Vogtle PEmails

From: Rankin, Jennivine
Sent: Wednesday, October 23, 2019 7:31 AM
To: Vogtle PEmails
Subject: FW: RE: LAR-19-016R1: Files to Support Oct. 24, 2019 Pre-submittal Meeting [UPDATED ENCLOSURES]
Attachments: PAR-19-016-2 - Draft Enclosure 102219.pdf; LAR-19-016R1 - Draft Enclosures 102219.pdf

For discussion at the October 24 public meeting.

From: Humphrey, Mark Phillips <MPHUMPHR@southernco.com>
Sent: Tuesday, October 22, 2019 6:32 PM
To: Patel, Chandu <Chandu.Patel@nrc.gov>; Rankin, Jennivine <Jennivine.Rankin@nrc.gov>
Cc: Kellenberger, Nicholas <X2NRKELL@SOUTHERNCO.COM>; Hicks, Thomas E. <X2TEHICK@southernco.com>; Prat, Catherine <x2cpereg@southernco.COM>; Chamberlain, Amy Christine <ACCHAMBE@southernco.com>; Roberts, Kelli Anne <KROBERTS@southernco.com>; Wu, Si <wu1s@westinghouse.com>; Chester, Kenneth D. <X2KDCHES@SOUTHERNCO.COM>; Rindfusz, James F <rindfujf@westinghouse.com>
Subject: [External_Sender] RE: LAR-19-016R1: Files to Support Oct. 24, 2019 Pre-submittal Meeting [UPDATED ENCLOSURES]

Jennie and Chandu-

As discussed with Chandu earlier today, attached are *revised* draft LAR revision enclosures (LAR-19-016R1) and a *revised* second PAR enclosure (PAR-19-016-2) to facilitate discussions at the pre-submittal meeting on Thursday, October 24, 2019. Within these enclosures notice that yellow text highlights draw attention to the changes from the initial draft enclosures sent Monday, October 21, 2019.

The three changes (two editorial) from the draft enclosures sent Monday are as follows:

- The original draft calculated the as-built provided area of vertical reinforcement for Wall L using a very conservative approach that was different than the approach used to calculate the values in the UFSAR table. Hence, one change is to revise the value for as-built provided vertical reinforcement area from 4.95 to 5.55 in2/ft. An updated formula shows how this new value was calculated.
- The second change clarifies the text describing how the construction joint at 133'-3" is not affected.
- The third change clarifies text regarding how the shear enforcement is not impacted.

Please let me know if you have any questions. We look forward to discussing this LAR revision during Thursday's pre-submittal meeting.

Respectfully,

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From: Humphrey, Mark Phillips
Sent: Monday, October 21, 2019 3:29 PM
To: 'Chandu Patel (Chandu.Patel@nrc.gov)' <chandu.patel@nrc.gov>; Rankin, Jennivine <Jennivine.Rankin@nrc.gov>
Cc: Kellenberger, Nicholas <X2NRKELL@SOUTHERNCO.COM>; Hicks, Thomas E. <X2TEHICK@southernco.com>; Prat, Catherine <x2cpereg@southernco.COM>; Chamberlain, Amy Christine <ACCHAMBE@southernco.com>; Roberts, Kelli Anne <KROBERTS@southernco.com>; Wu, Si <wu1s@westinghouse.com>; Chester, Kenneth D. <X2KDCHES@SOUTHERNCO.COM>
Subject: LAR-19-016R1: Files to Support Oct. 24, 2019 Pre-submittal Meeting

Hi Jennie and Chandu-

As discussed in prior communications, SNC plans to submit a revision to LAR-19-016 (LAR-19-016R1) on Friday October 25, 2019 to address a recently identified vertical reinforcement nonconformance in Unit 4 Wall L. Attached is a draft of the LAR revision enclosures to facilitate discussions during the pre-submittal meeting scheduled on Thursday, October 24, 2019. The revised LAR will provide new Enclosure 3, "Revision to Request for License Amendment: Reinforcement Changes for Wall L and Wall 7.3," and new Enclosure 4, "Revision to Proposed Changes to Licensing Basis Documents" that will replace Enclosures 1 and 2, respectively, provided in the original LAR. Changes between Enclosures 1 and 3 will be shown with revision bars in the Enclosure 3 margin. The originally requested February 23, 2020 approval date for the LAR will not change.

Related to the LAR revision, SNC also plans to submit a second PAR (PAR-19-016-2) on Friday, October 25, 2019. This PAR will allow for the rebar installation and concrete placement for Unit 4 Wall L above elevation 117'-6". [Note that SNC has received a No Objection Notice from the staff for the initial PAR (PAR-19-016) regarding Wall L and Wall 7.3.] This second PAR will only address the recently identified nonconformance with the vertical reinforcement in Wall L. SNC will request a "no objection" finding from the NRC Staff for the second PAR by November 15, 2019. A draft copy the PAR enclosure is attached.

SNC appreciates the opportunity to discuss these attachments and our associated LAR/PAR plans with the Staff during the October 24, 2019 pre-submittal meeting. Please contact me with any questions you may have.

Respectfully,

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From: Rankin, Jennivine

Created By: Jennivine.Rankin@nrc.gov

Recipients:
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>
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LAR-19-016R1 - Draft Enclosures 102219.pdf	2174703	

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Southern Nuclear

Southern Nuclear Operating Company

ND-19-XXXX

Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 4

Second Preliminary Amendment Request:

Reinforcement Changes for Wall L
(PAR-19-016-2)

DRAFT

(This Enclosure consists of 4 pages, including this cover page.)

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) submitted license amendment request (LAR)-19-016R1 to change the Vogtle Electric Generating Plant (VEGP) Unit 4 licensing basis documents associated with Combined License No. NPF-92.

Accordingly, SNC requests the determination of whether the NRC has any objection to SNC proceeding with construction of VEGP Unit 4 Wall L, which is subject to the changes proposed in LAR-19-016R1. Delayed determination regarding this Preliminary Amendment Request (PAR) will result in delay in the construction completion of VEGP Unit 4, as identified in the PAR provided below, to be provided by the date shown below.

PAR Request Number:	Station Name:	Unit Number(s):	PAR Request Date:
SNC PAR-19-016-2	**VEGP**	☐ **3** ☒ **4**	**October 25, 2019**

1. NRC PAR Notification Requested Date (see Block 7 for basis): November 15, 2019

2. License Amendment Request References (as applicable):

☒ **LAR submittal date and SNC Correspondence Number:** LAR-19-016R1 – October 25, 2019 / ND-19-XXXX

☐ **Expected LAR submittal date:** _____

3. Brief Description of Proposed Change:

The proposed change would revise licensing basis information in the Updated Final Safety Analysis Report (UFSAR) Tier 2* information (plant-specific DCD), to change the provided area of vertical steel reinforcement for Vogtle Electric Generating Plant (VEGP) Unit 4 Wall L from 117’-6” and 135’-3”.

The proposed change impacts UFSAR Tier 2* information in Table 3H.5-7 and Figure 3H.5-12.

4. Reason for License Amendment Request:

Wall L Changes – Vertical Reinforcement

In accordance with UFSAR Figure 3H.5-12, the design of the Auxiliary Building Wall L from EL. 117'-6" to 135'-3" requires vertical rebar consisting of #11@6" EF + #10@6" EF in two layers, with the #11s on the outside layer and #10s on the inside layer. At VEGP Unit 4, each of the four layers is missing rebar as follows:

- West face inside layer: 1 (#10) bar short (95 bars installed, 96 bars UFSAR specified minimum provided)
- West face outside layer: 1 (#11) bar short (95 bars installed, 96 bars UFSAR specified minimum provided)
- East face inside layer: 3 (#10) bars short (95 bars installed, 98 bars UFSAR specified minimum provided)
- East face outside layer: 2 (#11) bars short (96 bars installed, 98 bars UFSAR specified minimum provided)

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This condition results in the provided vertical reinforcement area and reinforcement configuration not in compliance with the Tier 2* information contained in UFSAR Table 3H.5-7 and Figure 3H.5-12.

The reinforcement necessary to satisfy ACI 349-01 requirements is calculated using Finite Element Analysis (FEA) using the applicable load combinations and design criteria, in accordance with UFSAR Table 3.8.4-2 and ACI 349-01. As shown in UFSAR Table 3H.5-7, the vertical required reinforcement in Wall L between Elevations 117'-6" to 135'-3" (2.02 in^2/ft) remains less than the revised provided reinforcement of this wall segment (5.55 in^2/ft). The proposed change does not impact the seismic analysis of the nuclear island because it does not affect the mass or stiffness of the seismic model. Wall L continues to provide MCR boundary.

