

From: Gleaves, Billy
Sent: Friday, May 15, 2020 3:50 PM
To: Vogtle PEmails
Cc: Rankin, Jennivine; Santos, Cayetano
Subject: FW: Draft Alternative for Proposed 5/21 Pre-submittal Meeting
Attachments: Enclosure ALT-xx Draft 2020-05-15.pdf

By this email, I am forwarding the email below from SNC to be captured in the NRC's ADAMS system.

From: Roberts, Kelli Anne <KROBERTS@southernco.com>
Sent: Friday, May 15, 2020 3:37 PM
To: Rankin, Jennivine <Jennivine.Rankin@nrc.gov>; Gleaves, Billy <Bill.Gleaves@nrc.gov>
Cc: Leighty, Steven <sleighty@southernco.COM>; Castell, Curtis A. <X2CACAST@SOUTHERNCO.COM>
Subject: [External_Sender] Draft Alternative for Proposed 5/21 Pre-submittal Meeting

As discussed during the technical exchange yesterday, I've attached our draft alternative request, which we would like to discuss during the 5/21 public call.

Thanks,

Kelli Roberts | Southern Nuclear Operating Company

Vogtle 3&4 Licensing Manager
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Subject: FW: Draft Alternative for Proposed 5/21 Pre-submittal Meeting
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From: Gleaves, Billy

Created By: Bill.Gleaves@nrc.gov

Recipients:

"Rankin, Jennivine" <Jennivine.Rankin@nrc.gov>
Tracking Status: None
"Santos, Cayetano" <Cayetano.Santos@nrc.gov>
Tracking Status: None
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>
Tracking Status: None

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Enclosure ALT-xx Draft 2020-05-15.pdf		161223

Options

Priority: Normal
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:

Plant Site-Unit:	Vogtle Electric Generating Plant (VEGP) – Units 3 and 4
Interval-Interval Dates:	Applies to construction and preservice inspection intervals.
Requested Date for Approval:	Approval is requested by September 30, 2020, to support completion of preservice inspection activities prior to Unit 3 ITAAC completion.
ASME Code Components Affected:	ASME Class 1 and Class 2 Piping and Components
Applicable Code Edition and Addenda:	ASME B&PV Code, Section XI, 2007 Edition with the 2008 Addenda
Applicable Code Requirements:	<p>Section XI, 2007 Edition with the 2008 Addenda</p> <p>IWB-3112 Acceptance</p> <p>(a) A component whose volumetric or surface examination either confirms the absence of or detects flaws that do not exceed the standards of Table IWB-3410-1 shall be acceptable for service, provided the verified flaws are recorded in accordance with the requirements of IWA- 1400(h), IWA-2220(b), and IWA-6230 in terms of location, size, shape, orientation, and distribution within the component.</p> <p>(b) A component whose volumetric or surface examination (IWB-2200) detects flaws that meet the nondestructive examination standards of NB-2500 and NB-5300, as documented in Quality Assurance Records (NCA-4134.17), shall be acceptable.</p> <p>(c) A component whose volumetric or surface examination (IWB-2200) detects flaws, other than the flaws of IWB-3112(b), that exceed the standards of Table IWB-3410-1 is unacceptable for service, unless the component is corrected by a repair /replacement activity to the extent</p>

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	necessary to meet the acceptance standards prior to placement of the component in service. Additionally, IWC-3112 provides the commensurate requirements for Class 2 Components.

Reason for Request:	PSI Ultrasonic Testing (UT) examinations may identify indications that were not found by the ASME Section III Radiographic Testing (RT) examination or that do not meet the ASME Section XI PSI acceptance standards. Limited use of ASME Section XI flaw evaluation methodology in accordance with IWB-3600 and IWC-3600 will allow disposition of these indications without weld repairs that could be detrimental to the component. The currently identified need for this alternative is based on indications detected in the Core Make-up Tank (CMT) inlet and outlet nozzle-to-head welds. Based on these indications it is possible that completion of required PSI examinations could identify additional locations for Vogtle Units 3 and 4.
Proposed Alternative and Basis for Use:	<p>Proposed Alternative:</p> <p>As an alternative to these requirements of ASME Section XI, 2007 Edition with 2008 Addenda, the requirements of ASME Section XI 2017 Edition Acceptance Standards, IWB-3112 and IWC-3112, including Applicable Tables IWB- and IWC-3410-1 and referenced paragraphs, may be applied:</p> <p>IWB-3112 Acceptance</p> <p>(a) A component whose volumetric or surface examination in accordance with IWB-2200 meets (1), (2), or (3) below shall be acceptable for service, provided the verified flaws are recorded in accordance with the requirements of IWA-1400(i) and IWA-2220(b) in terms of location, size, shape, orientation, and distribution within the component.</p> <p>(1) The volumetric or surface examination confirms the absence of flaws or identifies only flaws that have already been shown to meet the nondestructive examination standards of NB-2500 or NB-5300, as documented in Quality Assurance Records (NCA-4134.17).</p> <p>(2) Volumetric examination detects flaws that are confirmed by surface or volumetric examination to be non-surface-connected and that do not exceed the standards of Table IWB-3410-1.</p> <p>(3) Volumetric examination detects flaws that are confirmed by surface or volumetric examination to be non-surface-connected and that are accepted by analytical evaluation in accordance with the provisions of IWB-3132.3 to the end of the service lifetime of the component and reexamined in accordance with the requirements of IWB-2420(b) and IWB-2420(d).</p>

