09.prod.outlook.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	3982	6/22/2018 4:59:44 PM
LAR-17-037_Roll-up of Changes in S1 - S3_NRC Copy.pdf		1436347

**Options**  
**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 1U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Request for License Amendment:**

**Changes to Tier 2\* Departure Evaluation Process**

**(LAR-17-037)**

(This Enclosure consists of **23-24** pages, including this cover page.)

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

**Table of Contents**

1. SUMMARY DESCRIPTION
2. DETAILED DESCRIPTION
3. TECHNICAL EVALUATION
4. REGULATORY EVALUATION
  - 4.1. Applicable Regulatory Requirements/Criteria
  - 4.2. Precedent
  - 4.3. Significant Hazards Consideration
  - 4.4. Conclusions
5. ENVIRONMENTAL CONSIDERATIONS
6. REFERENCES

Draft  
Reviewer's Aid

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) hereby requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

## 1. SUMMARY DESCRIPTION

Under the current departure evaluation process applicable to Tier 2\* information described in 10 CFR Part 52, Appendix D, Paragraph VIII.B, SNC must seek prior NRC approval through a License Amendment Request (LAR) for any proposed change to Tier 2\* information, even if SNC can demonstrate that the change results in no more than a minimal impact to safety or improves safety. As the NRC staff has recently recognized in SECY-17-0075, "Planned Improvements in Design Certification Tiered Information Designations," [ADAMS Accession Number ML16196A321], "One specific lesson is that some information has been designated as Tier 2\* when other regulatory tools could have been used instead to ensure a facility is safely designed, constructed and operated. This results in licensees submitting license amendment requests (LARs) on topics that may not involve safety significant facility changes." This is consistent with SNC's experience with the Tier 2\* departure evaluation process. In order to mitigate the regulatory inefficiency associated with this issue, SNC proposes a site-specific permanent exemption and license amendment that would use new screening criteria to determine whether a proposed Tier 2\* departure would qualify to utilize the Tier 2 departure evaluation process. Qualifying Tier 2\* departures would be evaluated under the existing Tier 2 departure evaluation process. Non-qualifying Tier 2\* departures would continue to require prior NRC approval. Thus, any safety-significant Tier 2\* departure would require prior NRC approval. A diagram of the proposed process is shown in Enclosure 4.

## 2. DETAILED DESCRIPTION

The NRC issued the first Part 52 licenses to SNC VEGP Units 3 and 4 in February 2012. Changes to the licensing bases for those licenses are governed, in part, by 10 CFR Part 52, Appendix D, Paragraph VIII.B. This portion of the regulations specifies the change process for Tier 2 information and Tier 2\* information and requires NRC approval for all departures from Tier 2\* information.

However, recent Design Certification applications do not contain Tier 2\* information, in part because the level of detail contained in Tier 1 information will encompass information that might be designated as Tier 2\*, and the existing Tier 2 change process requires prior NRC approval of safety-significant departures. SNC is proposing changes to the VEGP Units 3 and 4 licensing bases regarding Tier 2\* change processes to make them functionally similar to the processes currently under development between Korea Hydro and Nuclear Power (KHNP) and the NRC as part of the Advanced Power Reactor 1400 (APR1400) design certification application.

SNC acknowledges that the Commission employed a Tier 2\* designation to capture certain significant AP1000® design information existing in Tier 2 that the Commission did not want changed without prior approval (see 71 Fed. Reg. 4474 (Jan. 27, 2006)). In SECY-17-0075, the NRC discussed the reasons for designating some Tier 2 information as Tier 2\* and indicated

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

that "...Tier 2\* information is intended to have substantial safety significance, commensurate with information designated as Tier 1." However, SECY-17-0075 suggests that the Tier 2\* scope identified in previous design certifications, such as AP1000, may be broader than necessary, and includes information more appropriately designated as Tier 2; e.g., background information and other information of minimal safety significance. Furthermore, SNC's experience has demonstrated that not every change to information designated as Tier 2\* has an impact on the safety-significant nature, if any, of the information. As such, SNC proposes to invoke a process functionally consistent with departure evaluation processes applied by current applicants for the certification of designs that contain no Tier 2\* information but have significant safety-related information contained in the Tier 1 design control document (DCD). Specifically, SNC proposes a site-specific amendment that would allow qualifying departures from Tier 2\* information to be evaluated under the existing departure evaluation process for Tier 2 departures in 10 CFR Part 52, Appendix D, Paragraphs VIII.B.5.a through VIII.B.5.e. Qualifying departures from Tier 2\* information would be determined by applying screening criteria to proposed departures from Tier 2\* information. Departures from Tier 2\* information that involve safety significance commensurate with Tier 1 information would be non-qualifying Tier 2\* departures and would continue to require prior NRC review and approval in accordance with 10 CFR Part 52, Appendix D, Paragraph VIII.B.6. Qualifying Tier 2\* departures would be evaluated under the existing Tier 2 departure evaluation process. Thus, any safety-significant Tier 2\* departures would require prior NRC approval.

Consistent with the NRC's findings in SECY-17-0075, SNC has identified several examples of departures from Tier 2\* information that were not safety-significant, but nonetheless required prior NRC approval through a LAR. Application of the Tier 2 departure evaluation process to these proposed departures would have concluded with a determination that the proposed change was not safety-significant and could therefore have been processed as a departure consistent with 10 CFR Part 52, Appendix D, Paragraph VIII.B.5.

- A figure in SNC's licensing basis included a Note specifying the design basis size and spacing of shear studs in the structural modules. However, a change to the Note was needed for consistency with design basis calculations that were previously revised and incorporated into the AP1000 generic DCD. To resolve this inconsistency, the figure needed to be changed to make the Note consistent with the design basis and clarify that spacing may be changed to satisfy the applicable codes and standards. The change had the effect of enhancing safety by reflecting the design philosophy of adherence with the specific codes and standards invoked by the licensing basis. Nevertheless, because the Note was designated as Tier 2\*, prior NRC approval was required.<sup>1</sup>
- During construction, it was discovered that the tolerances for basemat thickness would potentially not ensure a level floor. The positive tolerance needed to be expanded to improve the probability of a level surface on which to construct the Nuclear Island structures. An engineering evaluation demonstrated that the change in tolerance was

<sup>1</sup> SNC letter ND-12-0101, *Request for License Amendment: Containment Internal Structural Module Shear Stud Size and Spacing (LAR-12-001)*, dated February 14, 2012 [ADAMS Accession No. ML12047A067] and SNC letter ND-12-1399, *Revised Request for License Amendment: Structural Modules Shear Stud Size and Spacing (LAR-12-001S)*, dated March 12, 2012 [ADAMS Accession No. ML12074A180].

within the code allowance and the strength of the basemat would be maintained; however, because the tolerance was designated as Tier 2\*, prior NRC approval was required.<sup>2</sup>

- In a document incorporated by reference (IBR'd) into the Updated Final Safety Analysis Report (UFSAR) and designated as Tier 2\*, SNC had to obtain prior NRC approval to make a clarification that the phrase "ISV Facility" included identical facilities located both at Westinghouse and Vogtle, rather than just Westinghouse. Another change to this Tier 2\* document requiring prior NRC permission was needed to add two questions to a survey given to students after simulator drills.<sup>3</sup> Because the IBR'd document is designated as Tier 2\*, prior NRC approval was required.
- Several "editorial" changes, such as typing, clerical, spelling, and consistency changes, were required to Tier 2\* information to achieve consistency throughout the licensing basis. These changes affected nothing in the physical layout of the plant nor in the design function of the plant. Safety is enhanced by these kinds of changes because electronic searches of the licensing basis become more accurate. For example, a typographical inconsistency in an acronym would impede an electronic search for that acronym, as it would not yield the portion of the licensing basis containing the inconsistency; editorial changes were needed to resolve this issue.<sup>4</sup>

These examples demonstrate that although Tier 2\* information was "intended to have substantial safety significance, commensurate with information designated as Tier 1," some Tier 2\* departures are not, in fact, safety-significant. This license amendment request would allow SNC to apply screening criteria to departures from Tier 2\* information to determine whether such departures qualify to be evaluated under the Tier 2 departure evaluation process.

A Tier 2\* departure would qualify to be evaluated under the Tier 2 departure evaluation process unless the proposed departure would:

1. Involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety,
2. Result in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance,

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<sup>2</sup> SNC letter ND-12-0670, *Request for License Amendment: Nuclear Island Basemat Thickness Tolerance (LAR-12-003)*, dated April 6, 2012 [ADAMS Accession No. ML12100A185], as supplemented by SNC letter ND-12-0809, *Request for License Amendment – Supplemental Information: Nuclear Island Basemat Thickness Tolerance (LAR-12-003)*, dated April 12, 2012 [ADAMS Accession No. ML12104A323], and revised by SNC letter ND-12-0990, *Request for License Amendment: Nuclear Island Basemat Thickness Tolerance (LAR-12-003R) Revised*, dated May 7, 2012 [ADAMS Accession No. ML12130A468].

<sup>3</sup> SNC letter ND-13-0348, *Request for License Amendment: Revision to AP1000 Human Factors Engineering Integrated System Validation Plan I GEH-320 (LAR-13-001)*, dated February 15, 2013 [ADAMS Accession No. ML13050A214].

<sup>4</sup> SNC letter ND-14-1045, *Request for License Amendment: Tier 2\* Editorial and Consistency Changes (LAR-13-033)*, dated July 30, 2014 [ADAMS Accession No. ML14211A666].

3. Result in a material change to the fuel criteria evaluation process, the fuel principal design requirements, or nuclear design of fuel and reactivity control system, result in any change to the ~~of~~ maximum fuel rod average burn-up limits, or result in any change to the small break LOCA analysis methodology described in UFSAR Subsections 15.6.5.4B.2.2 or 15.6.5.4B.2.3; ~~or~~
4. Adversely affect the containment debris limits or debris screen design criteria, or
5. Result in a change to the RCP type (canned motor design).

If the screening criteria are all answered no, the proposed change would be considered a "Qualifying Change" and would be processed in accordance with the Tier 2 departure evaluation process specified in 10 CFR Part 52, Appendix D, Paragraphs VIII.B.5.a through VIII.B.5.e (See Enclosure 4 for a proposed process diagram).

To provide the NRC the opportunity to provide additional oversight of the proposed revision to the Tier 2\* departure process, SNC is proposing a regulatory commitment that would require SNC to annotate Tier 2\* departures implemented without submitting a license amendment request within departure reports submitted in accordance with 10 CFR Part 52, Appendix D, paragraphs X.B.1 and X.B.3.b. The proposed regulatory commitment is shown in Enclosure 8. This proposed regulatory commitment would be implemented coincident with the implementation of the license amendment approving this LAR, and would be applicable to Tier 2\* departures identified in departure reports submitted subsequent to the implementation of this license amendment.

To ensure the proposed qualifying Criteria reliably and predictably differentiate between Tier 2\* information with safety significance commensurate with Tier 1 and other information that does not warrant the same level of control, SNC is proposing a regulatory commitment that would require SNC to develop, implement, and maintain procedural guidance with a level of detail commensurate with the detailed implementation guidance and related bases for the proposed Criteria contained in this LAR, including additional guidance provided by SNC in the supplements to this LAR. The proposed regulatory commitment would be implemented prior to the implementation of the license amendment approving this LAR.

**Commented [HN1]:** Conforming change in response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 4).

**Commented [HN2]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 8).

**Commented [HN3]:** Conforming change in response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 3).

**Commented [HN4]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 7).

NOTE: The marked text in ND-18-0608 used the word "and" but it was subsequently determined that "or" was more appropriate.

**Commented [HN5]:** Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 3).

**Commented [HN6]:** Response to RAI LAR-17-037-6 (LB4) in LAR-17-037S3 (ND-18-0646, Enclosure 14, pg. 3).

Licensing Basis Change Descriptions:

**Proposed Licensing Basis Changes**

<u>COL License Condition</u>	<u>Description of the Proposed Change</u>
2.D.(13)	Adds new license condition 2.D.(13) to document that the licensee is exempt from the requirements of 10 CFR Part 52, Appendix D, Paragraphs II.F, VIII.B.5, and VIII.B.6 subject to the conditions and limitations set forth in Section 2.D.(13) of this license and to specify the plant-specific licensing requirements for the Tier 2*

	departure evaluation process. The elements of this process are provided in sub-paragraphs (a) and (b).
2.D.(13)(a)	Adds a new license condition sub-paragraph that defines the Tier 2* departure regulations from which SNC is exempt except when any of four screening criteria are met.
2.D.(13)(b)	Adds a new license condition sub-paragraph that allows Tier 2* departures to be evaluated under the provisions of 10 CFR Part 52, Appendix D, Section VIII.B.5 provided the conditions of the license condition are met.
UFSAR pages with a footer regarding Tier 2* information	The footer is modified to stipulate that prior NRC approval of departures from Tier 2* information may be required in accordance with the departure evaluation process specified in License Condition 2.D.(13).

