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Applicability of ASME Code Case N-770-1, As Conditioned By Federal Regulations, to Branch Connection Butt Welds

Comment On: NRC-2014-0232-0004

Applicability of ASME Code Case N-770-1, as Conditioned by Federal Regulation, to Branch Connection Butt Welds

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General Comment

The attached comments are provided by Entergy Nuclear Operations, Inc. and Babcock & Wilcox utilities.

Docket ID NRC-2014-0232

Attachments

Entergy and B&W Utility Comments on Draft RIS 2014-xx, Applicability of Code Case N-770-1

SUNSI Review Complete
Template = ADM - 013
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Add= J. Collins (JNC)

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**Entergy Nuclear Operations, Inc. and Babcock & Wilcox Utility Comments on
Draft NRC RIS 2014-XX: Applicability of ASME Code Case N-770-1 as Conditioned in
10 CFR 50.55a, "Codes and Standards," to Branch Connection Butt Welds**

Docket ID NRC-2014-0232

1. The draft RIS states the following in the first sentence in the Summary of Issue section:

"As a result of a request for relief submitted, during a refueling outage, on February 25, 2014 (ADAMS Accession No. ML14056A533), the NRC became aware that the design of Palisades Nuclear Plant includes nine Alloy 600 branch connection nozzles of NPS 2 and greater that are joined to carbon steel primary coolant loop piping using Alloy 82/182 weld material."

The design information at Palisades has been submitted to the NRC prior to the February 25, 2014 request for relief submittal. During the previous Palisades refueling outage in 2012, the design of the subject branch connection nozzles was provided in a request for relief for adjacent butt welds that was submitted on April 26, 2012 (ADAMS Accession No. ML12118A144). Figures 1 and 2 in Attachment 1 of the relief request depict the branch connection nozzle design. During the following refueling outage in February 2014, a NRC Region III inspector questioned the site on whether the subject branch connection nozzle welds should be included within the scope of the Code Case N-770-1 inspection population, and asked NRR for assistance in resolving the issue. Subsequent conference calls between NRR and Palisades led to the site submitting the request for relief dated February 25, 2014.

2. The first paragraph of the Summary of Issue section states "... the licensee failed to classify these welds as butt welds."

The licensee (Palisades) didn't classify the subject welds as butt welds because the ASME Section XI committee did not specifically include these weld configurations in the scope of either MRP-139 or Code Case N-770-1 for volumetric inspection. Alloy 82/182 branch pipe connection welds appeared to be outside the applicability of Code Case N-770-1 due to their configuration. This position was supported by ASME interpretation 14-382, dated March 10, 2014.

3. The last sentence in the Summary of Issue section on page three states the following:

“In accordance with 10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-1, the NRC requires all butt welds using Alloy 82/182 material that are NPS 2 or greater, including branch connection butt welds, to be volumetrically inspected.”

During February 2014 industry/NRC conference calls regarding the Palisades relief request concerning ASME Code Case N-770-1 dated February 25, 2014, NRC cited 10 CFR 5055a(g)(6)(ii)(F)(2) as containing language that required all butt welds using Alloy 82/182 material to be volumetrically inspected. The licensee pointed out that 10 CFR 5055a(g)(6)(ii)(F) and specifically (F)(2) did not explicitly state that all butt welds using Alloy 82/182 material shall be volumetrically inspected. This condition only referenced the appropriate Inspection Item categorization of welds that may have undergone some type of mitigation activity. It appears the RIS is being used to avoid revising 10 CFR 50.55a(g)(6)(ii)(F), or specifically, condition (F)(2) to clarify the requirements that all pressure retaining Class 1 PWR piping and vessel nozzle butt welds that are NPS 2 and greater fabricated with Alloy 82/182 materials, with or without application of mitigation activities are to be volumetrically inspected.

4. The Background Information section, at the top of page two, states in part: “10 CFR 50.55a(g)(6)(ii)(F) and Code Case N-770-1 pertain to butt welds, irrespective of whether the butt weld is circumferential or a branch connection”.