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	<p>(b) A component whose volumetric or surface examination detects flaws that do not meet the criteria established in (a) shall be unacceptable for service, unless the component is corrected by a repair/replacement activity in accordance with IWB-3113 to the extent necessary to meet the provisions of (a) prior to placement of the component in service.</p> <p>(c) A component whose volumetric or surface examination (IWB-2200) detects flaws, other than the flaws of (b), that exceed the standards of Table IWB-3410-1 is unacceptable for service, unless the component is corrected by a repair/replacement activity to the extent necessary to meet the acceptance standards prior to placement of the component in service.</p> <p>The following additional conditions shall be applied to welds accepted under ASME Section XI 2017 Edition IWB or IWC 3112(a)(3):</p> <ul style="list-style-type: none"> • This Alternative is applicable to ASME Section III fabricated Class 1 component welds and adjacent construction tie-in welds for those components, and 5% of the remaining Class 1 welds in a system that are non-exempt. • This Alternative is applicable to Class 2 welds without exception. • This Alternative is not applicable to the Steam Generator to Reactor Coolant Pump (SG-to-RCP) welds. • The flaw evaluation performed in accordance with IWB or IWC-3600 shall demonstrate that the flaw is predicted to remain non-surface-connected for the service life of the component. • Subsequent exams shall be conducted according to the provisions as stated in the Code. In the case of Vessel examinations, which would otherwise be exempt, the conditions below apply: <ul style="list-style-type: none"> - When one Vessel weld of an item number is accepted under this alternative, it shall be selected for examination during the First Interval. - When more than one Vessel weld of an item number or a group within an item number is accepted under this alternative, the most limiting weld, based on evaluation, shall be selected for examination during the first inservice inspection interval. - All other requirements regarding subsequent inspections shall remain. <p>Basis for Use:</p> <p>The proposed alternative establishes that flaws, which are confirmed by surface or volumetric examination to be non-surface-connected and that are accepted by analytical evaluation in accordance with the provisions of IWB-3132.3 to the end of the service lifetime of the component, are acceptable. IWB-3132.3 establishes the requirements for acceptance of flaws by analytic evaluation, as described in IWB-3600. This requirement for analytic evaluation of flaws is consistent with the requirements for flaws identified during inservice</p>
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	<p>inspection. Therefore, the use of analytic flaw evaluation is an acceptable method to demonstrate weld integrity consistent with the requirements for operating nuclear plants. Also, this alternative requires that such flaws are reexamined in accordance with the requirements of ASME Section XI 2017 Edition, IWB-2420(b) and IWB-2420(d). Hence this alternative will provide an acceptable level of quality and safety, in accordance with 10 CFR 50.55a(z)(1).</p> <p>There are additional conditions proposed for the use of this alternative. These additional conditions establish the applicability of the alternative and limits for its use.</p> <p>Specifically, the proposed alternative is applicable to ASME Section III fabricated Class 1 component welds and adjacent construction tie-in welds for those components, and 5% of the remaining Class 1 welds in a system that are non-exempt. Also, the alternative is not applicable to the SG-to-RCP welds, which are fabricated component-to-component welds. These additional requirements for the overall use of the alternative are proposed to establish reasonable limits for use of analytic flaw evaluation for PSI.</p> <p>Additionally, the limitation is provided that the flaw evaluation shall demonstrate that the flaw is predicted to remain non-surface-connected for the service life of the component. This limitation provides added assurance of weld and pressure boundary integrity. Also, a requirement to conduct reexamination of vessels, in excess of the ASME Section XI 2017 Edition requirement, is also provided. These subsequent examinations to be performed during inservice inspection ensure that the flaw evaluations have adequately accounted for potential growth during startup and initial plant operation.</p> <p>The proposed additional limitations provide added assurance that the use of this alternative will continue to ensure weld integrity is maintained.</p> <p>UT methods being used during PSI ensure reliable flaw detection and characterization, as demonstrated by the detection of indications during PSI UT examination that were not found during ASME III RT exams. The fracture mechanics methods, which have been developed for use under the flaw evaluation methods described in ASME Section XI, allow for very accurate assessment of the impact of such flaws on the integrity of the structure.</p> <p>Further, experience has shown that local repair of flaws can result in high residual stresses that can aggravate stress corrosion cracking. Analytical studies have also shown that such weld repairs can reduce weld reliability, as compared to use of flaw evaluation techniques. This is highly relevant when considering repairs of embedded flaws in components welds, which often are relatively larger thickness welds, as compared to piping system welds. In order to maintain the integrity of plant components, particularly fabricated vessels, the use of flaw evaluation with the conditions above, which includes the consideration of potential for flaw growth to become surface connected, and specific requirements for reexamination, establish the optimal conditions for maintaining weld integrity for the construction of Vogtle Units 3 and 4.</p>
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Requirements for Preservice Inspection Acceptance of Volumetric Examinations

	Therefore, the use of this alternative will provide an acceptable level of quality and safety, in accordance with 10 CFR 50.55a(z)(1).
Duration of Proposed Alternative:	Until completion of the transition from the PSI to the ISI program.
Reference:	None
Status:	Awaiting NRC authorization