

From: Gleaves, Billy
Sent: Wednesday, July 15, 2020 7:48 AM
To: Vogtle PEmails
Subject: FW: Vogtle Electric Generating Plant, Units 3 and 4, Request for Alternative: Requirements for Preservice Inspection Acceptance of Volumetric Examinations (VEGP 3&4-PSI/ISI-ALT-14)
Attachments: RAI for ALT 14 PSI flaw evaluation acceptance (Mitchell, Matthew) (Mitchell, Matthew).docx

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Billy Gleaves

From: Caldwell, Bob <Robert.Caldwell@nrc.gov>
Sent: Monday, July 13, 2020 3:12 PM
To: Mitchell, Matthew <Matthew.Mitchell@nrc.gov>; Santos, Cayetano <Cayetano.Santos@nrc.gov>; Gleaves, Billy <Bill.Gleaves@nrc.gov>
Cc: Honcharik, John <John.Honcharik@nrc.gov>; Hall, Victor <Victor.Hall@nrc.gov>; King, Mike <Michael.King2@nrc.gov>; Rudland, David <David.Rudland@nrc.gov>
Subject: RE: Vogtle Electric Generating Plant, Units 3 and 4, Request for Alternative: Requirements for Preservice Inspection Acceptance of Volumetric Examinations (VEGP 3&4-PSI/ISI-ALT-14)

Thank you Matt. This looks good for our Thursday discussion. Pass it on forward.

Bob C

From: Mitchell, Matthew <Matthew.Mitchell@nrc.gov>
Sent: Monday, July 13, 2020 1:23 PM
To: Santos, Cayetano <Cayetano.Santos@nrc.gov>; Gleaves, Billy <Bill.Gleaves@nrc.gov>
Cc: Honcharik, John <John.Honcharik@nrc.gov>; Hall, Victor <Victor.Hall@nrc.gov>; King, Mike <Michael.King2@nrc.gov>; Caldwell, Bob <Robert.Caldwell@nrc.gov>; Rudland, David <David.Rudland@nrc.gov>
Subject: Re: Vogtle Electric Generating Plant, Units 3 and 4, Request for Alternative: Requirements for Preservice Inspection Acceptance of Volumetric Examinations (VEGP 3&4-PSI/ISI-ALT-14)

Here is a draft for the proposed RAI that's at least good enough to support a discussion on Thursday.

Matt M.

Hearing Identifier: Vogtle_COL_Docs_Public
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Subject: FW: Vogtle Electric Generating Plant, Units 3 and 4, Request for Alternative:
Requirements for Preservice Inspection Acceptance of Volumetric Examinations (VEGP
3&4-PSI/ISI-ALT-14)

Sent Date: 7/15/2020 7:47:42 AM

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"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>

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RAI for ALT 14 PSI flaw evaluation acceptance (Mitchell, Matthew) (Mitchell, Matthew).docx		
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Options

Priority: Normal

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

REQUEST FOR ADDITIONAL INFORMATION
REQUEST FOR ALTERNATIVE NO. VEGP 3&4-PSI/ISI-ALT-14
REGARDING REQUIREMENTS FOR PRESERVICE INSPECTION
ACCEPTANCE OF VOLUMETRIC EXAMINATIONS
TO THE COMBINED LICENSE NOS. NPF-91 AND NPF-92
SOUTHERN NUCLEAR OPERATING COMPANY, INC.
GEORGIA POWER COMPANY
OGLETHORPE POWER CORPORATION
MEAG POWER SPVM, LLC
MEAG POWER SPVJ, LLC
MEAG POWER SPVP, LLC
CITY OF DALTON
VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4
DOCKET NOS. 52-025 AND 52-026

