

**From:** Schiller, Alina  
**Sent:** Friday, October 9, 2020 2:43 PM  
**To:** Vogtle PEmails  
**Cc:** Gleaves, Billy  
**Subject:** Draft SNC Alternative for the 10/15 Vogtle Units 3 and 4 Public Call  
**Attachments:** DRAFT - Proposed Alternative for ASME Section XI Examination Coverage of Weldolets.pdf

**From:** Leighty, Steven <sleighty@southernco.COM>  
**Sent:** Friday, October 09, 2020 2:36 PM  
**To:** Gleaves, Billy <Bill.Gleaves@nrc.gov>; Schiller, Alina <Alina.Schiller@nrc.gov>  
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**Subject:** [External\_Sender] Draft SNC Alternative for the 10/15 Public Call

Billy and Alina,

Attached is the draft of the SNC proposed Alternative for ASME Section XI Examination Coverage of Weldolet Branch Connection Welds. This is provided in support of the presubmittal discussion planned for the 10/15 public call.

If you have any questions, please let me know.

Thanks,

**Steve Leighty | Southern Nuclear**

Licensing Supervisor | Vogtle 3&4

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**Subject:** Draft SNC Alternative for the 10/15 Vogtle Units 3 and 4 Public Call  
**Sent Date:** 10/9/2020 2:43:10 PM  
**Received Date:** 10/9/2020 2:43:14 PM  
**From:** Schiller, Alina

**Created By:** Alina.Schiller@nrc.gov

**Recipients:**  
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Tracking Status: None  
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Tracking Status: None

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**Southern Nuclear Operating Company**

**ND-20-XXXX**

**Enclosure**

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

**Proposed Alternative VEGP 3&4-PSI/ISI-ALT-XXX in Accordance with 10 CFR 50.55a(z)(2)**

**ASME Section XI Examination Coverage of Weldolet Branch Connection Welds**

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

<b>Plant Site-Unit:</b>	Vogtle Electric Generating Plant (VEGP) – Units 3 and 4																				
<b>Interval-Interval Dates:</b>	Applies to Preservice and Inservice Inspection (PSI and ISI) activities																				
<b>Requested Date for Approval:</b>	Approval is requested by December 30, 2020 to support completion of preservice inspection activities for Unit 3.																				
<b>ASME Code Components Affected:</b>	<p>ASME Class 1 Systems</p> <p>Class 1 applies to welds in the Reactor Coolant System (RCS) pressure boundary located on branch connection lines within Automatic Depressurization System (ADS) Stage 1 piping (refer to UFSAR Figure 5.1-5 (Sheet 2 of 3). The applicable welds are in Code Category B-J and are listed in the following table.</p> <table border="1"> <thead> <tr> <th>Item</th><th>Description</th><th>Limitation</th><th>Component</th></tr> </thead> <tbody> <tr> <td>B9.31</td><td>Branch Connection Weld</td><td>Branch Connection Geometry</td><td>SV3-RCS-PLW-013-SW3</td></tr> <tr> <td>B9.31</td><td>Branch Connection Weld</td><td>Branch Connection Geometry</td><td>SV3-RCS-PLW-01C-SW3</td></tr> <tr> <td>B9.31</td><td>Branch Connection Weld</td><td>Branch Connection Geometry</td><td>SV4-RCS-PLW-013-SW3</td></tr> <tr> <td>B9.31</td><td>Branch Connection Weld</td><td>Branch Connection Geometry</td><td>SV4-RCS-PLW-01C-SW3</td></tr> </tbody> </table>	Item	Description	Limitation	Component	B9.31	Branch Connection Weld	Branch Connection Geometry	SV3-RCS-PLW-013-SW3	B9.31	Branch Connection Weld	Branch Connection Geometry	SV3-RCS-PLW-01C-SW3	B9.31	Branch Connection Weld	Branch Connection Geometry	SV4-RCS-PLW-013-SW3	B9.31	Branch Connection Weld	Branch Connection Geometry	SV4-RCS-PLW-01C-SW3
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<b>Applicable Code Edition and Addenda:</b>	ASME B&PV Code, Section XI, 2007 Edition through the 2008 Addenda																				
<b>Applicable Code Requirements:</b>	<p>IWA-2200 Examination Methods</p> <p>(a) The three types of examinations used during inservice inspection are defined as visual, surface, and volumetric. The examination method to be used is specified in Tables IWB-,</p>																				