For the wall reinforcement changes, the structural design meets the acceptance criteria specified in UFSAR Section 3.8. Furthermore, the seismic floor response spectra meet the acceptance criteria specified in UFSAR Subsection 3.7.5.4. Considering the applicable loading scenarios and acceptance criteria required by the current licensing basis, as discussed above, the demands in Wall L remain below their respective capacities. The proposed changes to the reinforcement are in accordance with and continue to satisfy the acceptance criteria of ACI 349-01.

The proposed change requires a change to Tier 2* information in UFSAR. Therefore, the proposed change requires NRC approval in accordance with 10 CFR 52.98(c).

Additional details are provided in the referenced LAR (LAR-19-016R1).

5. Is Exemption Request Required? ☐ **Yes** ☒ **No**

If Yes, Briefly Describe the Reason for the Exemption.

No exemption required for the PAR.

6. Identify Applicable Precedents:

No precedent identified.

7. Impact of Change on Installation and Testing Schedules:

A delayed determination regarding this PAR will result in delay of rebar installation and concrete placement for VEGP Unit 4 Wall L , as described below.

As such, this PAR requests a “no objection” finding related to the changes described in LAR-19-016R1 related to Wall L by the date identified in Block 1 above (or sooner if reasonably achievable) to allow for appropriate notifications and release of further activities dependent on construction of the VEGP Unit 4 Wall L, as noted below.

Specifically, SNC is requesting a “no objection” finding to allow:

- Rebar installation and concrete placement for VEGP Unit 4 Wall L above elevation 117’-6”

Construction holds have been issued for these activities.

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A “no objection” finding for the above activities would allow for VEGP Unit 4 construction activities to proceed.
8. Impact of Change on ITAAC: No ITAAC are affected by this change, but it will impact the closure of the ITAAC. Final approval of the License Amendment Request will be necessary for closure of the related ITAAC, but a “no objection” finding is requested for this PAR in order to proceed with construction pursuant to the process outlined in COL Condition 2.D(1), Changes during Construction. This PAR should be considered for any inspections related to ITAAC 3.3.00.02.a.i.d (Item No. 763) of the VEGP Unit 4 COL Appendix C Table 3.3-6.
9. Additional Information: None

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Southern Nuclear Operating Company

ND-19-XXXX

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Unit 4

Revision to Request for License Amendment:

Reinforcement Changes for Wall L and Wall 7.3

(LAR-19-016R1)

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(This Enclosure consists of 20 pages, including this cover page)

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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) No. NPF-92 for Vogtle Electric Generating Plant (VEGP) Unit 4.

1. SUMMARY DESCRIPTION

The proposed change would revise the provided area of horizontal and vertical steel reinforcement for VEGP Unit 4 Wall L from elevation 117'-6" to 135'-3"; and revise the provided area of horizontal steel reinforcement for VEGP Unit 4 Wall 7.3 from elevation 117'-6" to 135'-3". The proposed change impacts Updated Final Safety Analysis Report (UFSAR) Tier 2* information in UFSAR Tables 3H.5-5 and 3H.5-7, and Figures 3H.5-4 and 3H.5-12.

This enclosure requests approval of the license amendment necessary to implement this change.

2. DETAILED DESCRIPTION

As described in COL Appendix C, Section 3.3, the nuclear island structures include the containment and the shield and auxiliary buildings. The containment, shield and auxiliary buildings are structurally integrated on a common basemat which is embedded below the finished plant grade level. The auxiliary building is reinforced concrete and houses the safety-related mechanical and electrical equipment located outside the containment and shield buildings.

The nuclear island structures, including the critical sections listed in COL Appendix C Table 3.3-7 which lists the interior wall of auxiliary building (column line 7.3), elevation (EL.) 66'-6" to EL.160'-6" and west wall of the Main Control Room (MCR) (column line L)) EL. 117'-6" to EL. 153'-0", are seismic Category I and are designed and constructed to withstand design basis loads without loss of structural integrity and the safety-related functions. The design basis loads are those loads associated with:

- Normal plant operation (including dead loads, live loads, lateral earth pressure loads, and equipment loads, including hydrodynamic loads, temperature and equipment vibration)
- External events (including rain, snow, flood, tornado, tornado generated missiles and earthquake)
- Internal events (including flood, pipe rupture, equipment failure, and equipment failure generated missiles)

The auxiliary building is a reinforced concrete and structural steel structure with three floors above grade (EL. 100'-0") and two floors below grade. The floor slabs and the structural walls of the auxiliary building are structurally connected to the cylindrical section of the shield building. The figures in UFSAR Section 1.2 show the layout of the auxiliary building and its interface with the other buildings of the nuclear island. UFSAR Figure 3.7.2-12 shows the key structural dimensions of the nuclear island.

As described in UFSAR Subsection 1.2.4.3, the primary function of the auxiliary building is to provide protection and separation for the seismic Category I mechanical and electrical equipment located outside the containment building. The seismic classification methodology used in AP1000 complies with the preceding criteria, as well as with recommendations stated within Regulatory

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Guide (RG) 1.29. Seismic Category I structures, systems, and components (SSCs) meet the quality assurance requirements of 10 CFR 50, Appendix B.

The design and analysis procedures for the seismic Category I structures, including assumptions on boundary conditions and expected behavior under loads, are in accordance with American Concrete Institute (ACI) 349-01, Code Requirements for Nuclear Safety Related Concrete Structures, as required by UFSAR Subsection 3.8.4.4.1. The criteria of ACI 349-01, Chapter 12, are applied in development and splicing of the reinforcing steel. The ductility criteria of ACI 349-01, Chapter 21, are applied in detailing and anchoring of the reinforcing steel. The application of Chapter 21 detailing is demonstrated in the reinforcement details of critical sections. Sections 21.2 and 21.6 of ACI 349-01 are applicable to walls serving as parts of the earthquake force-resisting systems. These requirements are considered in the detailing of reinforcement in the walls and floors of the auxiliary building. Transverse reinforcement terminating at the edges of structural walls or at openings is detailed in accordance with Subsection 21.6.6.5 of ACI 349-01. The concrete structures are designed according to the strength design methods of ACI 349-01, using the load combinations specified in UFSAR Table 3.8.4-2.

Auxiliary Building Wall L

As described in UFSAR Subsection 3H.5.1.3, the wall at column line L (Wall L) is a shear wall on the west side of the Main Control Room (MCR). It extends from the top of the basemat at 66'-6" to the top of the roof. The wall is 2 feet thick. Out-of-plane lateral support is provided to the wall by the floor slabs on both side of it and the roof at the top. The segment of the wall that is a part of the MCR boundary is from EL. 117'-6" to EL. 135'-3".

The auxiliary building design loads are described in UFSAR Subsection 3H.3.3, and the wall is designed for the applicable loads. In addition to the dead, live and seismic loads, the wall is designed to withstand a 6.5 pounds per square inch pressure load due to a pipe break in the main steam isolation valve (MSIV) room even though it is a break exclusion area. This wall segment is also designed to withstand a jet load due to the pipe break.

The governing load combination and associated design loads are those due to the postulated pipe rupture and are shown in UFSAR Table 3H.5-6. Table 3H.5-7 and Figure 3H.5-12 present the details of the wall reinforcement. The sections where the required reinforcement is calculated are shown in UFSAR Figure 3H.5-2 (Sheet 3).

As shown in UFSAR Figure 3H.5-12, the design of the Auxiliary Building Wall L requires horizontal reinforcement bar consisting of #11@6" Each Face (EF) + #10@12"EF in two layers from EL. 117'-6" to EL. 135'-3", and vertical reinforcement bar consisting of #11@6" EF + #10@6" EF in two layers from EL. 117'-6" to EL. 135'-3".

Auxiliary Building Wall 7.3

As described in UFSAR Subsection 3H.5.1.2, the wall at column line 7.3 (Wall 7.3) is a shear wall that connects the shield building and the nuclear island exterior wall at column line I. It extends from the top of the basemat at elevation 66'-6" to the top of the roof. The wall is 3 feet thick below the grade at EL 100'-0" and 2 feet thick above the grade.

The auxiliary building design loads are described in UFSAR Subsection 3H.3.3, and the wall is designed for the applicable loads. For various segments of this wall, the corresponding governing

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load combination and associated design loads are shown in UFSAR Table 3H.5-4. UFSAR Table 3H.5-5 and Figure 3H.5-4 present the details of the wall reinforcement. The sections where the required reinforcement is calculated are shown in UFSAR Figure 3H.5-2 (Sheet 2).