### 3. TECHNICAL EVALUATION

The NRC issued the first Part 52 licenses to VEGP Units 3 and 4 in February 2012. Changes to the licensing bases for those licenses are governed, in part, by 10 CFR Part 52, Appendix D, Paragraph VIII.B. This portion of the regulations specifies the departure and change process for Tier 2 information and Tier 2\* information and requires NRC approval for all departures from Tier 2\* information.

SNC acknowledges that the Commission employed a Tier 2\* designation to capture certain significant AP1000® design information existing in Tier 2 that the Commission determined should not be changed without prior approval (see 71 Fed. Reg. 4474 (Jan. 27, 2006)). In SECY-17-0075, the NRC discussed the reasons for designating some Tier 2 information as Tier 2\* and indicated that "...Tier 2\* information is intended to have substantial safety significance, commensurate with information designated as Tier 1." However, SECY-17-0075 suggests that the Tier 2\* scope identified in previous design certifications, such as AP1000, may be broader than necessary, and includes information more appropriately designated as Tier 2; e.g., background information and other information of minimal safety significance. Furthermore, SNC's experience has demonstrated that not every change to information designated as Tier 2\* has an impact on the safety-significant nature, if any, of the information. As such, SNC proposes to invoke a process functionally consistent with departure evaluation processes applied by current applicants for the certification of designs that contain no Tier 2\* information. Specifically, SNC proposes a site-specific amendment that would use new screening criteria to determine whether a proposed Tier 2\* departure would qualify to utilize the Tier 2 departure evaluation process. Qualifying Tier 2\* departures would be evaluated under the existing Tier 2 departure evaluation process specified in 10 CFR Part 52, Appendix D, Paragraphs VIII.B.5.a through VIII.B.5.e. Non-qualifying Tier 2\* departures would continue to require prior NRC approval in accordance with 10 CFR Part 52, Appendix D, Paragraph VIII.B.6. Thus, any safety-significant Tier 2\* departure would require prior NRC approval.

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

SECY-17-0075 provides the historical basis and origins for designating information as Tier 2\*. Citing the history of the development of Tier 2\*, SECY-17-0075 explains that Tier 2\* was intended to have the same safety significance as Tier 1 information. In addition, SECY-17-0075 references SECY-96-077<sup>5</sup> which also provides insight to the origins and requirements of Tier 2\* information. Specifically, SECY-96-077 states, "Also, many codes, standards, and design processes, which were not specified in Tier 1, that are acceptable for meeting [inspections, tests, analyses, and acceptance criteria] ITAAC were specified in Tier 2. The result of these actions is that certain significant information only exists in Tier 2 and the NRC does not want this significant information to be changed without prior NRC approval." To address the issues identified in SECY-96-077, SNC performed an analysis of the Tier 2\* matters listed in 10 CFR Part 52, Appendix D, Section VIII paragraphs B.6.b and B.6.c. The analysis examined each item in terms of the following criteria:

- Is the Tier 2\* information adequately addressed in the VEGP 3 and 4 Plant-specific Tier 1 DCD or VEGP 3 and 4 Combined License (COL)? This step included a review to determine the degree to which codes, standards, and design and qualification processes, are relied upon for ITAAC acceptance criteria, but not specified in the VEGP 3 and 4 Plant-specific Tier 1 DCD.
- Would changes in the Tier 2\* information be adequately addressed by other applicable regulations, e.g., 10 CFR 50.46?
- Would a change to the Tier 2\* information have safety-significance commensurate with a change to Tier 1 information?
- Would the evaluation process defined in 10 CFR Part 52, Appendix D, paragraph VIII.B.5 consistently and reliably require prior NRC approval of a change to the Tier 2\* information?
- ~~Degree to which the Tier 2\* information is not addressed in the following but meets Tier 1 inclusion criteria:~~
  - ~~VEGP 3 and 4 Plant-specific Tier 1 Design-Control Document (DCD), or~~
  - ~~VEGP 3 and 4 Combined License (COL), or~~
  - ~~Applicable regulations, e.g., 10 CFR 50.46~~
- ~~Degree to which Codes, standards, and design and qualification process, are relied upon for ITAAC acceptance criteria, but not specified in the VEGP 3 and 4 Plant-specific Tier 1 DCD~~
- ~~Safety significance~~
- ~~Degree to which 10 CFR Part 52, Appendix D, Section VIII.B.5 would effectively evaluate a Tier 2\* departure~~

Following the evaluation process described above, SNC made the following conclusions regarding 11 of the 24 Tier 2\* matters listed in 10 CFR Part 52, Appendix D, Section VIII paragraphs B.6.b and B.6.c:

- First, a set of Tier 2\* information is already addressed in Tier 1 and thus a change to this Tier 2\* information, which would involve a change to the associated Tier 1 information, would require prior NRC approval. Therefore, neither an evaluation of safety-significance

<sup>5</sup> SECY-96-077, Certification of Two Evolutionary Designs, April 15, 1996 (ADAMS Accession No. ML003708129)

nor new evaluation criteria were considered necessary to provide assurance that changes would receive prior NRC approval.

- Second, for another set of Tier 2\* information it was concluded that a change to this information would not have safety-significance commensurate with a change to Tier 1 information. Thus, new evaluation criteria were not considered necessary for this set of Tier 2\* information.
- Third, it was determined that a change to a third set of Tier 2\* information would require a prior NRC approval under 10 CFR Part 52, Appendix D, paragraph VIII.B.5 or another regulation in a consistent and reliable manner. Thus, it was concluded that the evaluation criteria currently provided in 10 CFR Part 52, Appendix D, VIII.B.5.b or VIII.B.5.c are adequate to reliably and consistently address changes to this information and new evaluation criteria to address changes to this information were not necessary.

~~Based on the results of the analysis, 12 of the 24 Tier 2\* matters listed in 10 CFR Part 52, Appendix D, Section VIII paragraphs B.6.b and B.6.c were determined to be adequately covered by existing Tier 1 information, covered by another regulation or the combined license, or did not rise to the level of Tier 1 safety significance. The remaining 12 of the 24 Tier 2\* matters listed in 10 CFR Part 52, Appendix D, Section VIII paragraphs B.6.b and B.6.c were selected for development of additional screening criteria that would determine whether an associated Tier 2\* departure qualifies for the departure evaluation process outlined in 10 CFR Part 52, Appendix D, Section VIII.B.5. A summary of the analysis is provided in Enclosure 5. The selected matters are:~~

- Maximum fuel rod average burn-up
- Fuel principal design requirements
- Fuel criteria evaluation process
- Reactor coolant pump type.
- Small-break loss-of-coolant accident (LOCA) analysis methodology
- Screen design criteria
- Design Summary of Critical Sections
- American Concrete Institute (ACI) 318, ACI 349, American National Standards Institute/American Institute of Steel Construction (ANSI/AISC)–690, and American Iron and Steel Institute (AISI), "Specification for the Design of Cold Formed Steel Structural Members, Part 1 and 2," 1996 Edition and 2000 Supplement
- Nuclear design of fuel and reactivity control system, except burn-up limit
- Instrumentation and control system design processes, methods, and standards
- Piping design acceptance criteria
- Human factors engineering
- Steel composite structural module details

~~Based on the results of the analysis, 13 of the 24 Tier 2\* matters listed in 10 CFR Part 52, Appendix D, Section VIII paragraphs B.6.b and B.6.c were determined to be adequately covered by existing Tier 1 information, covered by another regulation or the combined license, or did not rise to the level of Tier 1 safety significance. The remaining 11 of the 24 Tier 2\* matters listed in~~

**Commented [HN7]:** Response to RAI LAR-17-037-7 (ARPB) in LAR 17-037S3 (ND-18-0646, Enclosure 15, pgs. 6 & 7)

**Commented [HN8]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 8).

**Commented [HN9]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 8).

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

~~10 CFR Part 52, Appendix D, Section VIII paragraphs B.6.b and B.6.c were selected for development of additional screening criteria that would determine whether an associated Tier 2\* departure qualifies for the departure evaluation process outlined in 10 CFR Part 52, Appendix D, Section VIII.B.5. A summary of the analysis is provided in Enclosure 5. The selected matters are:~~

- ~~• Maximum fuel rod average burn-up~~
- ~~• Fuel principal design requirements~~
- ~~• Fuel criteria evaluation process~~
- ~~• Screen design criteria~~
- ~~• Design Summary of Critical Sections~~
- ~~• American Concrete Institute (ACI) 318, ACI 349, American National Standards Institute/American Institute of Steel Construction (ANSI/AISC) 690, and American Iron and Steel Institute (AISI), "Specification for the Design of Cold Formed Steel Structural Members, Part 1 and 2," 1996 Edition and 2000 Supplement~~
- ~~• Nuclear design of fuel and reactivity control system, except burn-up limit~~
- ~~• Instrumentation and control system design processes, methods, and standards~~
- ~~• Piping design acceptance criteria~~
- ~~• Human factors engineering~~
- ~~• Steel composite structural module details~~

A set of criteria was then developed that would be used to determine the critical safety aspects of the above matters to determine whether a proposed departure from Tier 2\* could qualify to be evaluated under the departure evaluation process for Tier 2 departures outlined in Section VIII.B.5. A proposed Tier 2\* departure would not qualify to be evaluated under Section VIII.B.5, if it:

1. Involves design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety,
2. Results in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance,
3. Results in a material change to the fuel criteria evaluation process, the fuel principal design requirements, or nuclear design of fuel and reactivity control system, ~~or~~ result in any change to the maximum fuel rod average burn-up limits, or result in any change to the small break LOCA analysis methodology described in UFSAR Subsections 15.6.5.4B.2.2 or 15.6.5.4B.2.3; or
4. Adversely affects the containment debris limits or debris screen design criteria, or
- 4.5. Result in a change to the RCP type (canned motor design).

Criterion 1 represents screening criteria that were developed as a result of the analysis performed that was related to the following Tier 2\* matters:

- Design Summary of Critical Sections
- American Concrete Institute (ACI) 318, ACI 349, American National Standards Institute/American Institute of Steel Construction (ANSI/AISC)–690, and American Iron

**Commented [HN10]:** Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 3).

**Commented [HN11]:** Conforming change in response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 4).

**Commented [HN12]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 8).

**Commented [HN13]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 7). NOTE: The marked text in ND-18-0608 used the word "and" but it was subsequently determined that "or" was more appropriate.

**Commented [HN14]:** Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 3).

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

and Steel Institute (AISI), "Specification for the Design of Cold Formed Steel Structural Members, Part 1 and 2," 1996 Edition and 2000 Supplement

- Steel composite structural module details

Criterion 2 represents screening criteria that were developed as a result of the analysis performed that was related to the following Tier 2\* matters:

- Instrumentation and control system design processes, methods, and standards
- Piping design acceptance criteria
- Human factors engineering

Criterion 3 represents screening criteria that were developed as a result of the analysis performed that was related to the following Tier 2\* matters:

- Maximum fuel rod average burn-up
- Fuel principal design requirements
- Fuel criteria evaluation process
- Nuclear design of fuel and reactivity control system, except burn-up limit

Criterion 4 represents screening criteria that were developed as a result of the analysis performed that was related to the following Tier 2\* matter:

- Screen design criteria

To ensure consistent application of the evaluation criteria, the following detailed guidance would be used to perform the evaluations:

Criterion 1 (Codes and Standards) detailed guidance:

- Use of a code or standard not approved by the NRC is a deviation from a code or standard.
- Use of a later edition of a code or standard than the edition approved by the NRC is a deviation from a code or standard.
- Use of an equivalent code or standard is a deviation from a code or standard.
- Changes to design output using the approved standards and codes (e.g., structural dimensions) are not deviations provided the standard or code limit is met.
- Editorial and grammatical corrections are not deviations.
- Corrections required to achieve consistency within the document are not deviations.