	<p>IWC-, IWD-, IWE-, IWF-, and IWL-2500-1. If a component must be examined in a high radiation area, remotely controlled equipment may be advisable.</p> <p>(b) When preparation of a surface for nondestructive examination is required, the preparation shall be by a mechanical method. Such surfaces shall be blended into the surrounding area as may be required to perform the examination. The wall thickness shall not be reduced below the minimum thickness required by design. Nonmandatory Appendix D may be used for such surface preparation.</p> <p>(c) All nondestructive examinations of the required examination surface or volume shall be conducted to the maximum extent practical. When performing VT-1, surface, radiographic, or ultrasonic examination on a component with defined surface or volume, essentially 100% of the required surface or volume shall be examined. Essentially 100% coverage is achieved when the applicable examination coverage is greater than 90%; however, in no case shall the examination be terminated when greater than 90% coverage is achieved, if additional coverage of the required examination surface or volume is practical. Non-mandatory Appendix S provides guidance that may be used for evaluating examination coverage.</p>
<p><b>Reason for Request:</b></p>	<p>The examination volume required by IWA-2200(c) for weldolet branch connections is not achievable due to the configurations of the weldolets used during construction of Vogtle 3&amp;4. These weld configurations are widely used by the industry, and challenges for these configurations are typical and are frequently captured in relief requests for Inservice Inspection.</p> <p>Examination Category B-J for Pressure Retaining Welds in Piping as defined in Table IWB-2500-1 requires 100 percent surface and volumetric examinations for NPS 4 branch connection welds (B9.31), while those with NPS less than 4 require surface examinations only. The applicable branch connection welds are NPS 4, Pipe-to-14x4" weldolets, and are located on the RCS ADS lines.</p> <p>Examinations of these welds are tied to the completion of preservice inspection activities required for completion and submittal of ITAAC for the Reactor Coolant System (RCS).</p> <p>Ultrasonic testing and surface examinations of essentially 100 percent would result in hardship without a compensating increase in the level of quality and safety.</p>

<p><b>Proposed Alternative and Basis for Use:</b></p>	<p><b>Proposed Alternative:</b></p> <p>As an alternative to ASME Section XI, subarticle IWA-2200 requirement for essentially 100 percent of volumetric and surface examination coverage for the listed weldolet branch connection welds listed above, SNC proposes to perform volumetric and surface examinations as follows:</p> <ul style="list-style-type: none"> <li>• The best effort volumetric examinations will be conducted to the maximum extent practical, with a minimum examination coverage of 40%. Acceptance will be based on the indications identified in the coverage area.</li> <li>• A surface examination will be conducted to the maximum extent practical, in addition to the best effort volumetric examination.</li> </ul> <p>The ASME Section XI volumetric examination to be performed will be an ultrasonic examination in accordance with Appendix VIII, for austenitic and ferritic welds. Best effort surface examinations will be performed in accordance with IWA-2220. Acceptance criteria for examinations will be in accordance with IWB-3000 for Class 1 systems.</p> <p><b>Basis for Use:</b></p> <p>The proposed alternative establishes that best effort volumetric and surface examinations provide sufficient coverage for the weldolet branch connection welds listed above.</p> <p>The proposed alternative has precedent within the industry, and typically relies on the best effort volumetric examination complimented by a surface examination. The best effort volumetric examination provides reassurance of the integrity of the pressure retaining boundary, for the extent possible, and relies on the surface examination for additional reassurance. Typical coverage on these configurations range from 40% to 80%, depending on the sizes of fabrication tapers. Vogtle 3&amp;4 is expected to fall within this range.</p> <p>Weldolet branch connections are used in the design of the RCS to minimize the failure zone at the connection point by using a smaller bore hole of 4". This allows for a greater weld thickness, thus offsetting the loss of examination coverage by minimizing stress concentrations.</p> <p>The other ASME Section XI examinations that verify structural integrity are performed in accordance with ASME Section XI (e.g., visual).</p> <p>As described above, the additional surface examination criteria proposed in this alternative provides reasonable assurance of structural integrity by detection of surface flaws in the affected component welds. Compliance with ASME Section XI for performing volumetric examinations results in hardship without a compensating increase in the level of quality and safety; therefore, this proposed alternative provides reasonable assurance of structural integrity and should be granted pursuant to 10 CFR 50.55a(z)(2).</p>
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ND-20-XXXX

Enclosure

Proposed Alternative VEGP 3&4-PSI/ISI-ALT-XXX in Accordance with 10 CFR 50.55a(z)(2) –  
ASME Section XI Examination Coverage of Weldolet Branch Connection Welds

<b>Duration of Proposed Alternative:</b>	During applicability of the PSI program until transition to the ISI program for each unit.
<b>References:</b>	None
<b>Status:</b>	Awaiting NRC authorization

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