As shown in UFSAR Figure 3H.5-4, the design of the Auxiliary Building Wall 7.3 requires horizontal reinforcement bar consisting of #10@12" EF + #10@12" EF in one layer from EL. 117'-6" to EL. 135'-3".

During construction at VEGP Unit 4, three independent nonconformities at two separate locations (Wall L and Wall 7.3) were identified. At Wall L, the as-built amount of horizontal and vertical reinforcement provided does not meet the specified minimum provided reinforcement in the UFSAR. At Wall 7.3, the as-built amount of horizontal reinforcement provided does not meet the specified minimum provided reinforcement in the UFSAR.

Wall L Changes

In accordance with UFSAR Figure 3H.5-12, the design of the Auxiliary Building Wall L from EL. 117'-6" to 135'-3" requires horizontal reinforcement bar (rebar) consisting of #11@6" EF + #10@12" EF in two layers. As specified on design drawings, straight bar is utilized to span a majority of the width of the wall. At the boundaries of the wall, this straight bar is spliced to reinforcement bar (referred to as dowels) developed within the bounding walls. The vertical construction joint at the face of the Shield Building represents the south boundary for Wall L. At VEGP Unit 4, the Shield Building wall has 35 #11 hook bar dowel outs EF from EL. 117'-6" to 135'-3". The vertical construction joint at the face of Wall 11 represents the north boundary for Wall L. At VEGP Unit 4, Wall 11 has 36 #11 hook bar (or U-bar) dowel outs EF from EL. 117'-6" to 135'-3". This means that for one #11 bar EF there is not a Shield Building wall dowel (35 dowel out EF) to splice to that matches the configuration of Wall 11 (36 dowel out EF).

One horizontal reinforcement bar #11 (EF) located directly above EL. 117'-6" is omitted from VEGP Unit 4 Wall L (EL. 117'-6" to EL. 135'-3"). All other horizontal reinforcement bars, #11@6" EF + #10@12" EF between EL. 117'-6" and EL. 135'-3" remain unchanged and are installed as required by the design, including one row directly above the omitted row consisting of both a #11 and #10 bar EF. The 36 standard hook bar (or U-Bar) dowels EF installed into Wall 11 remain unchanged and are developed within Wall L as required by the design.

A simplified sketch of the typical #11 rebar configuration is shown in Figure 1 (#10@12" not shown). A simplified sketch of the proposed change, applicable to the single omitted #11(EF), is shown in Figure 2.

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Figure 1: Typical #11 Rebar Configuration for Wall L

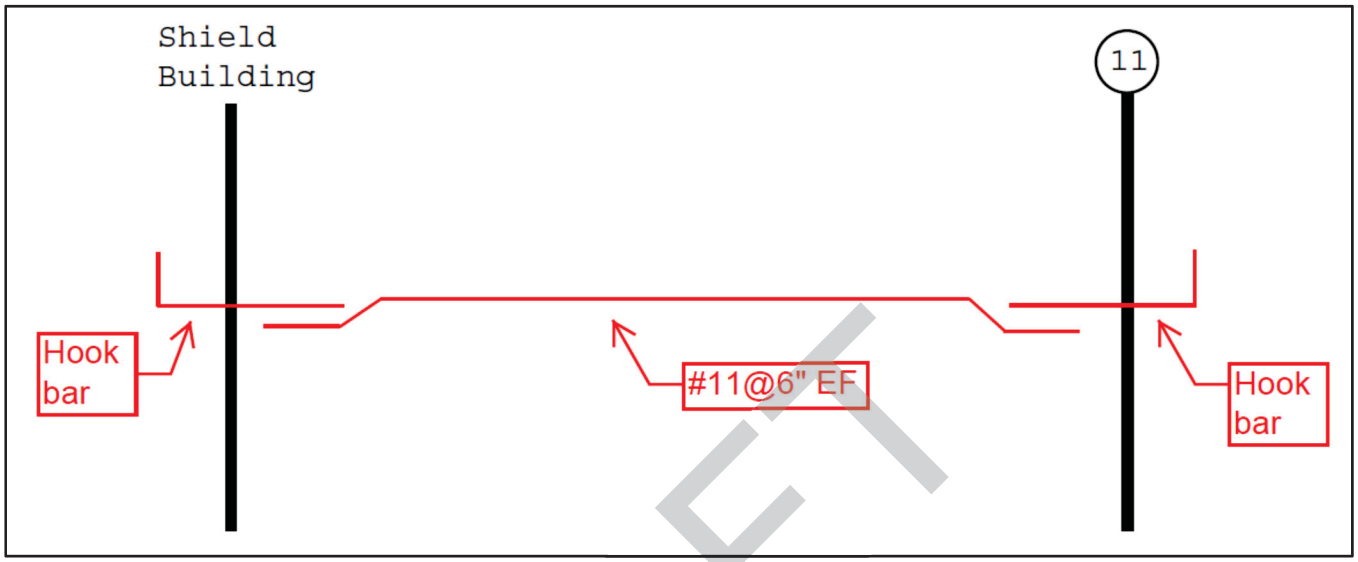

Figure 2: Proposed Rebar Configuration directly above EL. 117'-6" for Wall L

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As clarified by Figure 2, the single #11 (EF) is not developed for the entire width of Wall L. Therefore, this bar is unable to be credited as provided reinforcement. This results in the as-built provided amount of horizontal reinforcement area being less than the current UFSAR Table 3H.5-7 Wall Section 2 (Elevation 135′-3″ to 117′-6″) provided minimum value of 4.39 in^2/ft; the actual provided value is 4.36 in^2/ft. This condition results in the provided horizontal reinforcement area

and reinforcement configuration not in compliance with the Tier 2* information contained in UFSAR Table 3H.5-7 and Figure 3H.5-12. The impacted area is a subsection of Wall L Section 2 as shown in UFSAR Figure 3H.5-2 (Sheet 3).

Additionally, in accordance with UFSAR Figure 3H.5-12, the design of the Auxiliary Building Wall L from EL. 117'-6" to 135'-3" requires vertical rebar consisting of #11@6" EF + #10@6" EF in two layers, with the #11s on the outside layer and #10s on the inside layer.

When reinforcement placement is defined by a specified effective length of concrete (i.e. length from one face of concrete to another face of concrete) and a recommended spacing, the minimum number of bars shall be calculated as [Effective Length] / [Recommended Spacing]. If this results in a fraction of a bar, an additional bar of the same specified bar size shall be provided within the effective length.

The effective length of concrete is calculated considering the length of Wall L at the exposed face of concrete. The south end of Wall L is defined by the construction joint at the exterior face of the Shield wall radius. As Wall L is not orthogonal to this radius, the effective length differs for the west face and east face of Wall L.

At VEGP Unit 4, each of the four layers is missing rebar as follows:

- West face inside layer (#10s): 1 bar short (95 bars installed, 96 bars UFSAR specified minimum provided)
- West face outside layer (#11s): 1 bar short (95 bars installed, 96 bars UFSAR specified minimum provided)
- East face inside layer (#10s): 3 bars short (95 bars installed, 98 bars UFSAR specified minimum provided)
- East face outside layer (#11s): 2 bars short (96 bars installed, 98 bars UFSAR specified minimum provided)

The vertical rebar was installed such that the spacing of the bars resulted in an overall reduction of the number of bars in the wall. Unlike the omitted horizontal rebar discussed above, the rebar was not omitted in a specific location; rather, the spacing of the rebar is generally uniform throughout the length of the wall. While the design allows for a tolerance of +/- 3" for rebar placement, it also specifies that the minimum number of bars be met. Due to the cumulative stacking of tolerances in this section of Wall L, the total number of vertical bars has been reduced, resulting in a reduction in the provided area of steel.

For EL. 117'-6" to EL. 135'-3", the omitted rebar results in an as-built provided vertical reinforcement being less than the existing UFSAR Table 3H.5-7 Wall Section 4 (Elevation 135′-3″ to 117′-6″) provided minimum value of 5.66 in^2/ft; the actual provided value is 5.55 in^2/ft. Note that the vertical rebar installed above EL. 135'-3" will meet the UFSAR Table 3H.5-7 specified minimum provided area, as all rebar will be developed by the construction joint at 133'-3".

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This condition results in the provided vertical reinforcement area and reinforcement configuration not in compliance with the Tier 2* information contained in UFSAR Table 3H.5-7 and Figure 3H.5-12. The impacted area is a subsection of Wall L Section 4 as shown in UFSAR Figure 3H.5-2 (Sheet 3).

All other sections shown on UFSAR Figure 3H.5-2 (Sheet 3) remain unaffected by this activity.