Criterion 1 (Codes and Standards) Bases:

It is noted that some, but not all, codes and standards credited in the plant-specific DCD for the design or construction of the AP1000 are referenced in the VEGP Plant-specific Tier 1 DCD. Therefore, this screening criterion assures that Tier 2\* departures involving deviations from codes and standards will be submitted for prior NRC approval. It should be noted that the detailed guidance examples for Criterion 1 are more conservative than criteria that would be applied to a departure evaluated under the requirements of 10 CFR Part 52, Appendix D, Section VIII paragraph B.5 because the proposed criteria require prior NRC approval for deviations from codes and standards while regulatory guidance related to the application of paragraph B.5 allows some flexibility when evaluating deviations from codes and standards.

Criterion 2 (Design Processes) detailed guidance:

A material change affects a design process output, or method of performing a design process, or method of controlling the design process.

- The following are examples of material changes:
  - The addition, deletion, or alteration of a design process step
  - Reconfiguration of design process steps
  - Departures from regulatory guidance related to the design process
  - [Alteration of a detail that serves as the basis for acceptance in an NRC Final Safety Evaluation Report \(FSER\) related to the affected design process](#)
- The following examples are not material changes:
  - Editorial changes
  - Clarifications to improve reader understanding
  - Correction of inconsistencies within the document which are clearly discernible (e.g., between sections)
  - ~~Minor corrections to figures (e.g., correcting mislabeled items)~~
  - Changes that do not change the meaning or substance of information presented (e.g., reformatting or removing detail [as described in NEI 98-03, Revision 1, Guidelines for Updating Final Safety Analysis Reports, Section A4 \[ADAMS Accession Number ML003779028\]](#))

Criterion 2 (Design Processes) Bases:

The design processes addressed in the VEGP 3 and 4 Plant-specific Tier 1 DCD and for which some Tier 2\* information is contained in the VEGP 3 and 4 plant-specific Tier 2 DCD are:

- Diverse Actuation System (Plant-specific Tier 1 DCD, Section 2.5.1; Plant-specific Tier 2 DCD, Chapter 7);
- Protection and Safety Monitoring System (Plant-specific Tier 1 DCD, Section 2.5.2; Plant-specific Tier 2 DCD, Chapter 7);
- [Component Interface Module \(Plant-specific Tier 1 DCD, Section 2.5.2; Plant-specific Tier 2 DCD, Chapter 7\)](#);
- [Piping design acceptance criteria \(multiple system sections in the plant-specific Tier 1; plant-specific Tier 2 DCD, Subsections 3.6.2 and 3.9.3\)](#);
- Human Factors Engineering (Plant-specific Tier 1 DCD, Section 3.2; Plant-specific Tier 2 DCD, Chapter 18);

**Commented [HN15]:** Reformatted by response to RAI LAR-17-037-5 (HOIB) in LAR-17-037S3 (ND-18-0646, Enclosure 13, pg. 3).

**Commented [HN16]:** Response to RAI LAR-17-037-5 (HOIB) in LAR-17-037S3 (ND-18-0646, Enclosure 13, pg. 3).

**Commented [HN17]:** Conforming change to response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 5).

NOTE: This change was addressed for inclusion under Criterion 3; however, it was subsequently identified that identical text also needed to be inserted in this location for Criterion 2.

**Commented [HN18]:** Conforming change to response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 6).

NOTE: This change was addressed for inclusion under Criterion 3; however, it was subsequently identified that identical text also needed to be inserted in this location for Criterion 2.

**Commented [HN19]:** Response to RAI LAR-17-037-8 (ICE) in LAR-17-037S3 (ND-18-0646, Enclosure 16, pg. 3).

**Commented [HN20]:** Supplement to response to RAI LAR-17-037-1 (MEB) in LAR-17-037S2 (ND-18-0608, Enclosure 10, pg. 4).

#### Diverse Actuation System (DAS)

While paragraph B.5.b allows changes to design processes without prior NRC approval provided that the design function is not more than minimally adversely<sup>6</sup> affected, this new criterion does not allow any material change to a design process.

#### Protection and Safety Monitoring System (PMS)

UFSAR Tier 2\* information related to PMS is contained in Westinghouse WCAP reports that are incorporated by reference into the UFSAR. For the PMS, departures related to a design process as described in Westinghouse WCAPs may not be easily evaluated against the eight criteria of paragraph B.5.b; therefore, some departures may not receive prior NRC approval as required. The application of proposed Criterion 2 assures that any material departure related to PMS design processes receives prior NRC approval.

#### Component Interface Module (CIM)

UFSAR Tier 2\* information related to the CIM is contained in WCAP-17179-P (Proprietary) and WCAP-17179-NP (Non-Proprietary), which are incorporated by reference into the UFSAR. For the CIM, departures related to a design process as described in WCAP-17179-P/NP may not be easily evaluated against the eight criteria of paragraph B.5.b; therefore, some departures may not receive prior NRC approval as required. The application of proposed Criterion 2 assures that any material departure related to the CIM design processes receives prior NRC approval.

#### Piping Design Acceptance Criteria (DAC)

This UFSAR Tier 2\* text describes a design process for piping design that is used to implement an industry standard (e.g., ASME Code) or endorsed regulatory guidance. For example, as explained in UFSAR Section 3.6.2.1.1, this text defines the process for determining pipe break locations in piping designed and constructed to the requirements for Class 1 piping in the ASME Code, Section III, Division 1. Departures related to this design process may not be easily evaluated against the eight criteria of paragraph B.5.b; therefore, some departures may not receive prior NRC approval as required. The application of proposed Criterion 2 assures that any material departure related to piping DAC receives prior NRC approval.

#### Human Factors Engineering (HFE)

The UFSAR Tier 2\* information related to HFE is contained in the Westinghouse documents that are incorporated by reference into the UFSAR. For HFE, departures related to a design process as described in Westinghouse documents may not be easily evaluated against the eight criteria of paragraph B.5.b; therefore, some departures may not receive prior NRC approval as required. The application of proposed Criterion 2 assures that any material departure related to HFE design processes receives prior NRC approval.

**Commented [HN21]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 7).

NOTE: The response to the RAI said that this footnote would be moved to the first occurrence of the word "adverse" in Enclosure 1, but it was subsequently determined that the phrase "adversely affected" occurred first, and that this footnote should be inserted in this location.

**Commented [HN22]:** Response to RAI LAR-17-037-8 (ICE) in LAR-17-037S3 (ND-18-0646, Enclosure 16, pg. 4).

**Commented [HN23]:** Supplement to response to RAI LAR-17-037-1 (MEB) in LAR-17-037S2 (ND-18-0608, Enclosure 10, pg. 4).

<sup>6</sup> The use of the terms "adverse/adversely" and "design function," as used in the guidance discussions, is derived from the use of the same terms in NEI 96-07, Revision 1, *Guidelines For 10 CFR 50.59 Implementation* [ADAMS Accession Number ML003771157]. This NEI guidance provides an extensive discussion regarding how to evaluate whether a change adversely affects a design function. The term "design function" is defined in NEI 96-07, Section 3.3.

Criterion 3 (Nuclear Fuel) detailed guidance:

- A material change is any change in a method of evaluation or calculation. Note that WCAP-12488, "Westinghouse Fuel Criteria Evaluation Process" provides the fuel criteria evaluation process. This WCAP topical report describes the process and criteria that applies to changes in existing fuel designs that will not require NRC review and approval as long as these criteria are satisfied. Changes made in accordance with this WCAP are not considered material changes to the fuel criteria evaluation process, the fuel principal design requirements, the maximum fuel rod average burn-up limits, or the nuclear design of fuel and reactivity control system. The proposed Tier 2\* screening and evaluation process criterion would not permit material changes to the WCAP-12488.
- A material change to a design would be any change that has an adverse effect on a design function.
- ~~A material change is any change that would have an effect on~~ Any change to the maximum fuel rod average burn-up limits requires prior NRC approval.
- The following examples are not material changes:
  - Editorial Changes
  - Clarifications to improve reader understanding
  - Correction of inconsistencies within the document which are clearly discernible (e.g., between sections)
  - ~~Minor corrections to drawings and figures (e.g., correcting mislabeled components)~~
  - Changes that do not change the meaning or substance of information presented (e.g., reformatting or removing detail as described in NEI 98-03, Revision 1, Guidelines for Updating Final Safety Analysis Reports, Section A4 [ADAMS Accession Number ML003779028])

**Commented [HN24]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 4).

**Commented [HN25]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 5).

**Commented [HN26]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 6).

Criterion 3 (Nuclear Fuel) Bases:

The VEGP 3 and 4 Plant-specific Tier 1 DCD does not contain information related to nuclear fuel. Proposed Criterion 3 would provide assurance that material departures from Tier 2\* information related to the fuel criteria evaluation process, the fuel principal design requirements, the nuclear design of fuel and reactivity control system, or the maximum fuel rod average burn-up limits would receive prior NRC approval. It should be noted that the proposed Criterion 3 is more conservative than criteria that would be applied to a departure evaluated under 10 CFR Part 52, Appendix D, Section VIII Paragraph B.5 because proposed Criterion 3 does not apply the "no more than minimal" standard. In addition, Criterion 3 does not allow changes to methods of evaluation.

Due to the uniqueness of the AP1000 design, the use of the NOTRUMP code is considered acceptable, in part, because of the identified Tier 2\* information in Chapter 15 (two paragraphs in Subsections 15.6.5.4B.2.2 and 15.6.5.4B.2.3). The Tier 2\* information associated with NOTRUMP homogeneous sensitivity model and critical heat flux assessment during accumulator injection is considered to be safety-significant and an integral aspect of the methodology as approved for the AP1000. Therefore, any changes to that information would involve a departure from a method of evaluation described in the FSAR and require prior NRC review and approval.

**Commented [HN27]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 9).

Criterion 4 (Debris Screen) detailed guidance:

- An adverse change is any change that would be considered a non-conservative change of a debris value established in the UFSAR.
- An adverse change would be any change that changes any element of the evaluations used to determine the design of the debris screens.
- Containment resident debris limit is defined in UFSAR Subsection 6.3.2.2.7.1 (item 12).
- Fibrous debris limit is defined in UFSAR Subsection 6.3.2.2.7.1 (item 12).
- The criteria apply to departures affecting the In-Containment Refueling Water Storage Tank (IRWST) Screens and the Containment Recirculation Screens.

**Commented [HN28]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 3).

**Commented [HN29]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 5).

Application of the criteria related to debris values is demonstrated by the following examples:

Example 1:

Following a refueling outage, a review of the containment closeout inspection results reveals that the calculated total amount of resident containment debris is 135 pounds. An engineering analysis determines that the screens would still be able to meet their safety function. Consequently, a change is proposed to raise the limit in the UFSAR to 135 pounds.

The proposed departure would be evaluated against all four proposed Qualifying Criteria, and when evaluated against Qualifying Criterion 4, the evaluation would determine that the proposed departure is considered an adverse effect on containment debris limits and would require prior NRC approval before implementation. The condition would be considered adverse because any relaxation of the limit (increase in value) would be considered adverse.

Example 2:

A design change is proposed that improves the effectiveness of the screens. The engineering evaluation, using the methodology described in the UFSAR, demonstrates that the fibrous debris limit could be raised to 10 pounds. As a result, it is proposed to raise the limit in the UFSAR to 10 pounds.

The proposed departure would be evaluated against all four proposed Qualifying Criteria, and when evaluated against Qualifying Criterion 4, the evaluation would determine that the proposed departure is considered an adverse effect on the containment debris limits and require prior NRC approval before implementation. The condition would be considered adverse because any relaxation of the limit (increase in value) would be considered adverse.

Example 3:

A design change to the containment screens is proposed which would alter the size of the screens slightly. An engineering evaluation determines the screens would continue to meet their design function if the fibrous debris limit were set at  $\leq 6.0$  pounds. Consequently, it is proposed to revise the UFSAR to change the limit from  $\leq 6.6$  pounds to  $\leq 6.0$  pounds.

The proposed departure would be evaluated against all four proposed Qualifying Criteria, and when evaluated against Qualifying Criterion 4, the evaluation would determine that the proposed debris limit departure is not considered an adverse effect on the containment debris limits and would not require prior NRC approval before implementation. The condition would not be considered adverse because the revised limit is more restrictive and continues to ensure the screens meet their design function. However, the proposed departure and associated screen design change would also be evaluated against the criteria of 10 CFR Part 52, Appendix D, paragraph VIII.B.5 and it may be determined that prior NRC approval is required.