This statement doesn't appear to be correct. Code Case N-770-1 does not pertain to branch connection welds. ASME specifically clarified its position in ASME interpretation 14-382, dated March 10, 2014, that Code Case N-770-1, 2, and 3 do not apply to branch connection welds.

5. The Background Information section, in the first paragraph on page two, notes that full penetration nozzle branch welds fabricated to NB-4244(a) and NB-4246(a) utilize butt weld joints. However, full penetration ASME Section III branch connection welds in piping can be butt welded or corner welded joints according to NB-4244 and NB-4246. ASME Section III design, fabrication, and examination requirements vary depending on the joint used. While this is the case, ASME Section III design, fabrication, and examination requirements for circumferential butt welds in piping are addressed separately from those applicable to branch connections – butt welded or corner welded. While the RIS is attempting to imply that a butt weld is a butt weld regardless of whether it is in piping or a branch connection, this is not the case – neither in ASME Section III or ASME Section XI. The ASME Section XI Code also recognizes these important distinctions in Table IWB-2500-1 for Category B-F welds and specifies ISI examination requirements based on whether the weld is a circumferential butt weld in pipe (Figure IWB-2500-8) or a branch connection weld. In recognition of the different joint configurations (e.g., butt and corner joints) for branch welds, Table IWB-2500-1 refers to unique Figures IWB-2500-9, 10, and 11 for full penetration butt welded and corner welded joints. Finally, Code Case N-770, in addressing butt welds, provides one figure which is only

a circumferential butt weld in pipe. It contains no figures for branch connection welds whether butt or corner welds. The clear lack of figures for and discussion about branch connection welds in N-770-X was not an accident on the part of the ASME Section XI Code Committee. Rather, the Committee didn't intend to address branch welds, whether butt welded or corner welded, in the Code Case. Again, this was made clear by the issuance of ASME interpretation 14-382.

6. It seems inappropriate in the RIS to specifically cite a single licensee (Palisades) with failure to comply with the NRC's interpretation of the ASME Code and 10CFR50.55a, particularly when that interpretation is not consistent with that held by the industry.

7. On page one, in the Background Information section, the first sentence should be clarified that Alloy 82/182 dissimilar butt welds are the scope, rather than all Class 1 dissimilar butt welds (i.e., carbon to stainless steel with stainless steel filler metal).

8. Near the top of page two, in the Background Information section, the draft RIS states "These regulatory requirements call for volumetric inspection of all butt welds of nominal pipe size (NPS) 2 or larger."

Please clarify that the NPS 2 scope definition refers to the diameter of the branch piping and not the branch connection weld to the main piping run (reference NB-3643). Therefore, determination of whether a main piping run branch connection butt weld must be volumetrically examined is based upon the NPS of the branch piping.

9. In the second sentence in the third paragraph on page three, in the Summary of Issue section, please clarify that Alloy 82/182 dissimilar butt welds are the scope, rather than all Class 1 dissimilar butt welds (i.e., carbon to stainless steel with stainless steel filler metal).

10. In the third paragraph on page three, in the Summary of Issue section, please clarify that the NPS 2 scope definition refers to the diameter of the branch piping and not the branch connection weld to the main piping run (reference NB-3643). Therefore, determination of whether a main piping run branch connection butt weld must be volumetrically examined is based upon the NPS of the branch piping.

11. On page three, in the Backfitting and Issue Finality Discussion section, please clarify how this draft RIS is not a backfit. Review of the Federal Register notice, public meeting question and answer documentation, and analysis of public comments from the initial rulemaking incorporating Code Case N-770-1 make no mention of branch connection welds. It is not apparent that the NRC originally intended the branch connection welds to be

considered piping butt welds requiring examination under Code Case N-770-1 and 10 CFR 50.55a(g)(6)(2)(F) based on the lack of discussion in the Code Case N-770-1 implementation guidance provided by the NRC.

12. In the event that the Code Case N-770-1 examinations of branch connection welds reveal unacceptable flaws and additional welds need to be inspected, under which inspection category would these additional inspections fall? In addition, how is the examination volume defined? Could the examination volume be defined with a representative figure?