Therefore, changes are proposed to UFSAR Table 3H.5-7 to add two notes that explain the configuration changes for VEGP Unit 4.

Additionally, changes are proposed to UFSAR Figure 3H.5-12. The figure shows #11@6" EF horizontal rebar with the full development length between EL. 117'-6" and EL. 135'-3", and #11@6" EF + #10@6" EF (in two layers) vertical rebar with the full development length between EL. 117'-6" and EL. 135'-3". Because a single #11 (EF) horizontal rebar is only developed for a portion of the width of Wall L, and 7 vertical rebar are not developed for the height of Wall L between EL. 117'-6" and EL. 135'-3", two notes are added to UFSAR Figure 3H.5-12 to explain the configuration changes for VEGP Unit 4.

Wall 7.3 Changes

In accordance with UFSAR Figure 3H.5-4, the design of the Auxiliary Building Wall 7.3 from EL. 117'-6" to EL. 135'-3" require horizontal reinforcing bar (rebar) consisting of #10@12" EF + #10@12" EF in one layer (note that this is equivalent to #10@6" EF). As specified on design drawings, straight bar is utilized to span a majority of the width of the wall. At the boundaries of the wall, this straight bar is spliced to reinforcement bar (referred to as dowels) developed within the bounding walls. The vertical construction joint at the face of the Shield Building represents the west boundary for Wall 7.3. At VEGP Unit 4, the Shield Building wall has 35 #10 hook bar dowel outs EF from EL. 117'-6" to EL. 135'-3". The vertical construction joint at the face of Wall I represents the east boundary for Wall 7.3. At VEGP Unit 4, Wall I has 36 #10 hook bar (or U-bar) dowel outs EF from EL. 117'-6" to EL. 135'-3". This means that for one #10 bar EF there is not a Shield Building wall dowel (35 dowel out EF) to splice to that matches the configuration of Wall I (36 dowel out EF).

One horizontal reinforcement bar #10 (EF) located directly below EL. 135'-3" is to be spliced to standard hook bar (EF) in Wall I and extend to 2'-0" from the Shield Building. The associated #10 (EF) dowel developed into the Shield Building is not installed.

The other 35 horizontal reinforcement bars #10@6” between EL. 117'-6" and EL. 135'-3" remain unchanged and will be fully developed as required by the design. The 36 standard hook bar (or U-bar) dowels installed into Wall I remain unchanged and shall be developed within Wall 7.3 as required by the design.

A simplified sketch of the typical #10 rebar configuration is shown in Figure 3. A simplified sketch of the proposed change for one horizontal reinforcement bar #10 (EF) located directly below EL. 135'-3" is shown in Figure 4.

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Figure 3: Typical #10 Rebar Configuration for Wall 7.3

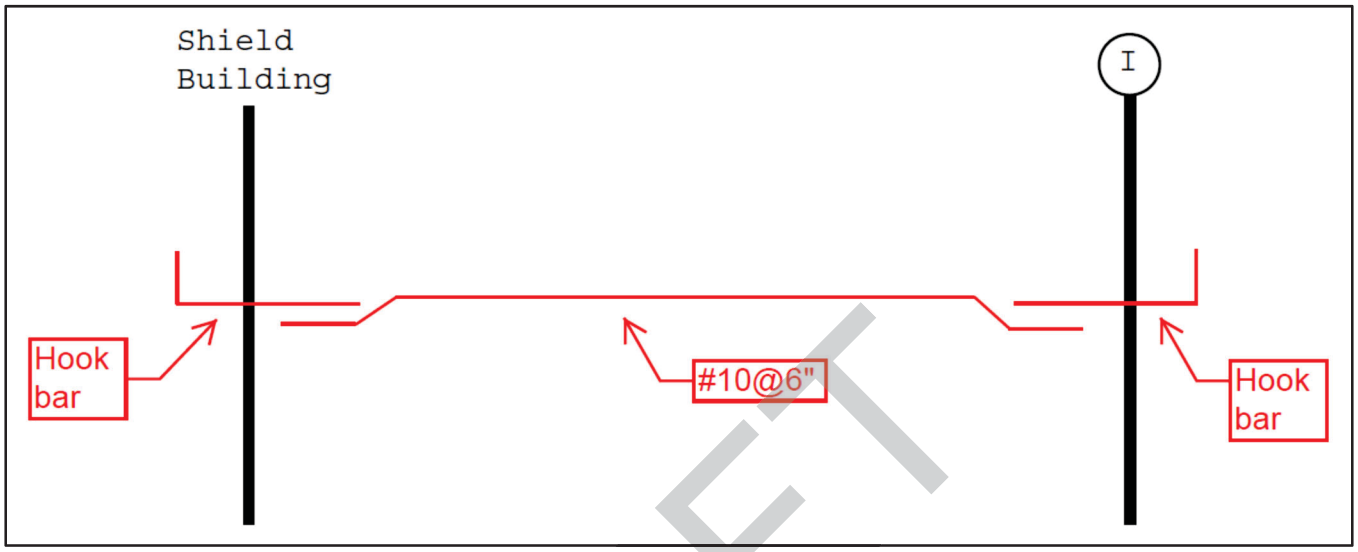
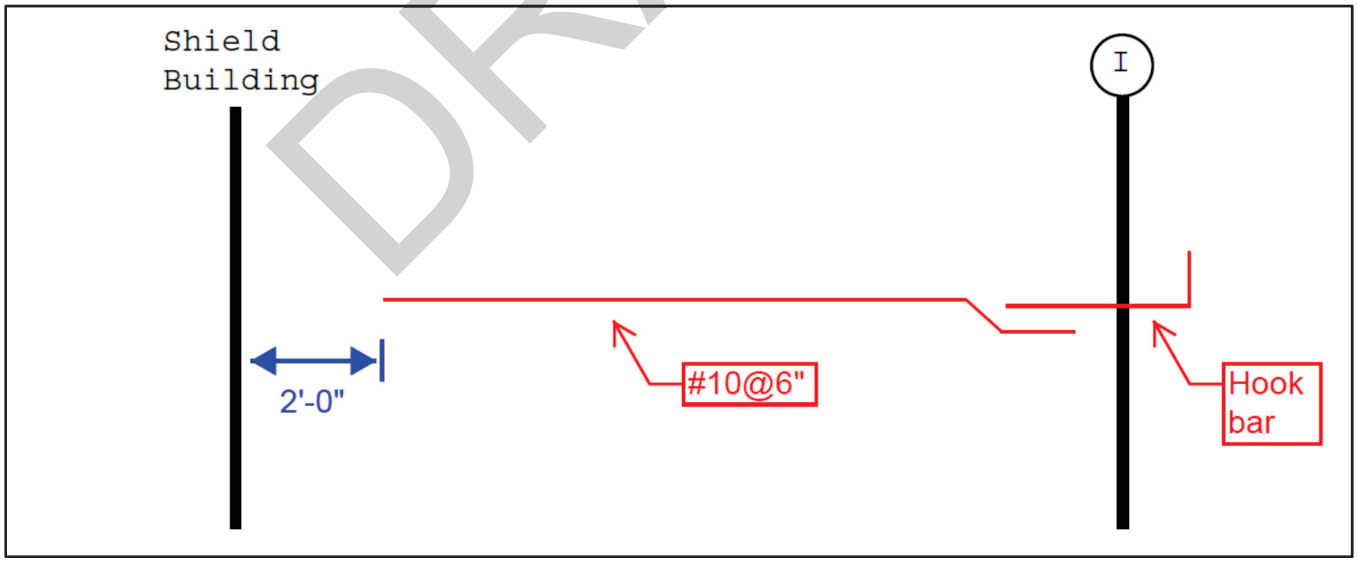


Figure 4: Proposed Rebar Configuration directly below EL. 135'-3" for Wall 7.3



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As clarified by Figure 4, the single #10 (EF) is not developed for the entire width of Wall 7.3. Therefore, this bar is unable to be credited as provided reinforcement. This results in the as-built provided amount of horizontal reinforcement area being less than the existing UFSAR Table 3H.5-5 Wall Section 3 (Elevation 117'-6" to 135'-3") provided minimum value of 2.54 in^2/ft. The actual provided value is 2.50 in^2/ft for this segment of Wall 7.3. This condition results in the

provided reinforcement area and reinforcement configuration not in compliance with the Tier 2* information contained in UFSAR Table 3H.5-5 and Figure 3H.5-4. The impacted area is a subsection of Wall 7.3 Section 3 as shown in UFSAR Figure 3H.5-2 (Sheet 2). All other sections shown on UFSAR Figure 3H.5-2 (Sheet 2) remain unaffected by this activity. Therefore, changes are proposed to UFSAR Table 3H.5-5 to add a note that explains the configuration change for VEGP Unit 4.