Application of the criteria related to debris screens is demonstrated by the following examples:

Example 1:

A design change is proposed to relocate a stairwell inside containment. An evaluation of the potential impacts of the design change reveals that the stairwell is credited as an intervening structure in the LOCA pipe break analysis, and a ventilation filter (which contains fibrous material) is located 40 inside diameters from the break along an axis that is a continuation of the pipe axis. Per UFSAR Subsection 6.3.2.2.7.1, the ZOI in the absence of intervening components, supports, structures, or other objects includes insulation in a cylindrical area extending out a distance equal to 45 inside diameters from the break along an axis that is a continuation of the pipe axis and up to 5 inside diameters in the radial direction from the axis. The 5 inside diameter limit in the radial direction from the pipe axis continues to be met. An engineering evaluation and testing demonstrate that the non-qualifying insulation material will not be adversely affected by the assumed pipe break. As a result, a change is proposed to revise the UFSAR ZOI limit from 45 inside diameters to 40 inside diameters in this area.

The proposed departure would be evaluated against all four proposed Qualifying Criteria, and when evaluated against Qualifying Criterion 4, the evaluation would determine that the proposed departure is considered an adverse effect on the debris screen design criteria and require prior NRC approval before implementation. The condition would be considered adverse because any relaxation of the ZOI distance (decrease in value) would be considered adverse.

Example 2:

A design change is proposed that would add a structure in the lower regions of the containment. The impact of the change would be that the maximum post-design basis accident (DBA) LOCA floodup water level would be raised to plant elevation 111.0 feet. Per UFSAR Subsection 6.3.2.2.7.1, the maximum post-DBA LOCA floodup water level is plant elevation 110.2 feet. Additional analysis reveals that no non-qualifying insulation is located below 111.0 feet. As a result, a change is proposed to revise the UFSAR maximum post-DBA LOCA floodup value to 111.0 feet.

The proposed departure would be evaluated against all four proposed Qualifying Criteria, and when evaluated against Qualifying Criterion 4, the evaluation would determine that the proposed departure is not considered an adverse effect on the containment debris screen design criteria and would not require prior NRC approval before implementation.

**Commented [HN30]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pgs. 4 - 5).

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

The condition would not be considered adverse because the revised post-DBA LOCA floodup water level is more restrictive and continues to ensure fibrous insulation material will not be introduced following a DBA LOCA. However, the proposed departure and associated design change would also be evaluated against the criteria of 10 CFR Part 52, Appendix D, paragraph VIII.B.5, and this evaluation may determine that prior NRC approval is required.

**Commented [HN31]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pgs. 6 - 7).

**Criterion 4 (Debris Screens) Bases:**

It is noted that the VEGP 3 and 4 Plant-specific Tier 1 DCD does not contain design description information related to debris screens, but detailed design information is extensively covered in ITAAC (Table 2.2.3-4), which will no longer be part of the licensing basis after the 10 CFR 52.103(g) finding. Screening Criterion 4 provides assurance that departures from Tier 2\* information that adversely affect debris screen design criteria would receive prior NRC approval. It should be noted that proposed Criterion 4 is more conservative than criteria that would be applied to a departure evaluated under 10 CFR Part 52, Appendix D, Section VIII paragraph B.5 because the proposed criterion does not allow any adverse change<sup>7</sup> versus the “no more than minimal”<sup>8</sup> standard used in paragraph B.5.b.

**Criterion 5 (Reactor Coolant Pump Type) detailed guidance:**

Tier 2\* information regarding RCP type is contained in UFSAR Subsection 5.4.1.2.2, Design Description. Any departure from the design of the RCP that would not utilize the canned motor design would meet Criterion 5 and the departure would not qualify for evaluation under paragraph B.5.b.

**Criterion 5 (Reactor Coolant Pump Type) Bases**

The VEGP 3 and 4 Plant-specific Tier 1 DCD does not contain information related to the canned motor design attributes of the RCP. Proposed Criterion 5 would provide assurance that departures from Tier 2\* information related to RCP type would receive prior NRC approval.

**Commented [HN32]:** Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 4).

Because the screening criteria would provide assurance that departures from Tier 2\* matters that are safety-significant and would meet criteria for inclusion in a Tier 1 design control document, would require prior NRC approval, the underlying intent of the Tier 2\* designation is maintained.

Should a proposed Tier 2\* departure meet any of the four criteria outlined above, then it would not qualify for application of the Tier 2 departure evaluation process and would require prior NRC approval.

Should a Tier 2\* departure qualify for evaluation under 10 CFR Part 52, Appendix D, Section VIII.B.5, and be determined to involve more than a minimal safety significance, it would continue to require prior NRC approval through the analysis in Section VIII.B.5.b through VIII.B.5.e for the reasons outlined below.

<sup>7</sup> Adverse effects are described in NEI-96-07, *Guidelines for 10 CFR 50.59 Implementation*, Revision 1 [ADAMS Accession Number ML003771157]

<sup>8</sup> The “no more than minimal” standard is described in NEI-96-07, *Guidelines for 10 CFR 50.59 Implementation*, Revision 1 [ADAMS Accession Number ML003771157]

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

Applicable codes and standards are designated in the plant-specific Tier 2 DCD portion of the VEGP Units 3 and 4 Updated Final Safety Analysis Report (UFSAR). Departures from the plant-specific Tier 2 DCD are controlled by 10 CFR Part 52, Appendix D, Section VIII.B.5. Regulatory guidance for the evaluation of departures from the UFSAR is contained in NEI 96-07, *Guidelines for 10 CFR 50.59 Implementation*, Revision 1, and NEI 96-07, Appendix C, *Guideline for Implementation of Change Processes for New Nuclear Power Plants Licensed Under 10 CFR Part 52*, Revision 0. NEI 96-07, Sections 4.3.1 and 4.3.2 state in part, "...Although this criterion allows minimal increases, licensees must still meet applicable regulatory requirements and other acceptance criteria to which they are committed (such as contained in regulatory guides and nationally recognized industry consensus standards; e.g., the ASME B&PV Code and IEEE standards). Further, departures from the design, fabrication, construction, testing and performance standards as outlined in the General Design Criteria (Appendix A to Part 50) are not compatible with a "no more than minimal increase" standard..." Because safety-significant departures from codes and standards would require prior NRC approval, the expectation for safety-significant information changes related to codes and standards to require prior NRC approval continues to be met.

Regulatory assurance related to design processes is assured through the inclusion of key design processes in the VEGP Units 3 and 4 Plant-specific Tier 1 DCD because 10 CFR Part 52, Section VIII, paragraph B.5.a requires that Tier 2 departures involving Tier 1 information receive prior NRC approval. The key design processes included in the VEGP 3 and 4 Plant-specific Tier 1 DCD that have information designated as Tier 2\* in the VEGP 3 and 4 plant-specific Tier 2 DCD are related to the Diverse Actuation System (DAS), Protection and Safety Monitoring System (PMS), [piping design acceptance criteria](#), and Human Factors Engineering (HFE).

**Commented [HN33]:** Supplement to response to RAI LAR-17-037-1 (MEB) in LAR-17-037S2 (ND-18-0608, Enclosure 10, pg. 5).

VEGP 3 and 4 Plant-specific Tier 1 DCD, Section 2.5.1, *Diverse Actuation System*, contains a description as to how the associated hardware and software is to be designed during the following life cycle stages:

- a) Development phase for hardware and any software
- b) System test phase
- c) Installation phase

Details of the design process are verified in associated inspections, tests, analyses, and acceptance criteria (ITAAC).

VEGP 3 and 4 Tier 1 Plant -specific DCD, Section 2.5.2, *Protection and Safety Monitoring System*, contains a description of the requirements for the development of associated hardware and software during the following life cycle stages.

- a) Design requirements phase, may be referred to as conceptual or project definition phase (Complete)
- b) System definition phase
- c) Hardware and software development phase, consisting of hardware and software design and implementation
- d) System integration and test phase
- e) Installation phase

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

Additional requirements listed for software design, testing and maintenance include:

- a) Software management including documentation requirements, standards, review requirements, and procedures for problem reporting and corrective action.
- b) Software configuration management including historical records of software and control of software changes.
- c) Verification and validation including requirements for reviewer independence.

Details of the design process are verified in associated inspections, tests, analyses, and acceptance criteria (ITAAC).

Various system ITAAC in the plant-specific Tier 1 DCD address piping design. For example, plant-specific Tier 1 Section 2.1.2, Reactor Coolant System, item 6 reads as follows:

Each of the as-built lines identified in Table 2.1.2-2 as designed for leak before break (LBB) meets the LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the line.

The Tier 2\* text in plant-specific Tier 2 DCD Subsections 3.6.2 and 3.9.3 define the processes (i.e., piping design acceptance criteria) necessary to implement the Tier 1 requirement. These processes define, for example, how to determine pipe break locations for ASME Code Class 1, 2 and 3 piping systems.

Tier 1 DCD, Section 3.2, *Human Factors Engineering*, contains a description of the process to be used when designing the operation and control centers system (OCS). The design description for the HFE program states in part, "The AP1000 human-system interface (HSI) will be developed and implemented based upon a human factors engineering (HFE) program. Figure 3.2-1 illustrates the HFE program elements. The HSI scope includes the design of the operation and control centers system (OCS) and each of the HSI resources. For the purposes of the HFE program, the OCS includes the main control room (MCR), the remote shutdown workstation (RSW), the local control stations, and the associated workstations for each of these centers. The HSI resources include the wall panel information system, alarm system, plant information system (nonsafety-related displays), qualified safety-related displays, and soft and dedicated controls. Minimum inventories of controls, displays, and visual alerts are specified as part of the HSI for the MCR and the RSW..."

Because departures from Tier 1 information require prior NRC approval via a license amendment request and an exemption request, and involved Tier 2 departures require prior NRC approval via a license amendment, the expectation for safety-significant information changes related to design processes to require NRC prior approval continues to be met.

The regulatory commitment which would require SNC to annotate Tier 2\* departures implemented without submitting a license amendment request within departure reports submitted in accordance with 10 CFR Part 52, Appendix D, paragraphs X.B.1 and X.B.3.b provides additional assurance that the revised departure process will be implemented correctly.

The proposed regulatory commitment that would require SNC to develop, implement, and maintain detailed procedural guidance related to how the qualifying criteria would be applied to proposed Tier 2\* departures ensures that departures from Tier 2\* information with a safety

**Commented [HN34]:** Supplement to response to RAI LAR-17-037-1 (MEB) in LAR-17-037S2 (ND-18-0608, Enclosure 10, pg. 5).

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

significance commensurate with Tier 1 will require prior NRC approval. This procedural guidance will be maintained in accordance with SNC's Commitments Management Program for as long as the license condition remains in effect.

**Commented [HN35]:** Response to RAI LAR-17-037-6 (LB4) in LAR-17-037S3 (ND-18-0646, Enclosure 14, pg. 3).

As a result, the proposed change would continue to meet NRC requirements and expectations regarding designation of safety-significant Tier 2 information as Tier 2\* and would require NRC review and approval of departures from Tier 2\* information that meet the safety significance standard.

The proposed changes do not affect any function or feature used for the prevention or mitigation of accidents or their safety analyses. No safety-related structure, system, component (SSC) or function is involved. The proposed changes neither involve nor interface with any SSC accident initiator or initiating sequence of events related to the accidents evaluated in the UFSAR, and therefore, do not have an adverse effect on any SSC design function.

The proposed changes do not affect the radiological source terms (i.e., amounts and types of radioactive materials released, their release rates, and release durations) used in the accident analyses. The equipment involved in these proposed changes does not affect safety-related equipment or any fission product barrier. No system or design function or equipment qualification is adversely affected by the proposed changes. The changes do not result in a new failure mode, malfunction, or sequence of events that could adversely affect a radioactive material barrier or safety-related equipment. The proposed changes do not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures.

This license amendment request does not affect SSCs that are used to contain, control, channel, monitor, process or release radioactive or non-radioactive materials. The types and quantities of expected effluents are not changed, and no effluent release path is adversely affected by the proposed changes. Therefore, radioactive and non-radioactive material effluents are not affected by the proposed changes.