By letter dated June 12, 2020, Southern Nuclear Operating Company, Inc. (SNC), submitted Request for Alternative No. VEGP 3&4-PSI/ISI-ALT-14 to the U.S. Nuclear Regulatory Commission (NRC) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (ADAMS Accession No. ML20164A174) in accordance with 10 CFR 50.55a(z)(1) which permits the approval of alternatives to the requirements of the American Society of Mechanical Engineers (ASME) Code based on the licensee demonstrating that the proposed alternative would provide an acceptable level of quality and safety. 10 CFR 50.55a(f) states that systems and components of boiling and pressurized water-cooled nuclear power reactors must meet the requirements for preservice and inservice testing of the ASME Code as specified in this paragraph (f). In addition, 10 CFR 50.55a(g)(3)(v) states that all components (including supports) may meet the preservice examination requirements set forth in subsequent editions and addendas of the ASME Code or portions thereof that are incorporated by reference in paragraph (a) of this section, subject to the conditions listed therein. Subparagraphs NB-5282(a) and NC-5282(a) of Section III to the ASME Code require Class 1 and Class 2 components be examined as specified in Section XI, Table IWB-2500-1 and Table IWC-2500-1, respectively. Subparagraphs NB-5332(b) and NC-5332(b) of Section III to the ASME Code states components whose volumetric examination reveals flaws that exceed the standards of IWB-3000 and IWC-3000 are not acceptable for service and shall be repaired. 10 CFR 50.55a(b)(2)(xli) prohibits the use of ASME Code, Section XI, Subparagraphs IWB-3112(a)(3) and IWC-3112(a)(3) in the 2013 through 2017 Edition. Therefore, preservice inspection of welds and adjacent base material are required to be performed and must meet the acceptance criteria in ASME Code Section III and Section XI to be considered acceptable for service. The alternative requests NRC approval to

use the flaw evaluation acceptance requirements of Subparagraphs IWB-3112(a)(3) and IWC-3112(a)(3) in the 2017 Edition to Section XI of the ASME Code, in order to place components with flaws in service in lieu of meeting the requirements of Subparagraphs NB-5282(a) NC-5282(a) of Section III. The licensee has requested approval of this alternative as a contingency. NRC staff reviewed and evaluated the information provided by the licensee, and has determined that the following information is needed to ensure the integrity of Class 1 and 2 welds.

The request proposes that components with flaws sizes up to 65% through wall would be acceptable for initial startup of the first AP1000 reactor design in the United States. However, the licensee provides no basis or justification for allowing flaws sizes up to 65% through wall in Class 1 and 2 systems that could reduce the structural margin and thereby increasing the potential for challenging the structural integrity of safety-related Class 1 and 2 welds as discussed in the final rule dated May 4, 2020 (85 FR 26540) incorporating by reference the 2015 and 2017 Editions of ASME Code.

Although the proposed alternative limits the number of welds that could use this alternative to 12 Class 1 welds and 7 Class 2 welds, each of these welds could potentially have multiple 65% through wall flaws that can cumulatively increase the susceptibility of compromising the structural integrity of each of the welds in addition to system-wide cumulative effects that would challenge the structural integrity of safety-related Class 1 and 2 systems and their performance of their safety function.

In order to make a risk informed determination regarding the acceptability of the licensee's proposed alternative, the NRC staff requests the licensee provide a detailed analysis that justifies the allowance to potentially have 12 Class 1 welds and 7 Class 2 welds with flaws up to 65% through wall. The detailed analysis could consist of a system-wide probabilistic fracture mechanics evaluation which demonstrates what effect accepting a distribution of flaws up to the limits provided for by the proposed alternative has on the predicted piping failure frequencies over the lifetime of the plant versus not implementing the alternative. This analysis should also address and account for uncertainties for each of the systems (that have no operating experience) and all flaw distribution probabilities (size and number of flaws in each weld) within each system. The analysis should account for and discuss how loads will be determined, given that they are currently based on the pipe stress analysis which uses typical/basic operating pressure, temperature, and seismic, but does not include transients loads such as thermal stratifications, water/steam hammers, and vibrations that are not known at this time since there is no operating experience for this reactor.