Additionally, changes are proposed to UFSAR Figure 3H.5-4 because the figure shows #10@6" horizontal rebar with the full development length between EL. 117'-6" and 135'-3". Because a single #10 (EF) is not developed for the entire width of Wall 7.3, a note is added to UFSAR Figure 3H.5-4 to explain the configuration change for VEGP Unit 4.

Licensing Basis Change Descriptions:

UFSAR Changes:

Tier 2* Impacts:

- UFSAR Table 3H.5-5: A note is added to describe what the provided reinforcement area will be on the Column Line 7.3 wall, horizontal wall section 3, from EL. 135'-3" to 117'-6" for VEGP Unit 4.

- UFSAR Table 3H.5-7: Two notes are added to describe what the provided reinforcement area will be on the Column Line L wall, both horizontal wall section 2 and vertical wall section 4, from EL. 135'-3" to 117'-6" for VEGP Unit 4.

- UFSAR Figure 3H.5-4: A note is added to describe that two #10 horizontal reinforcement bars (one on each face) are terminated 2'-0" from the shield building vertical construction joint, directly below 135'-3" for VEGP Unit 4. The note references UFSAR Table 3H.5-5 for additional detail.

- UFSAR Figure 3H.5-12: A note is added to describe that two #11 horizontal reinforcement bars (one on each face) are omitted directly above 117'-6" for VEGP Unit 4. A second note is added to describe that seven vertical reinforcement bars (three #11s and four #10s) are omitted for VEGP Unit 4. Both notes reference Table 3H.5-7 for additional detail.

3. TECHNICAL EVALUATION

Wall L Horizontal Evaluation

The proposed change specifies that a portion of one horizontal reinforcement bar #11@6" (EF) located directly above EL. 117'-6" is to be omitted from the VEGP Unit 4 Wall L (EL. 117'-6" to EL. 135'-3"). Since this reinforcement bar is not fully developed for the entire width of the wall, the bar is not considered to be credited as a portion of the provided steel area for Wall L.

The reinforcement necessary to satisfy ACI 349-01 requirements is calculated using Finite Element Analysis (FEA) using the applicable load combinations and design criteria, in accordance with UFSAR Table 3.8.4-2 and ACI 349-01. As shown in UFSAR Table 3H.5-7, the horizontal demand in Wall L between Elevations 117'-6" to 135'-3" (1.36 in^2/ft) remains less than the revised capacity of this wall segment (4.36 in^2/ft). The proposed change does not impact the seismic

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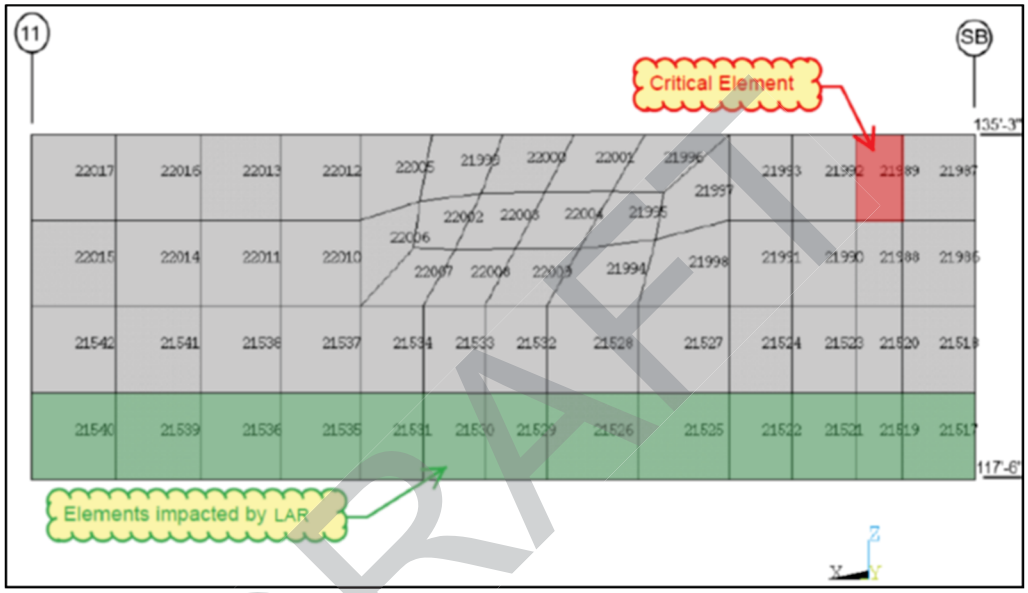
analysis of the nuclear island because it does not affect the mass or stiffness of the seismic model. Wall L continues to provide MCR boundary.

The documented design margin for Wall L (EL. 117'-6" to EL. 135'-3") is 66.7% based on the critical element. The elements impacted by the proposed change are not located near the critical elements as shown in Figure 5 and have a revised margin of 73.7% considering the subject reduction in area of provided reinforcement presented in this LAR. Therefore, the proposed change does not reduce the design margin for Wall L.

Figure 5 - Wall L FEA Critical Element and Impacted Elements



Considering the subject reduction in area of provided horizontal reinforcement presented in this LAR, the maximum calculated interaction ratio of the local impacted elements is IR_{Local}=0.26. Since the IR remains less than 1.0, the proposed change is acceptable and continues to satisfy the acceptance criteria of ACI 349-01 and applicable design criteria. Furthermore, the IR_{Local} is less than the documented critical element interaction ratio.

Construction Joint (CJ) Evaluation for Wall L

There is no impact to the CJ between Wall L and Wall 11 because a #11 hook (located directly above EL. 117'-6") has been installed and is adequately developed on both sides of the vertical CJ. Therefore, the specified amount of design reinforcement is provided transverse to the CJ as required.

The CJ between Wall L and the Shield Building is impacted by the proposed change. The amount of provided rebar, considered transverse to the CJ, in the design analysis is 8.78 in^2/ft. This is equivalent to #11@6" + #10@12" (EF). Since the horizontal #11 bar (EF) is not installed directly above EL. 117'-6" transverse to this CJ, the reduction to the provided horizontal reinforcement for the impact portion of the CJ results in an area of 8.39 in^2/ft. The nominal shear strength of the CJ is controlled by concrete strength and geometry in accordance with ACI 349-01, Section 11.7.5. Therefore, the calculated IR of 0.735 remains unchanged. Since the IR remain less than 1.0, the

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proposed change is acceptable and continues to satisfy the acceptance criteria of ACI 349-01 and applicable design criteria.

Shear Reinforcement for Wall L

The design of Wall L includes shear reinforcement (#6@6"x6" crossties) from EL. 117'-6" to EL. 133'-3". Requirements for shear reinforcement for Wall L are provided on UFSAR Figure 3H.5-12 and Table 3H.5-7. The crossties are designed to engage vertical reinforcement. The proposed change regarding horizontal reinforcement does not impact the vertical reinforcement or the ability to install shear reinforcement.

Adjacent Walls and Slabs

The proposed change has no impact to adjacent walls and slabs. Adjacent walls and slabs remain in conformance with ACI 349-01 requirements.

Wall L Vertical Evaluation

The reinforcement necessary to satisfy ACI 349-01 requirements is calculated using Finite Element Analysis (FEA) using the applicable load combinations and design criteria, in accordance with UFSAR Table 3.8.4-2 and ACI 349-01. As shown in UFSAR Table 3H.5-7, the required vertical reinforcement in Wall L between EL. 117'-6" to 135'-3" (2.02 in^2/ft) remains less than the revised provided reinforcement of this wall segment (5.55 in^2/ft).

$$A_{as-built} = \frac{A_{provided\ steel}}{L_{wall}} = \frac{N_{\#11} * A_{\#11} + N_{\#10} * A_{\#10}}{L_{wall}}$$
$$= \frac{(96\ bars * 1.56\ in^2) + (95\ bars * 1.27\ in^2)}{48.72\ ft} = 5.55\frac{in^2}{ft}$$

The proposed change does not impact the seismic analysis of the nuclear island because it does not affect the mass or stiffness of the seismic model. Wall L continues to provide MCR boundary.