Plant radiation zones (as described in UFSAR Section 12.3), controls under 10 CFR Part 20, and expected amounts and types of radioactive materials are not affected by the proposed changes. Therefore, individual and cumulative radiation exposures do not change.

The change activity has no adverse impact on the emergency plan or the physical security plan implementation, because there are no changes to physical access to credited equipment inside the Nuclear Island (including containment or the auxiliary building) and no adverse impact to plant personnel's ability to respond to any plant operations or security event.

#### **4. REGULATORY EVALUATION**

##### **4.1 Applicable Regulatory Requirements/Criteria**

10 CFR 52.98(f) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a combined license (COL). The proposed change involves the addition of a new COL License Condition 2.D.(13) to specify the regulatory process for evaluating departures from Plant-specific Tier 2\* matters and Tier 2 information that involves a change to or departure from Tier 2\* information, Paragraphs

VIII.B.5 and VIII.B.6 subject to the conditions and limitations set forth in new License Condition 2.D.(13). Therefore, NRC approval is required prior to making the plant-specific proposed change in this license amendment request.

#### 4.2 Precedent

None.

#### 4.3 Significant Hazards Consideration

The requested license amendment would amend, for Southern Nuclear Operating Company's (SNC's) Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Combined License (COL) Numbers NPF-91 (Unit 3) and NPF-92 (Unit 4), the departure evaluation process for qualifying departures from Tier 2\* information.

An evaluation to determine whether a significant hazards consideration is involved with the proposed amendment was completed by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

##### 4.3.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes would add a license condition that would allow use of the Tier 2 departure evaluation process for Tier 2\* departures, where such departures would not have more than a minimal impact to safety. Changing the criteria by which departures from Tier 2\* information are evaluated to determine if NRC approval is required does not affect the plant itself. Changing these criteria does not affect prevention and mitigation of abnormal events, e.g., accidents, anticipated operational occurrences, earthquakes, floods and turbine missiles, or their safety or design analyses. No safety-related structure, system, component (SSC) or function is adversely affected. The changes neither involve nor interface with any SSC accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the Updated Final Safety Analysis Report (UFSAR) are not affected. Because the changes do not involve any safety-related SSC or function used to mitigate an accident, the consequences of the accidents evaluated in the UFSAR are not affected.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

##### 4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes would add a license condition that would allow use of the Tier 2 departure evaluation process for Tier 2\* departures, where such departures

would not have more than a minimal impact to safety. The changes do not affect the safety-related equipment itself, nor do they affect equipment which, if it failed, could initiate an accident or a failure of a fission product barrier. No analysis is adversely affected. No system or design function or equipment qualification is adversely affected by the changes. This activity does not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures. In addition, the changes do not result in a new failure mode, malfunction or sequence of events that could affect safety or safety-related equipment.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety.**

Response: No.

The proposed changes would add a license condition that would allow use of the Tier 2 departure evaluation process for Tier 2\* departures, where such departures would not have more than a minimal impact to safety.

The proposed change is not a modification, addition to, or removal of any plant SSCs. Furthermore, the proposed amendment is not a change to procedures or method of control of the nuclear plant or any plant SSCs. The only impact of this activity is the application of the current Tier 2 departure evaluation process to Tier 2\* departures.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

**4.4 Conclusions**

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 not be inimical to the common defense and security or to the health and safety of the public. Pursuant to 10 CFR 50.92, the requested change does not involve a Significant Hazards Consideration.

## 5. ENVIRONMENTAL CONSIDERATIONS

The proposed changes would add a license condition that would allow use of the Tier 2 departure evaluation process for Tier 2\* departures, where such departures would not have more than a minimal impact to safety.

A review has determined that the proposed license condition requires an amendment to the COLs; however, a review of the anticipated construction and operational effects of the proposed amendment and exemption has determined that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

- (i) *There is no significant hazards consideration.*

As documented above, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." The Significant Hazards Consideration determined that (1) the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the proposed amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

- (ii) *There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.*

The proposed changes would add a license condition that establishes a departure evaluation process to determine whether site-specific departures from Tier 2\* information would have more than a minimal impact to safety. The proposed changes are unrelated to any aspect of plant construction or operation that would introduce any change to effluent types (e.g., effluents containing chemicals or biocides, sanitary system effluents, and other effluents), or affect any plant radiological or non-radiological effluent release quantities. Furthermore, the proposed changes do not affect any effluent release path or diminish the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. Therefore, it is concluded that the requested amendment does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

- (iii) *There is no significant increase in individual or cumulative occupational radiation exposure.*

The proposed changes would add a license condition that would allow use of the Tier 2 departure evaluation process for Tier 2\* departures, where such departures would not have more than a minimal impact to safety. Plant radiation zones (addressed in UFSAR Section 12.3) are not affected, and controls under 10 CFR Part 20 preclude a significant increase in occupational radiation exposure. Therefore, the requested amendment does

ND-18-0000  
Enclosure 1U  
Updated Request for License Amendment: Changes to Tier 2\* Departure Evaluation Process  
(LAR-17-037S4)

not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the requested amendment, it has been determined that anticipated construction and operational effects of the requested amendment do 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 requested amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed amendment and exemption is not required.

## 6. REFERENCES

None.

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 2U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Exemption Request:**

**Changes to Tier 2\* Departure Evaluation Process**

**(LAR-17-037S4)**

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

## 1.0 Purpose

Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests a permanent exemption from certain provisions of 10 CFR Part 52, Appendix D, "Design Certification Rule for AP1000 Design," to allow plant-specific departures from Tier 2\* matters, and from Tier 2 information that involves a change to or departure from Tier 2\* matters, identified in 10 CFR Part 52, Appendix D, Section VIII.B.6, without prior NRC approval for qualifying Tier 2\* departures.

Under the current departure evaluation process applicable to Tier 2\* information, SNC must seek prior NRC approval through a License Amendment Request (LAR) for any proposed change to Tier 2\* information, even if SNC can demonstrate that the change results in no more than a minimal impact to safety or improves safety. As stated in SECY-17-0075, "Planned Improvements in Design Certification Tiered Information Designations," [ADAMS Accession Number ML16196A321] "One specific lesson is that some information has been designated as Tier 2\* when other regulatory tools could have been used instead to ensure a facility is safely designed, constructed and operated. This results in licensees submitting license amendment requests (LARs) on topics that may not involve safety significant facility changes." Thus, although the Tier 2\* designation and associated departure evaluation process was intended to require NRC approval for "safety-significant information," in practice, the Tier 2\* departure evaluation process has resulted in LARs for departures that are not safety-significant. This is consistent with SNC's experience with the Tier 2\* departure evaluation process. In order to mitigate the regulatory inefficiency associated with this issue, SNC proposes a site-specific permanent exemption and license amendment that would apply the existing Tier 2 departure evaluation process to some proposed Tier 2\* departures and Tier 2 departures that involve a change to or departure from Tier 2\* information, provided the proposed Tier 2\* departure does not meet any of the proposed screening criteria which would exclude Tier 2\* departures of high safety significance. Application of the Tier 2 departure evaluation process and the proposed screening criteria would ensure that any safety-significant departures from Tier 2\* information would continue to require prior NRC approval, while departures that would improve safety or would result in no more than a minimal impact to safety could proceed as a departure without prior NRC approval.

The specific provisions of Appendix D from which SNC requests an exemption are:

- Section II, Definitions, paragraph F:

Paragraph II.F provides the definition of Tier 2\* as the portion of the Tier 2 information designated as such in the generic Design Control Document (DCD), which is subject to the change process in Section VIII.B.6 of Appendix D. The requested exemption would allow qualifying Tier 2\* departures based on new screening criteria to be subject to the change process in Section VIII.B.5 of Appendix D. Section VIII, Processes for Changes and Departures, Subsection B, paragraph 5.a:

Paragraph VIII.B.5.a provides the basis for which licensees may depart from Tier 2 information without NRC approval. The departure may be taken provided the departure does not involve Tier 1 information, Tier 2\* information, or the TS, or requires

ND-18-0000

Enclosure 2U

Updated Exemption Request: Changes to Tier 2\* Departure Evaluation Process (LAR-17-037S4)

a license amendment under paragraphs B.5.b or B.5.c of 10 CFR 52, Appendix D, Section VIII. The requested exemption would allow departures from Tier 2 information that involve Tier 2\* information not meeting any of the new screening criteria provided the departure did not involve a departure from Tier 1 information, the TS, or require a license amendment under Section 2.D.(13) of the license.

- Section VIII, Processes for Changes and Departures, Subsection B, Tier 2 Information, paragraph 6.b (VIII.B.6.b):

Paragraph VIII.B.6.b requires a licensee who references 10 CFR Part 52, Appendix D to obtain NRC approval prior to departing from the eight identified categories of Tier 2\* matters. (SNC was previously granted an exemption from Criterion (4), regarding Fire Areas [ADAMS Accession Number ML15191A128].) The requested exemption would allow application of the Tier 2 change process outlined in VIII.B.5 for qualifying Tier 2\* departures for the remaining seven identified categories of Tier 2\* matters, based on new screening criteria. The requested exemption does not change the list of categories of Tier 2\* matters provided in B.6.b.

- Section VIII, Processes for Changes and Departures, Subsection B, Tier 2 Information, paragraph 6.c (VIII.B.6.c):

Paragraph VIII.B.6.c refers to paragraph VIII.B.6.b for the departure process which requires a licensee who references 10 CFR Part 52, Appendix D to obtain NRC approval prior to departing from the 16 identified categories of Tier 2\* matters that will revert to Tier 2 status after the plant first achieves full power. The requested exemption would allow application of the Tier 2 change process outlined in VIII.B.5 for qualifying Tier 2\* departures based on new screening criteria. The requested exemption does not change the list of categories of Tier 2\* matters provided in paragraph B.6.c.

This request for exemption provides the technical and regulatory basis to demonstrate that 10 CFR 52.7 and §50.12 requirements are met with regards to the Tier 2\* departure evaluation process changes identified above.

## 2.0 Background

The Licensee is the holder of Combined License Nos. NPF-91 and NPF-92, which authorize construction and operation of two Westinghouse Electric Company AP1000 nuclear plants, named Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

The NRC issued the first Part 52 licenses to SNC's VEGP Units 3 and 4 in February 2012. Changes to the licensing bases for those licenses are governed, in part, by 10 CFR Part 52, Appendix D, Paragraph VIII.B. This portion of the regulations specifies the change process for Tier 2\* information and requires NRC approval for all departures from Tier 2\* information.

ND-18-0000

Enclosure 2U

Updated Exemption Request: Changes to Tier 2\* Departure Evaluation Process (LAR-17-037S4)

SNC was the first applicant to receive 10 CFR Part 52 licenses and begin construction under the 10 CFR Part 52 regulatory processes. Prior to the associated construction experience, the impact of departures to Tier 2\* information during construction could not be entirely understood. Experience has shown that more departures are needed than were initially expected.

SNC has identified several examples of departures from Tier 2\* information that were not safety-significant, but nonetheless required prior NRC approval through a LAR. Application of the Tier 2 departure evaluation process to these proposed departures would have concluded with a determination that the proposed change was not safety-significant and could therefore have been processed as a departure not requiring prior NRC approval consistent with 10 CFR Part 52, Appendix D, Section VIII paragraphs B.5.b and B.5.c. Specific details of the examples supporting this request for exemption are provided in Section 2 of the associated License Amendment Request provided in Enclosure 1 of this letter.

SNC acknowledges that the Commission employed a Tier 2\* designation to capture certain significant AP1000® design information existing in Tier 2 that the Commission did not want changed without prior approval (see 71 Fed. Reg. 4474 (Jan. 27, 2006)). In SECY-17-0075, the NRC discussed the reasons for designating some Tier 2 information as Tier 2\* and indicated that "...Tier 2\* information is intended to have substantial safety significance, commensurate with information designated as Tier 1." However, SECY-17-0075 suggests that the Tier 2\* scope identified in previous design certifications, such as AP1000, may be broader than necessary, and includes information more appropriately designated as Tier 2; e.g., background information and other information of minimal safety significance. Furthermore, SNC's experience has demonstrated that not every change to information designated as Tier 2\* has an impact on the safety-significant nature, if any, of the information. As such, SNC proposes to invoke a process functionally consistent with departure evaluation processes applied by current applicants for the certification of designs that contain no Tier 2\* information. Specifically, SNC is requesting a site-specific amendment that would allow qualifying departures from Tier 2\* information to be evaluated under the existing departure evaluation process for Tier 2 departures in 10 CFR Part 52, Appendix D, Paragraphs VIII.B.5.a through VIII.B.5.e. Qualification of Tier 2\* changes for the Tier 2 departure process would be determined by applying screening criteria to proposed changes to Tier 2\* information in order to exclude changes to Tier 2\* information that involve safety significance commensurate with Tier 1 information. Such non-qualifying Tier 2\* changes would continue to require prior NRC approval in accordance with 10 CFR Part 52, Appendix D, Paragraph VIII.B.6. Implementation of the proposed license condition requires a permanent exemption from the current provisions of 10 CFR Part 52, Appendix D, to allow plant-specific departures from Tier 2\* matters, and from Tier 2 information that involves a change to or departure from Tier 2\* matters, identified in 10 CFR Part 52, Appendix D, Paragraph VIII.B.6, without prior NRC approval.

### 3.0 Technical Justification of Acceptability

The departure evaluation process proposed by SNC would apply screening criteria to proposed Tier 2\* departures to determine if the departure would qualify to be evaluated using the Tier 2 departure evaluation criteria in 10 CFR Part 52, Appendix D, Paragraphs VIII.B.5.a through VIII.B.5.e to identify those departures that require prior NRC approval. Tier 2\* departures that do not qualify because they meet one or more of the screening criteria would continue to be submitted for prior NRC approval in accordance with 10 CFR Part 52, Appendix D, Paragraph VIII.B.6.

The new departure evaluation process for Tier 2\* departures that do not meet any of the proposed new screening criteria would be the same as existing processes governing Tier 2 information. In general, current regulations allow Tier 2 information to be changed if a departure evaluation determines that the change only results in a "minimal increase" in the frequency or severity of an adverse event. Regulations governing Tier 2 departures are contained in 10 CFR Part 52, Appendix D, Paragraph VIII.B.5, and provide the departure evaluation method used to determine if Tier 2 departures require prior NRC approval. SNC proposes to use this same departure evaluation process for qualifying Tier 2\* departures that do not meet any of the new screening criteria.

The requested exemption would only allow a change to the departure screening and evaluation process for Tier 2\* departures and would not actually implement any changes to the design, construction, or operation of the plant. The proposed change does not affect any function or feature used for the prevention and mitigation of accidents or their safety analyses. No safety-related structure, system, component (SSC) or function is involved.

The requested exemption would accomplish the goal of focusing licensee and regulator resources on the more safety-significant change activities by expanding the scope of the existing departure evaluation process in 10 CFR Part 52, Appendix D, paragraph VIII.B.5, for Tier 2 departures to apply to qualifying Tier 2\* departures and Tier 2 departures that involve departures from qualifying Tier 2\* matters. The proposed exemption and amendment also address issues discussed in the NRC's "Part 52 Implementation Self-Assessment Review Report" (July 2013) [ADAMS Accession No. ML13196A403], SECY-17-0075, "Planned Improvements in Design Certification Tiered Information Designations" [ADAMS Accession Number ML16196A321], and SECY-96-077, "Certification of Two Evolutionary Designs," April 15, 1996 [ADAMS Accession No. ML003708129].

Detailed technical justification supporting this request for exemption is provided in Section 3 of the associated License Amendment Request in Enclosure 1 of this letter.

### 4.0 Justification of Exemption

10 CFR 52.7 governs the granting of exemptions from the requirements of 10 CFR Part 52, with consideration governed by the requirements of 10 CFR 50.12. Since SNC has identified a need to deviate from 10 CFR Part 52, Appendix D regulations as discussed in Enclosure 1 of the accompanying License Amendment Request, an exemption from the regulations is needed.

ND-18-0000

Enclosure 2U

Updated Exemption Request: Changes to Tier 2\* Departure Evaluation Process (LAR-17-037S4)

10 CFR 52.7 and §50.12 state that the NRC may grant exemptions from the requirements of the regulations provided four conditions are met: 1) the exemption is authorized by law [§50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§50.12(a)(1)]; and 4) special circumstances are present [§50.12(a)(2)].

The requested exemption satisfies the criteria for granting specific exemptions, as described below.

**1. This exemption is authorized by law**

The NRC has authority under 10 CFR 52.7 and §50.12 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR 50.12 and §52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is "authorized by law," as required by 10 CFR 50.12(a)(1).

**2. This exemption will not present an undue risk to the health and safety of the public**

The proposed exemption would allow departures from Tier 2\* information using the Tier 2 departure process when those departures do not meet any of the new screening criteria. The exemption would only authorize departures from Tier 2\* information without NRC approval when those departures are determined to have no more than a minimal impact to safety. Because the exemption would allow departures from Tier 2\* information without NRC approval only after evaluation against the screening criteria defined in a new License Condition and application of the Tier 2 departure evaluation criteria, any safety-significant departures would continue to require prior NRC approval.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section II, paragraph F, and Section VIII, paragraphs B.5.a, B.6.b, and B.6.c would not present an undue risk to the health and safety of the public.

**3. The exemption is consistent with the common defense and security**

The exemption would allow a departure from Tier 2\* information without prior NRC approval only if: a. the change is qualified for the revised change process by the application of the new screening criteria; and b. it were determined that NRC approval is not required by existing departure evaluation criteria for Tier 2 information. The exemption would not alter the design, function, or operation of any plant equipment that is necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures, systems, or equipment.

Therefore, the requested exemption is consistent with the common defense and security.

#### 4. Special circumstances are present

10 CFR 50.12(a)(2) lists six "special circumstances" for which an exemption may be granted. Only one of these special circumstances need be present before granting an exemption request. In this case, two of the six "special circumstances" are present, specifically 10 CFR 50.12(a)(2)(ii) and (iii).

##### 4.1 Application would not serve the underlying purpose of the rule

10 CFR 50.12(a)(2)(ii) defines special circumstances as when "[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule." The rule under consideration is 10 CFR Part 52, Appendix D, specifically Section VIII, the departure evaluation process. Certain Tier 2 information is identified as Tier 2\* to reflect the potential safety significance of the Tier 2\* information. The NRC was specifically concerned with "certain significant information [that] only exists in Tier 2 [that] the Commission does not want [...] to be changed without prior NRC approval." 71 Fed. Reg. at 4474. Accordingly, the underlying purpose of requiring prior NRC approval for departures from Tier 2\* information is to prevent potentially safety-significant changes to plant-specific DCD Tier 2 information without prior NRC review and approval. However, compliance with 10 CFR Part 52, Appendix D, Section VIII, B.6.a., currently requires the licensee to obtain NRC approval for any change to Tier 2\* information – even those having no more than a minimal impact to safety.

Because the exemption would allow departures from Tier 2\* without NRC approval only after evaluation against the screening criteria defined in a new License Condition and application of the Tier 2 departure screening and evaluation criteria for Tier 2\* departures, any safety-significant departures would continue to require prior NRC approval.

Furthermore, the requested exemption would only allow a change to the departure screening and evaluation process for Tier 2\* departures and would not actually implement any changes to the design, construction, or operation of the plant. The proposed change does not affect any function or feature used for the prevention and mitigation of accidents or their safety analyses. No safety-related structure, system, component (SSC) or function is involved.

Therefore, application of 10 CFR 52, Appendix D, Section II, paragraph F, and Section VIII, paragraphs B.5.a, B.6.b, and B.6.c, in the particular circumstances discussed in this request, is not necessary to achieve the underlying purpose of the rule.

#### 4.2 Compliance would result in undue hardship

10 CFR 50.12(a)(2)(iii) defines special circumstances as when “[c]ompliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.” The NRC’s goal was to identify only that significant information for which prior approval was required if changes were proposed to be made. It follows then that the NRC’s assessment of the compliance obligation for licensees related to the Tier 2\* designation would be limited to those instances involving safety-significant departures from this Tier 2\* information.

The current departure evaluation process has no mechanism whereby departures that have minimal bearing on the safety-significant nature of Tier 2\* information can be made without NRC approval. Compliance imposes significant costs and delay, both to SNC and to the NRC, without a corresponding benefit. The requested exemption would accomplish the goal of focusing licensee and regulator resources on the more safety-significant change activities by expanding the scope of the existing departure evaluation process in 10 CFR Part 52, Appendix D, VIII.B.5, for Tier 2 departures to apply to qualifying Tier 2\* departures and Tier 2 departures that involve departures from qualifying Tier 2\* matters; thereby minimizing any undue hardship associated with the current requirement for prior NRC approval of any change to Tier 2\* information, regardless of its safety-significance.

Therefore, compliance with 10 CFR Part 52, Appendix D, Section II, paragraph F, and Section VIII, paragraphs B.5.a, B.6.b, and B.6.c, in the particular circumstances discussed in this request, would result in undue hardship.

#### 5.0 Risk Assessment

A risk assessment was determined to be not applicable to address the acceptability of this request.

#### 6.0 Precedent Exemptions

The NRC has long used screenings and evaluations as a regulatory tool; e.g., 10 CFR 50.59. The change process for Tier 2 information has been effective at ensuring that departures that would result in more than a minimal impact to safety require prior NRC approval through an LAR. SNC proposes to use the same departure evaluation process for departures from Tier 2\* information that do not meet any of the criteria specified in new License Condition 2.D.(13). SNC’s proposal is consistent with the statement in the NRC’s *Principles of Good Regulation*, “Regulatory activities should be consistent with the degree of risk reduction they achieve.”

## 7.0 Environmental Consideration

The Licensee requests a permanent exemption from certain provisions of 10 CFR Part 52, Appendix D, *Design Certification Rule for AP1000 Design*, to allow the application of screening and the existing Tier 2 departure evaluation process to proposed Tier 2\* departures and departures from Tier 2 information that involves a change to or departure from Tier 2\* matters, and that do not meet any of the criteria of new License Condition 2.D.(13). However, the Licensee evaluation of the proposed exemption has determined that the proposed exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Based on the above review of the proposed exemption, the Licensee has determined that the proposed activity 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 exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed exemption is not required.

Specific details of the environmental considerations supporting this request for exemption are provided in Section 5 of the associated License Amendment Request provided in Enclosure 1 of this letter.

## 8.0 Conclusion

The proposed changes to the COL allow the application of screening criteria to identify Tier 2\* departures that require prior NRC approval, followed by application of the existing Tier 2 departure evaluation process to the remaining plant-specific Tier 2\* departures that do not meet any of the screening criteria defined in new License Condition 2.D.(13) and departures from Tier 2 information that involve departures from this same Tier 2\* matter. The exemption request meets the requirements of 10 CFR 52.7, *Specific exemptions* and 10 CFR 50.12, *Specific exemptions*. Specifically, the exemption request meets the criteria of 10 CFR 50.12(a)(1) in that the request is authorized by law, presents no undue risk to public health and safety, and is consistent with the common defense and security. Furthermore, approval of this request does not result in a significant decrease in the level of safety, satisfies the underlying purpose of the AP1000 Design Certification Rule, and would not perpetuate undue hardship to the Licensee.

## 9.0 References.

None.

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 3U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Proposed Changes to Licensing Basis Documents**

**(LAR-17-037S4)**

Insertions Denoted by **Blue Underline** and Deletions by **~~Red-Strikethrough~~**  
Omitted text is identified by three asterisks ( \* \* \* )

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

**Revise Combined License (COL) License Condition 2.D, by adding new condition (13), to address the Tier 2\* Change Process, as follows:**

- D. The license is subject to, and SNC shall comply with, the conditions specified and incorporated below:

\* \* \*

(13) Departures from Plant-specific DCD Tier 2\* Information

- (a) SNC is exempt from the requirements of 10 CFR Part 52, Appendix D, Paragraphs II.F and VIII.B.6 that invoke the Tier 2\* change process that requires prior NRC approval via a license amendment for departures from Tier 2\* information; and Paragraph VIII.B.5.a for Tier 2 information that involves a change to, or departure from, Tier 2\* information; except for departures from Tier 2\* information that:
1. Involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety.
  2. Result in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance.
  3. Result in a material change to the fuel criteria evaluation process, the fuel principal design requirements, or nuclear design of fuel and reactivity control system; ~~or~~ result in any change to the maximum fuel rod average burn-up limits; or result in any change to small break LOCA analysis methodology described in UFSAR Subsections 15.6.5.4B.2.2 or 15.6.5.4B.2.3, ~~or~~
  4. Adversely affect the containment debris limits or debris screen design criteria, ~~or~~
  5. Result in a change to the RCP type (canned motor design).
- (b) The licensee may depart from the Tier 2\* matters identified in VIII.B.6 b and VIII.B.6.c, except as described in License Condition 2.D.(13)(a), using the provisions of Paragraph VIII.B.5 for Tier 2 departures.