Even though the design qualifies Wall L under all applicable loads including combined thermal and safe shutdown earthquake (SSE) loads, the required vertical reinforcement shown in UFSAR Table 3H.5-7 does not reflect the demands under combined SSE and thermal loads per Note 1 on the table. The qualification of Wall L shows that the maximum design ratio for the vertical reinforcement in Wall L between EL 117'-6" to 135'-3" is 0.418 (the required steel = 2.365 in^2/ft and the provided steel = 5.660 in^2/ft each face). The design required area of steel is 2.365 in^2/ft, which considers all applicable loads including combined SSE and thermal loads, is higher than the required value of 2.02 in^2/ft as specified in UFSAR Table 3H.5-7 and, therefore, is more conservative. While the proposed change has vertical bars omitted in each of the four layers (East/West, inside/outside), at worst only a single bar in each layer is missing over an effective width of 2 times the thickness. This is a conservative interpretation of the ACI limit as defined in ACI 349-01, Section 14.2.4. The average provided reinforcement in a distance of two times the wall thickness of 2 feet is reduced to 4.95 in^2/ft each face.

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$$\frac{A_{design} * (2 * t_{wall}) - A_{\#11} - A_{\#10}}{2 * t_{Wall}} = \frac{\left(5.66\ \frac{in^2}{ft} * 4\ ft\right) - 1.56\ in^2 - 1.27\ in^2}{4\ ft} = 4.95\ \frac{in^2}{ft}$$

The design ratio then becomes 0.478, which is less than 1.0.

$$\frac{2.365\ \frac{in^2}{ft}}{4.952\ \frac{in^2}{ft}} = 0.478$$

Therefore, the subject wall (Wall L, Section 4) is still qualified with a design margin of 52.2%.

$$1 - 0.478 = 0.522$$

Construction Joint

The horizontal CJ at EL 117'-6" in Wall L has a maximum Demand / Capacity ratio of 0.523. The proposed change reduces the shear friction capacity from the vertical reinforcement to 594.24 kip/ft, while the concrete shear capacity is 230.4 kip/ft. As the concrete shear capacity is less, it remains the governing interaction ratio at 0.523.

The vertical rebar installed above EL. 135'-3" will meet the UFSAR Table 3H.5-7 specified minimum provided area, as all rebar will be developed by the construction joint at 133'-3"; therefore, the construction joint at EL 133'-3" is not impacted.

Shear Reinforcement

The design of Wall L includes shear reinforcement (#6@6"x6" crossties) from EL. 117'-6" to EL. 133'-3". Requirements for shear reinforcement for Wall L are provided on UFSAR Figure 3H.5-12 and Table 3H.5-7. The crossties are designed to engage vertical reinforcement and are able to be installed in accordance with spacing limitations specified in ACI 349-01 and meet the provided reinforcement area as specified in UFSAR Table 3H.5-7. Therefore, there is no impact on the shear reinforcement from this proposed change.

Adjacent Walls and Slabs

The proposed change has no impact to adjacent walls and slabs. Adjacent walls and slabs remain in conformance with ACI 349-01 requirements.

Wall 7.3 Evaluation

The proposed change specifies that one horizontal reinforcement bar #10@6" (EF) located directly below EL. 135'-3" is to be spliced to a standard hook bar (EF) in Wall I and extend to 2'-0" from the Shield Building. Since the reinforcement bar is not fully developed to the Shield Building as part of the proposed change, the bar is unable be credited as provided horizontal reinforcement until the straight bar development is achieved within Wall 7.3.

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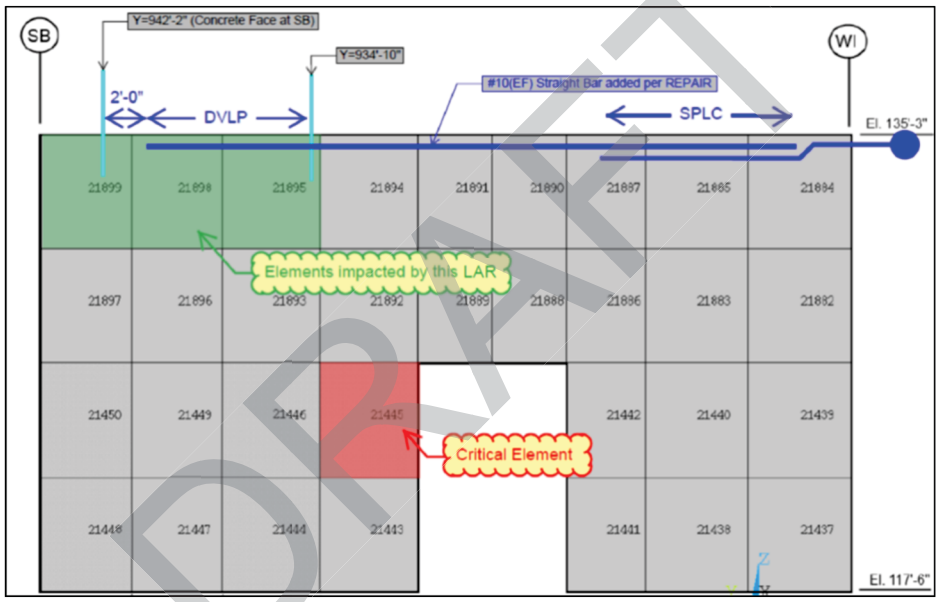
The reinforcement necessary to satisfy ACI 349-01 requirements is calculated using Finite Element Analysis (FEA) using the applicable load combinations and design criteria, in accordance with UFSAR Table 3.8.4-2 and ACI 349-01. As shown in UFSAR Table 3H.5-5, the horizontal demand in Wall 7.3 between EL. 117'-6" to EL. 135'-3" (2.03 in^2/ft) remains less than the revised capacity (2.50 in^2/ft) of this wall segment. The proposed change does not impact the seismic analysis of the nuclear island because it does not affect the mass or stiffness of the seismic model.

The documented design margin for Wall 7.3 (EL. 117'-6" to EL. 135'-3") is 17.2% based on the critical element. The elements impacted by the proposed change are not located near the critical elements as shown in Figure 6 and have a margin of 17.86% considering the subject reduction in area of provided reinforcement presented in this LAR. Therefore, the proposed change does not reduce the design margin for Wall 7.3.

Figure 6 - Wall 7.3 FEA Critical Element and Impacted Elements



Considering the subject reduction in area of provided horizontal reinforcement presented in this LAR, the calculated interaction ratio of the local impacted elements is IR_{Local}=0.82. Since the IR remains less than 1.0, the proposed change is acceptable and continues to satisfy the acceptance criteria of ACI 349-01 and applicable design criteria. Furthermore, the IR_{Local} is less than the documented critical element interaction ratio.

Construction Joint (CJ) Evaluation for Wall 7.3

There is no impact to the CJ between Wall 7.3 and Wall I because a #10 hook (located directly below EL. 135'-3") has been installed and is adequately developed on both sides of the vertical CJ. Therefore, the specified amount of design reinforcement is provided transverse to the CJ as required.

The CJ between Wall 7.3 and the Shield Building is impacted by the proposed change. The amount of provided rebar, considered transverse to the CJ, in the design analysis is 5.08 in^2/ft. This is equivalent to #10@6" (EF). Since the horizontal #10 bar (EF) is not installed directly below EL. 135'-3" into the Shield Building, this results in a reduction to the horizontal provided rebar

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considered transverse to the CJ. The provided reinforcement for the impacted portion of the CJ is 4.76 in^2/ft. The nominal shear strength of the CJ is controlled by concrete strength and geometry in accordance with ACI 349-01, Section 11.7.5. Therefore, the calculated IR of 0.847 remains unchanged. Since the IR remains less than 1.0, the proposed change is acceptable and continues to satisfy the acceptance criteria of ACI 349-01 and applicable design criteria.

Openings located in Wall 7.3

The #10 reinforcement bar is developed within Wall 7.3 above penetrations, therefore there is no impact on the design of the wall opening in Wall 7.3.

Adjacent Walls and Slabs

The proposed change has no impact to adjacent walls and slabs. Adjacent walls and slabs remain in conformance with ACI 349-01 requirements.

Technical Justification Summary (Applies to Wall L and Wall 7.3 Changes)

Per UFSAR Subsection 3.8.4.5.3, deviations from the design due to as-procured or as-built conditions are acceptable based on an evaluation consistent with the methods and procedures of UFSAR Sections 3.7 and 3.8 provided the following acceptance criteria are met:

- The structural design meets the acceptance criteria specified in UFSAR Section 3.8
- The seismic floor response spectra meet the acceptance criteria specified in UFSAR Subsection 3.7.5.4

Considering the applicable loading scenarios and acceptance criteria required by the current licensing basis, as discussed above, the demands in Wall L and Wall 7.3 remain below their respective capacities. The proposed changes to the reinforcement are in accordance with and continue to satisfy the acceptance criteria of ACI 349-01.