**Commented [HN36]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 4).

**Commented [HN37]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 9).

**Commented [HN38]:** Conforming change for response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 8).

**Commented [HN39]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 8).

NOTE: The marked text in ND-18-0608 used the word "and" but it was subsequently determined that "or" was more appropriate.

**Commented [HN40]:** Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 4).

ND-18-0000  
Enclosure 3U  
Updated Proposed Changes to Licensing Basis Documents (LAR-17-037S4)

**Revise Updated Final Safety Analysis Report page footers that contain a Tier 2\* note as follows:**

\*In accordance with the departure evaluation process specified in License Condition 2.D.(13), NRC Staff approval ~~is~~ may be required prior to implementing a change in this information.

Draft  
Reviewer's Aid

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 4U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

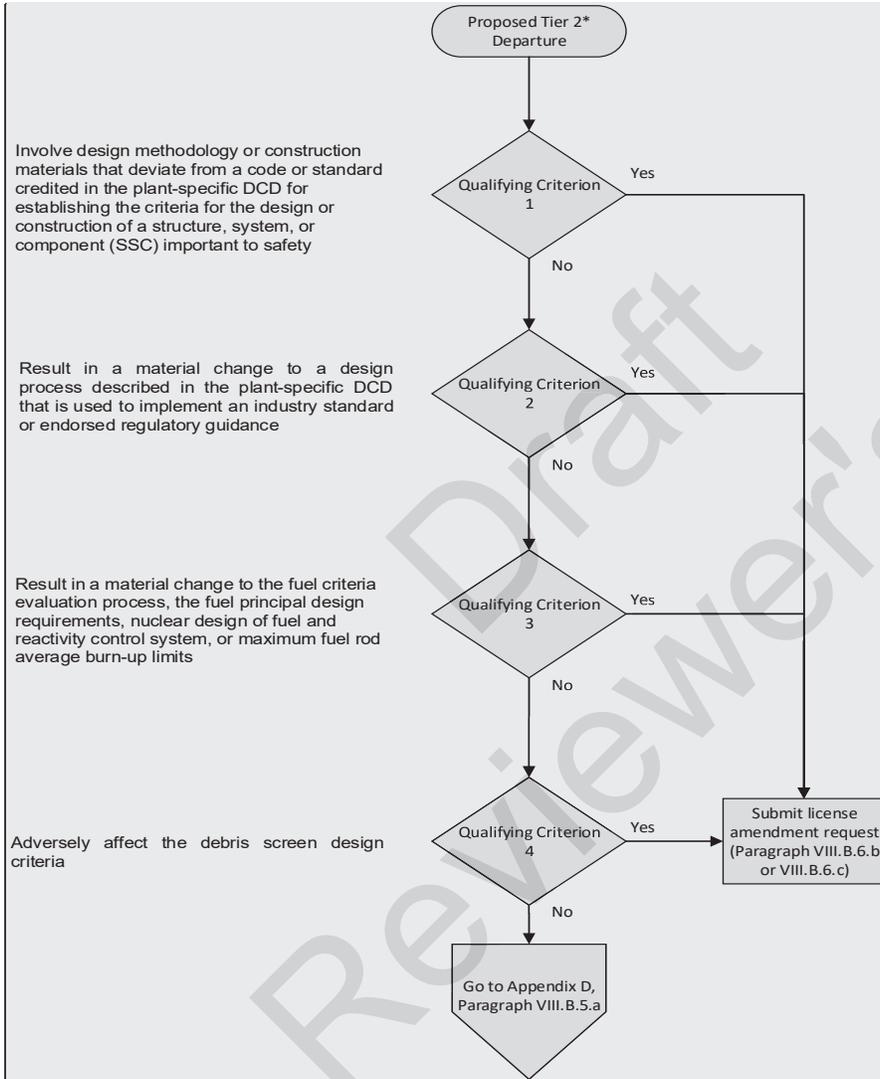
**Updated Reviewer's Aid**

**Proposed Tier 2\* Departure Evaluation Process**

**(LAR-17-037S4)**

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

Proposed Departure Evaluation Process



**Commented [HN41]:** Add decision box for Qualifying Criterion 5 – RCPs

Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 4).

**Commented [HN42]:** Revise decision box for Qualifying Criterion 3 – Fuel

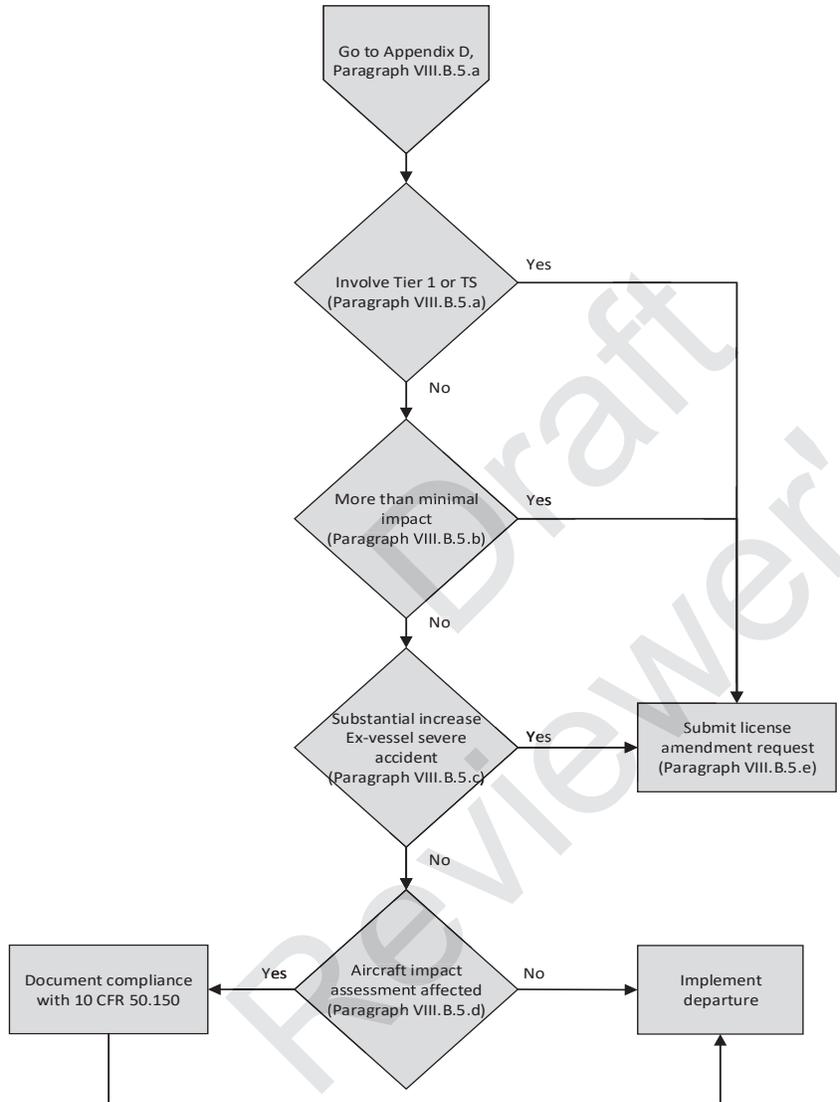
Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pgs. 4 & 9).

**Commented [HN43]:** Revise decision box for Qualifying Criterion 4 – Screens

Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 8).

NOTE: The marked text in ND-18-0608 used the word "and" but it was subsequently determined that "or" was more appropriate.

Proposed Departure Evaluation Process



**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 5U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Reviewer's Aid**

**Tier 2\* Matters Analysis Summary**

**(LAR-17-037S4)**

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

Tier 2\* Analysis Results

Section VIII.B.6.b (Tier 2* Matters that Do Not Expire at Full Power)	Selected for additional screening	Basis	Associated Criteria
1	Yes	Not addressed in Tier 1	<p>Maximum fuel rod average burn-up.</p> <p>Result in a material change to the fuel criteria evaluation process, the fuel principal design requirements, nuclear design of fuel and reactivity control system, of maximum fuel rod average burn-up limits. Result in ... any change to the maximum fuel rod average burn-up limits.</p>
2	Yes	Not addressed in Tier 1	<p>Fuel principal design requirements.</p> <p>Result in a material change to ... the fuel principal design requirements. ... Result in a material change to the fuel criteria evaluation process, the fuel principal design requirements, nuclear design of fuel and reactivity control system, of maximum fuel rod average burn-up limits.</p>
3	Yes	Not addressed in Tier 1	<p>Fuel criteria evaluation process.</p> <p>Result in a material change to the fuel criteria evaluation process. ... Result in a material change to the fuel criteria evaluation process, the fuel principal design requirements, nuclear design of fuel and reactivity control system, of maximum fuel rod average burn-up limits.</p>
4	N/A	Previous exemption re-designated VEGP 3 and	N/A

**Commented [HN44]:** Conforming change in response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 4).

Section VIII.B.6.b (Tier 2* Matters that Do Not Expire at Full Power)	Selected for additional screening	Basis	Associated Criteria
5	Reactor coolant pump type.	4 fire area figures as Tier 2  <del>Adequately</del> Not addressed in Tier 1	N/A Result in a change to the RCP type (canned motor design).
6	Small-break loss-of-coolant accident (LOCA) analysis methodology.	<del>No</del> Yes  <del>40-CFR 50.46 and adequately addressed by paragraph VIII.B.5</del> Safety significance	N/A Result in ... any change to small break LOCA analysis methodology described in UFSAR Subsections 15.6.5.4B.2.2 or 15.6.5.4B.2.3.
7	Screen design criteria.	Yes  Paragraph VIII.B.5 may not work well in all cases; safety significance	Adversely affect the containment debris limits or debris screen design criteria.
8	Heat sink data for containment pressure analysis.	No  Adequately addressed by paragraph VIII.B.5	N/A

**Commented [HN45]:** Response to RAI LAR-17-037-3 (MCB) in LAR 17-037S2 (ND-18-0608, Enclosure 11, pg. 4).

**Commented [HN46]:** Response to RAI LAR-17-037-9 (SRSB) in LAR-17-037S3 (ND-18-0646, Enclosure 17, pg. 9).

**Commented [HN47]:** Response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 8).

ND-18-0000  
 Enclosure 5U  
 Updated Reviewer's Aid - Tier 2\* Matters Analysis Summary (LAR-17-037S4)

Section VIII.B.6.c (Tier 2* Matters that Expire at Full Power)	Selected for additional screening	Basis	Associated Criteria
1 Nuclear Island Structural Dimensions.	No	Adequately addressed in Tier 1	N/A
2 American Society of Mechanical Engineers Boiler & Pressure Vessel Code (ASME Code) piping design and welding restrictions, and ASME Code Cases.	No	Adequately addressed in Tier 1; 10 CFR 50.55a; Paragraph VIII.B.5	N/A
3 Design Summary of Critical Sections.	Yes	Safety significance	Involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety.
4 American Concrete Institute (ACI) 318, ACI 349, American National Standards Institute/American Institute of Steel Construction (ANSI/AISC)-690, and American Iron and Steel Institute (AISI), "Specification for the Design of Cold Formed Steel Structural Members, Part	Yes	Safety significance	Involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety.

ND-18-0000  
 Enclosure 5U  
 Updated Reviewer's Aid - Tier 2\* Matters Analysis Summary (LAR-17-037S4)

	Section VIII.B.6.c (Tier 2* Matters that Expire at Full Power)	Selected for additional screening	Basis	Associated Criteria
5	Definition of critical locations and thicknesses.	No	Adequately addressed in Tier 1	N/A
6	Seismic qualification methods and standards.	No	Adequately addressed by paragraph VIII.B.5	N/A
7	Nuclear design of fuel and reactivity control system, except burn-up limit.	Yes	Not addressed in Tier 1 and safety significance	<p><u>Result in a material change to the ... nuclear design of fuel and reactivity control system: ...</u>  <del>Result in a material change to the fuel criteria evaluation process, the fuel principal design requirements, nuclear design of fuel and reactivity control system, or maximum fuel rod average burn-up limits.</del></p>
8	Motor-operated and power-operated valves.	No	Adequately addressed in Tier 1 and by paragraph VIII.B.5	N/A
9	Instrumentation and control system design processes, methods, and standards.	Yes	Safety Significance	Result in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance.

ND-18-0000  
 Enclosure 5U  
 Updated Reviewer's Aid - Tier 2\* Matters Analysis Summary (LAR-17-037S4)

	Section VIII.B.6.c (Tier 2* Matters that Expire at Full Power)	Selected for additional screening	Basis	Associated Criteria
10	Passive residual heat removal (PRHR) natural circulation test (first plant only).	No	Adequately addressed in Tier 1 and COL	N/A
11	Automatic depressurization system (ADS) and core make-up tank (CMT) verification tests (first three plants only).	No	Adequately addressed in Tier 1 and COL	N/A
12	Polar crane parked orientation.	No	Does not meet criteria for Tier 1; therefore, paragraph VIII.B.5 will adequately address	N/A
13	Piping design acceptance criteria.	Yes	Safety Significance	Result in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance.
14	Containment vessel design parameters, including ASME Code, Section III, Subsection NE.	No	Adequately addressed in Tier 1 and paragraph VIII.B.5	N/A
15	Human factors engineering.	Yes	Paragraph VIII.B.5 may not work well and safety significance	Result in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance.

ND-18-0000  
 Enclosure 5U  
 Updated Reviewer's Aid - Tier 2\* Matters Analysis Summary (LAR-17-037S4)

Section VIII.B.6.c (Tier 2* Matters that Expire at Full Power)	Selected for additional screening	Yes	Safety significance	Basis	Associated Criteria
16 Steel composite structural module details.		Yes	Safety significance	Involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety.	

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 6U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Reviewer's Aid**

**Tier 2\* Departure Example Not Requiring Prior NRC Approval**

**(LAR-17-037S4)**

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

ND-18-0646  
Enclosure 6U  
Updated Reviewer's Aid - Tier 2\* Departure Example Not Requiring Prior NRC Approval  
(LAR-17-037S4)

**Example application of the LAR-17-037 proposed process to a proposed change to Tier 2\* material which results in a determination that prior NRC approval is not required:**

In Vogtle 3&4 LAR-13-006R [ML13240A217], SNC proposed the following change in Enclosure 1, page 3 of 15, "Summary Description":

"The proposed changes in the requirements for detailed design of structural wall modules used to construct containment internal structures and portions of the auxiliary building are necessary to address regulatory compliance for design of shear studs and internal trusses.

The proposed changes would depart from plant-specific Design Control Document (DCD) Tier 2\* and associated Tier 2 material incorporated into the Updated Final Safety Analysis Report (UFSAR) by revising requirements for design spacing of shear studs and wall module trusses and the design of structural elements of the trusses such as angles and channels. These revisions are to address interferences and obstructions that may cause a change to the design spacing in a local area. In each case where the spacing exceeds the design spacing, an evaluation supporting the increase will be completed to demonstrate that the revised spacing is in conformance with design and analysis requirements identified in the UFSAR. The designation of maximum design spacing is revised for the stud spacing and truss spacing to reduce the potential confusion about the application of fabrication tolerances.

The proposed changes include revising a note on UFSAR Figure 3.8.3-8, Sheet 1 to clarify that the stud spacing specified is a design value not an exact dimension. A tolerance for stud spacing, consistent with American Welding Society (AWS) D1.1 requirements, is added to the note.

The proposed changes include revision of the weld symbol on a Tier 2\* figure to change the symbol to a symbol that indicates complete joint penetration and change to the associated Tier 2 text to clarify that the weld symbol used in the figure indicates complete joint penetration."

Consider the proposed process flow chart provided in Enclosure 4 of this LAR, with "revising requirements for design spacing of shear studs and wall module trusses" as the "Proposed Tier 2\* Departure" entry oval. The details of the proposed changes to spacing of shear studs and wall module trusses are found in LAR-13-006 Enclosure 1, Sections 2 and 3.

Criterion 1 asks, Yes/No, does the Proposed Tier 2\* Departure "involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety."

In this example, the answer to this question would be No. For this proposed change to Tier 2\* material, SNC requested flexibility in the placement of studs and trusses within the bounds of the AP1000 DCD-endorsed ACI 349-01, AISC N690-94, and AWS D1.1 standards as described by UFSAR 3.8.3 et. al. The requested change eliminated potential confusion by deleting the adjective "maximum" from Tier 2\* text and Figures describing

ND-18-0646  
Enclosure 6U  
Updated Reviewer's Aid - Tier 2\* Departure Example Not Requiring Prior NRC Approval  
(LAR-17-037S4)

the design spacing of the shear studs and trusses inside the steel-concrete composite modules. No deviation from a code or standard was requested.

Of particular note is that the published NRC SER for LAR-13-006 [ML13266A164] concurred that no deviation from a code or standard was requested by this proposed change and that the proposed changes were within the scope and technical requirements of the applicable codes, standards, and design methodology of the steel-concrete composite structures as described by the AP1000 DCD and Vogtle UFSAR.

Qualifying Criterion 2 asks if the proposed Tier 2\* departure will, "Result in a material change to a design process described in the plant-specific DCD that is used to implement an industry standard or endorsed regulatory guidance." Since no change was proposed to a design process addressed by Criterion 2 this Criterion does not apply.

Qualifying Criterion 3 and 4 pose questions regarding impacts to nuclear fuel and the [PXS in-containment refueling water storage tank \(IRWST\) screen design and containment recirculation screen design](#); neither of those topics are affected by the proposed Tier 2\* change. Thus, the answer to both questions is No and the process shown in LAR-17-037 continues to [satisfy](#) 10 CFR 52 Appendix D, Paragraph VIII.B.5.a.

LAR-17-037 Enclosure 4, page 3 of 3 steps the user through the 10 CFR 52 Appendix D, Paragraph VIII.B.5.a and subsequent questions.

First, the LAR-13-006 proposed Tier 2\* change does not involve Tier 1 material nor the Vogtle Technical Specifications (TS); thus, the answer to this question is No and the screening continues.

Second, the LAR-13-006 proposed Tier 2\* change does not prompt a Yes answer to any of the eight questions posed in VIII.B.5.b regarding the increased likelihood of an accident, increased effects of accidents, or creation of a new type of accident; thus, the answer to this question is No and the screening continues.

Third, the LAR-13-006 proposed Tier 2\* change does not prompt a Yes answer to either of the two questions posed in VIII.B.5.c regarding ex-vessel accidents; thus, the answer to this question is No and the screening continues.

Fourth, the LAR-13-006 proposed Tier 2\* change does not prompt a Yes answer to the questions posed in VIII.B.5.d regarding the Aircraft Impact Assessment; thus, the answer to this question is No and the screening continues.

As a result of the above screening, the Enclosure 4 flow chart directs the user to implement the departure. The departure is then implemented in accordance with the applicable 10 CFR 50 Appendix B procedures and processes and reported accordingly.

In this example, the LAR-17-037 proposed screening process challenged the proposed Tier 2\* change appropriately and came to the correct conclusion that nuclear safety, regulatory compliance, and the public health and safety would not be adversely impacted by the licensee implementing the proposed change without requiring prior NRC approval.

**Commented [HTE48]:** Conforming change in response to RAI LAR-17-037-4 (SCVB) in LAR 17-037S2 (ND-18-0608, Enclosure 12, pg. 5).

**Commented [HN49]:** Editorial correction. Added the word "satisfy" which was missing from the original submittal (ND-17-1726).

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 7U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Reviewer's Aid**

**Tier 2\* Departure Example Requiring Prior NRC Approval**

**(LAR-17-037S4)**

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

ND-18-0646

Enclosure 7U

Updated Reviewer's Aid - Tier 2\* Departure Example Requiring Prior NRC Approval (LAR-17-037S4)

**Example application of the LAR-17-037 proposed process to a proposed change to Tier 2\* material which would result in a determination that prior NRC approval is required:**

In Vogtle 3&4 LAR-13-004 [ML13022A254], SNC proposed the following change in Enclosure 1, page 2 of 10, "Summary Description":

"The proposed changes would depart from plant-specific Design Control Document (DCD) Tier 2\* and associated Tier 2 material incorporated into the Updated Final Safety Analysis Report (UFSAR) by revising the structural analysis requirements to provide alternative requirements for development of shear reinforcement bars within the nuclear island basemat concrete.

The proposed changes revise the requirements for development of basemat shear reinforcement in the licensing basis from ACI 349 Appendix B to ACI 318-11, Section 12.6. The use of ACI 318 criteria for headed reinforcement results in longer shear ties and thicker concrete in areas below the elevator pits and a sump in the nuclear island basemat. The thicker concrete is accomplished by raising the floor of the elevator pits and sump in the nuclear island basemat resulting in a minor reduction in volume of the sump. The requirements for concrete cover over the reinforcement bars are also changed.

This enclosure requests approval of the license amendment necessary to implement the proposed changes to the Tier 2\* and associated Tier 2 material."

Consider the proposed process flow chart provided in Enclosure 4 of this LAR, with "revise the requirements for development of basemat shear reinforcement in the licensing basis from ACI 349 Appendix B to ACI 318-11, Section 12.6" as the "Proposed Tier 2\* Departure" entry oval.

Criterion 1 asks, Yes/No, does the Proposed Tier 2\* Departure "Involve design methodology or construction materials that deviate from a code or standard credited in the plant-specific DCD for establishing the criteria for the design or construction of a structure, system, or component (SSC) important to safety."

In this example, the answer to this question would be Yes. For this proposed change to Tier 2\* material, SNC requested to deviate from the use of the ACI 349-01 concrete code and instead use ACI 318-11 for the design of headed shear reinforcement in the Nuclear Island basemat. ACI 349-01 was endorsed for use in the design and construction of concrete structures by the NRC in the approval of the AP1000 Design Certification. Conversely, ACI 318-11 was not utilized in the AP1000 Design Certification nor is ACI 318-11 generically endorsed for the proposed use by the NRC via other regulatory means such as an issued Regulatory Guide. In short, the proposed Tier 2\* change deviates from the design methodology that was credited in the plant-specific DCD for the design and construction of an SSC important to safety.

While other components of the LAR-13-004 proposed change, such as a minor change to the floor elevation of the bottom of an elevator pit, may not require prior NRC approval under the LAR-17-037 change process, the deviation from the approved code would be properly categorized by Criterion 1 which immediately directs the user to "Submit license amendment request (Paragraph VIII.B.6.b or VIII.B.6.c)."

**Southern Nuclear Operating Company**

**ND-18-0000**

**Enclosure 8U**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Updated Proposed Regulatory Commitment**

**(LAR-17-037S4)**

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

ND-18-0646  
 Enclosure 8U  
 Updated Proposed Regulatory Commitment (LAR-17-037S4)

The following table identifies the regulatory commitments in this document. Any other statements in this submittal represent intended or planned actions. They are provided for information purposes and are not considered to be regulatory commitments.

**Commented [HN50]:** Response to RAI LAR-17-037-6 (NRO/LB4) in LAR-17-037S3 (ND-18-0646, Enclosure 14, pg. 4).

REGULATORY COMMITMENT	DUE DATE / EVENT
Annotate Tier 2* departures implemented without submitting a license amendment request within departure reports submitted in accordance with 10 CFR Part 52, Appendix D, paragraphs X.B.1 and X.B.3.b.	Implemented coincident with the implementation of the license amendment approving this LAR, and would be applicable to Tier 2* departures identified in departure reports submitted subsequent to the implementation of this license amendment
<a href="#">Develop, implement, and maintain procedural guidance that contains a description of the qualifying criteria contained in License Condition 2.D(13) and the supporting detailed guidance and bases contained in the Technical Evaluation section of the approved LAR-17-037, including additional guidance provided by SNC in the supplements to the LAR. This procedural guidance will be maintained in accordance with SNC's Commitments Management Program for as long as the license condition remains in effect.</a>	<a href="#">Implemented prior to the implementation of the license amendment approving this LAR</a>

**Commented [HN51]:** Response to RAI LAR-17-037-6 (NRO/LB4) in LAR-17-037S3 (ND-18-0646, Enclosure 14, pg. 4).

Reviewers Aid