The proposed changes do not impact the seismic analysis of the Nuclear Island because it does not affect the mass or stiffness of the seismic model, and the design remains in accordance with Regulatory Guide 1.29. The seismic Category I structure continues to comply with the quality assurance requirements of 10 CFR 50, Appendix B.

Additional Impact Evaluation (Applies to Wall L and Wall 7.3 Changes)

The proposed change does not affect aircraft impact assessment or tornado missile evaluations. The walls affected by the change are interior walls and continue to meet design requirements. The rebar developed into the Shield Building wall from Wall L and Wall 7.3 are not credited in aircraft impact assessment or tornado missile evaluations.

The impact on the wall's effectiveness in providing radiation shielding was examined, and there are no adverse effects because the placement of reinforcement does not impact the walls' function as a radiation safety barrier since steel is not calculated as part of the shielding analysis. There is no adverse impact to the bounding conclusions of the radiation analysis.

The proposed change does not alter the fire loads found in any adjacent fire zones and areas as no equipment is added or removed by the activity. The proposed change does not affect any

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function or feature used for the prevention and mitigation of accidents or their safety analyses. The proposed change does not involve nor interface with any SSC accident initiator or initiating sequence of events related to accidents evaluated in the UFSAR. The proposed change does 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 walls' function as a flood barrier is not impacted. The reinforcement of the walls is also not used as an input to the probabilistic risk assessment (PRA), and therefore, there is no PRA impact as a result of the missing reinforcement.

No system or design function or equipment qualification is affected by the proposed change. The change does not result in a new failure mode, malfunction or sequence of events that could affect a radioactive material barrier or safety-related equipment. The proposed change 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.

The proposed change has no adverse effect on the ex-vessel severe accident. The overall design, geometry, and strength of the containment internal structures and other seismic Category I structures are not changed. The design and material selection of the concrete floor beneath the reactor vessel is not altered. The response of the containment to a postulated reactor vessel failure, including direct containment heating, ex-vessel steam explosions, and core concrete interactions is not altered. The design of the reactor vessel and the response of the reactor vessel to a postulated severe accident are not altered by the change.

The proposed change does not affect the containment, control, channeling, monitoring, processing or releasing of radioactive and non-radioactive materials. The types and quantities of expected effluents are not changed, and no effluent release path is affected by the proposed changes. Therefore, radioactive and non-radioactive material effluents are not affected by the proposed change.

Plant radiation zones (as described in UFSAR Section 12.3), controls under 10 CFR 20, and expected amounts and types of radioactive materials are not affected by the proposed change. The change to the reinforcement was also examined with respect to the walls' effectiveness in providing radiation shielding, and no adverse impacts were identified. Therefore, individual and cumulative radiation exposures do not change.

These changes do not impact the emergency plans or the physical security evaluation since there are no changes to the configuration of walls, doors, or access to the nuclear island. The proposed changes do not involve, nor interface with, any structure, system or component accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the UFSAR are not affected.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR Part 52, Appendix D, VIII.B.6 requires prior NRC approval for the departure from Tier 2* information. This change, which includes a change to the provided area of horizontal and vertical reinforcement for the VEGP Unit 4 Wall L from elevation 117' 6" to

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135'-3" and horizontal reinforcement for VEGP Unit 4 Wall 7.3 from elevation 117' 6" to 135'-3", includes a Tier 2* departure that does not meet the Tier 2* departure exemption criteria of License Condition 2.D.(13) of the VEGP Unit 4 COL, and thus requires NRC approval. Therefore, a license amendment request (LAR) (as supplied herein) is required.

10 CFR 50, Appendix A, General Design Criteria for Nuclear Power Plants, General Design Criterion (GDC) 1, Quality standards and records, requires that structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. By continuing to follow the guidelines of the NRC Regulatory Guides and industry standards, the requirements of GDC 1 have been maintained.

10 CFR 50, Appendix A, GDC 2, Design bases for protection against natural phenomena, requires that structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. There is no change to the expected responses to natural phenomena, and Wall L and Wall 7.3, even with the change to the reinforcement, continue to be able to respond to the same design basis earthquake; therefore, there are no changes to the conformance with GDC 2.

10 CFR 50, Appendix A, GDC 4, Environmental and dynamic effects design bases, requires that structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. The changes to the reinforcement do not alter the walls' response to environmental conditions associated with normal operation, and because the same design criteria are used before and after the changes, the auxiliary building continues to be able to withstand similar conditions; therefore, there are no changes to the conformance with GDC 4.

4.2 Precedent

No precedent is identified.

4.3 Significant Hazards Consideration

The requested amendment proposes changes to information in the Updated Final Safety Analysis Report (UFSAR) related to the provided area of horizontal and vertical reinforcement for Vogtle Electric Generating Plant (VEGP) Unit 4 Wall L from elevation 117'-6" to 135'-3" and horizontal reinforcement for VEGP Unit 4 Wall 7.3 from elevation 117'-6" to 135'-3".

An evaluation to determine whether or not 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.

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As described in UFSAR Subsections 3H.5.1.2 and 3H.5.1.3, interior Wall 7.3 and Wall L are located in the auxiliary building. UFSAR, Section 3H.5 classifies Interior Wall on Column Line 7.3, from elevation (EL) 66'-6" to 160'-6" as a “Critical Section.” UFSAR, Section 3H.5 classifies Interior Wall on Column Line L, from EL 117’-6" to 153’-0” as a “Critical Section.” Deviations were identified in the constructed walls from the design requirements. The proposed changes modify the provided area of steel reinforcement for VEGP Unit 4 Wall L and Wall 7.3 from elevation 117’-6” to 135’-3". These changes maintain conformance to American Concrete Institute (ACI) 349-01 and have no adverse impact on the seismic response of Wall L and Wall 7.3. Wall L and Wall 7.3 continue to withstand the design basis loads without loss of structural integrity or the safety-related functions. The proposed changes do not affect the operation of any system or equipment that initiates an analyzed accident or alter any structures, systems, and component (SSC) accident initiator or initiating sequence of events.

This change does not adversely affect the design function of VEGP Unit 4 Wall L and Wall 7.3, or the SSCs contained within the auxiliary building. This change does not involve any accident initiating components or events, thus leaving the probabilities of an accident unaltered.

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 change modifies the provided area of steel reinforcement for VEGP Unit 4 Wall L and Wall 7.3 from elevation 117'-6" to 135'-3". As demonstrated by the continued conformance to the applicable codes and standards governing the design of the structures, the walls withstand the same effects as previously evaluated. The proposed change does not affect the operation of any systems or equipment that may initiate a new or different kind of accident or alter any SSC such that a new accident initiator or initiating sequence of events is created. The proposed change does not adversely affect the design function of auxiliary building Wall L and Wall 7.3, or any other SSC design functions or methods of operation in a manner that results in a new failure mode, malfunction, or sequence of events that affect safety-related or non-safety-related equipment. This change 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 result in significant fuel cladding failures.

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.

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The proposed change modifies the provided area of steel reinforcement for VEGP Unit 4 Wall L and Wall 7.3 from elevation 117'-6" to 135'-3". This change maintains conformance to ACI 349-01. The changes to Wall L and Wall 7.3 reinforcement from elevation 117'-6" to 135'-3" do not change the performance of the affected portion of the auxiliary building for postulated loads. The criteria and requirements of ACI 349-01 provide a margin of safety to structural failure. The design of the auxiliary building structure conforms to criteria and requirements in ACI 349-01 and therefore, maintains the margin of safety. The change does not alter any design function, design analysis, or safety analysis input or result, and sufficient margin exists to justify departure from the Tier 2* requirements for the walls. As such, because the system continues to respond to design basis accidents in the same manner as before without any changes to the expected response of the structure, no safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the proposed changes. Accordingly, no significant safety margin is reduced by the change.

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 details of the proposed changes are provided in Section 2 and 3 of Enclosure 3 of this license amendment request.

The requested amendment proposes changes to information in the Updated Final Safety Analysis Report (UFSAR) related to the provided area of steel reinforcement for VEGP Unit 4 Wall L and Wall 7.3 from elevation 117'-6" to 135'-3".

A review has determined the proposed change requires an amendment to the COL. However, a review of the anticipated construction and operational effects of the requested amendment has determined the requested amendment 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 in Section 4.3, *Significant Hazards Consideration Determination*, of Enclosure 3 of this license amendment request, an evaluation was completed to determine

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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 requested amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the requested amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the requested amendment does not involve a significant reduction in a margin of safety.

Therefore, it is concluded that the requested 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 change modifies the provided area of steel reinforcement for VEGP Unit 4 Wall L and Wall 7.3 from elevation 117'-6" to 135'-3". The proposed change is 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 nonradiological effluent release quantities. Furthermore, the proposed change does 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 change modifies the provided area of steel reinforcement for VEGP Unit 4 Wall L and Wall 7.3 from elevation 117'-6" to 135'-3". 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. The change was also examined with respect to the walls' effectiveness in providing radiation shielding, and no adverse impacts were identified.

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 the 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 exemption is not required.

6. REFERENCES

None.

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Southern Nuclear Operating Company

ND-19-XXXX

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Unit 4

Revision to Proposed Changes to the Licensing Basis Documents

Reinforcement Changes for Wall L and Wall 7.3

(LAR-19-016R1)

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Added text is shown as Blue Underline
Deleted Text is shown as ~~Red Strikethrough~~
Omitted text is shown as three asterisks (***)

(This Enclosure consists of 5 pages, including this cover page)

Revise UFSAR Table 3H.5-5 "Interior Wall on Column Line 7.3 Details of Wall Reinforcement" as shown below:

Wall Segment (See detail in Subsection 3H.5.1.2)	Location	Wall Section	Reinforcement on Each Face (in^2/ft)	
			Required (1)	[*Provided (Min.)*]*
***				
Elevation 135'-3" to 117'-6"	Horizontal	3	2.03	*2.54*[4]
	Vertical	9	2.63	*3.12*
***				

Notes:

***

*[4 For Vogtle Unit 4, two horizontal reinforcement bars are terminated 2'-0" from the shield building vertical construction joint (CJ). These bars, one #10 on each face of the wall, are located directly below elevation 135'-3". This effectively reduces the minimum provided area of steel in this wall segment to 2.50 in^2/ft. The provided minimum reinforcement is reduced from the shield building CJ through the development length of the bars. However, it does not change the performance of the existing structure under postulated loads and does not cause any excessive stress locally along the development length of the bar.]**

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Revise UFSAR Table 3H.5-7 "Interior Wall on Column Line L Details of Wall Reinforcement" as shown below:

Wall Segment (See detail in Subsection 3H.5.1.3)	Location	Wall Section	Reinforcement on Each Face (in^2/ft^2)	
			Required (1)	[*Provided (Min.)*]*
***				
Elevation 135'-3" to 117'-6"	Horizontal	2	1.36	*4.39*[3]
	Vertical	4	2.02	*5.66*[4]]*
***				

Notes:

***

*[3. For Vogtle Unit 4, two #11 horizontal reinforcement bars (one on each face) are omitted directly above elevation 117'-6" for the entire width of the wall. This effectively reduces the minimum provided area of steel in this wall segment to 4.36 in^2/ft. The provided minimum reinforcement is reduced for the entire width of the wall segment. However, it does not change the performance of the existing structure under postulated loads and does not cause any excessive stress locally.]**

*[4. For Vogtle Unit 4, three #11 and four #10 vertical reinforcement bars are omitted from elevation 117'-6" to elevation 135'-3". This effectively reduces the minimum provided area of steel in this wall segment to 5.55 in^2/ft. The provided minimum reinforcement is reduced for the entire width of the wall segment. However, it does not change the performance of the existing structure under postulated loads and does not cause any excessive stress locally.]**

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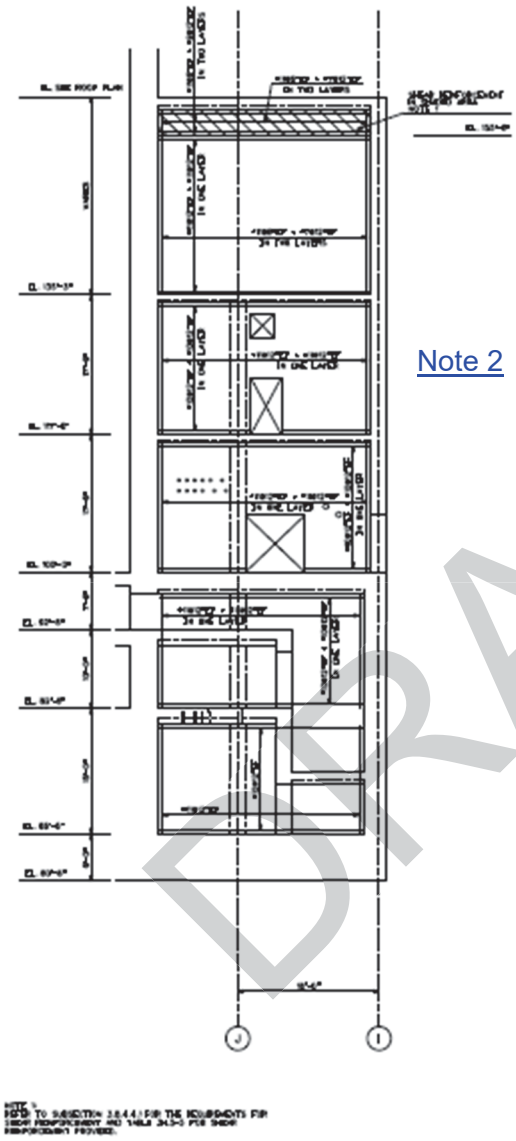
Revise UFSAR Figure 3H.5-4, "Typical Reinforcement in Wall 7.3" as shown below:

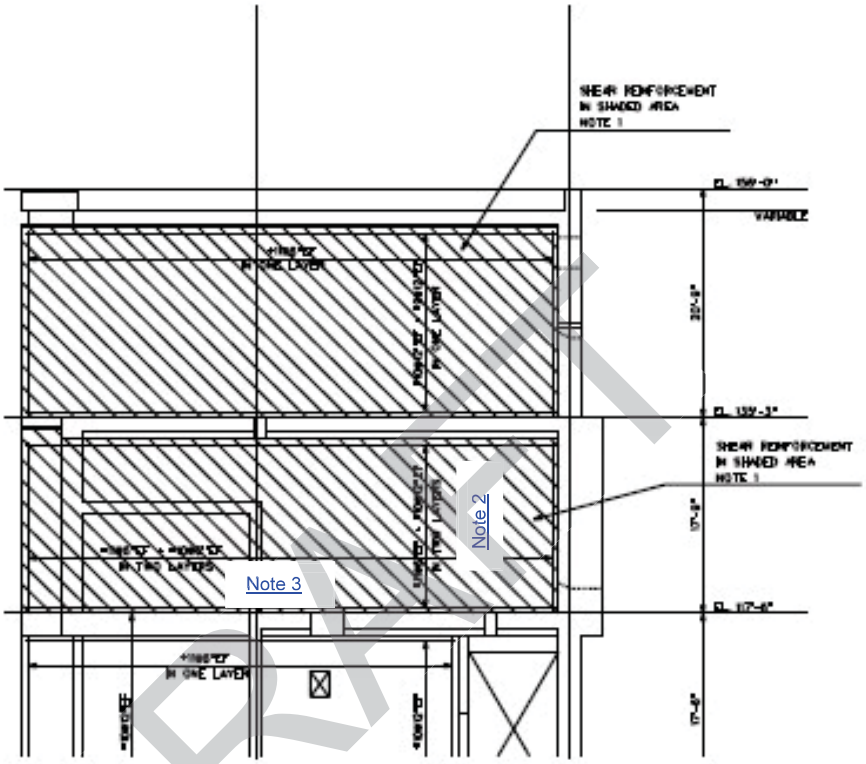


DRAFT

NOTE 2:

FOR VOGTLE UNIT 4, TWO HORIZONTAL REINFORCEMENT BARS ARE TERMINATED 2'-0" FROM THE SHIELD BUILDING VERTICAL CONSTRUCTION JOINT. THESE BARS, ONE #10 ON EACH FACE OF THE WALL, ARE LOCATED DIRECTLY BELOW ELEVATION 135'-3". SEE TABLE 3H.5-5 FOR ADDITIONAL DETAILS.

Revise UFSAR Figure 3H.5-12, "Typical Reinforcement in Wall L" as shown below:



DRAFT

NOTE 2:

FOR VOGTLE UNIT 4, TWO #11 HORIZONTAL REINFORCEMENT BARS (ONE ON EACH FACE) ARE OMITTED DIRECTLY ABOVE ELEVATION 117'-6", FOR THE ENTIRE WIDTH OF THE WALL. SEE TABLE 3H.5-7 FOR ADDITIONAL DETAILS.

NOTE 3:

FOR VOGTLE UNIT 4, THREE #11 AND FOUR #10 VERTICAL REINFORCEMENT BARS ARE OMITTED FROM ELEVATION 117'-6" TO ELEVATION 135'-3". SEE TABLE 3H.5-7 FOR ADDITIONAL DETAILS.