March 26, 2015

MEMORANDUM TO: David W. Alley, Chief
Component Performance, NDE, & Testing Branch
Division of Engineering
Office of Nuclear Reactor Regulation

FROM: Jay Collins, Sr. Materials Engineer ***/ra/***
Component Performance, NDE, & Testing Branch
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Joshua Kusnick, Mechanical Engineer ***/ra/***
Component Integrity Branch
Division of Engineering
Office of Nuclear Regulatory Research

SUBJECT: RESPONSE TO PUBLIC COMMENTS ON DRAFT REGULATORY ISSUE SUMMARY 2014-XX APPLICABILITY OF ASME CODE CASE N-770-1 AS CONDITIONED IN 10 CFR50.55a, "CODES AND STANDARDS," TO BRANCH CONNECTION BUTT WELDS

A notice of opportunity for public comment on the subject regulatory issue summary was published in the Federal Register (79 FR 63446) on October 23, 2014. The public comment period was originally scheduled to close on December 8, 2014. The NRC extended the public comment period to allow more time for members of the public to develop and submit their comments. The regulatory issue summary was published in the Federal Register (79 FR 70897) again on November 28, 2014. Comments were received from FirstEnergy Nuclear Operating Company (ML14304A539), the Nuclear Energy Institute (ML14356A126), Entergy Nuclear Operations, Inc. and Babcock & Wilcox Utilities (ML14364A021), the American Society of Mechanical Engineers (ML15005A031), and Exelon Generating Company, LLC (ML15005A035). Enclosed are the staff responses to all public comments.

Enclosure:
Staff Responses to Public Comment

CONTACT: Jay Collins, NRR/DE/EPNB
301-415-4038

Joshua Kusnick, RES/DE/CIB
301-251-7963

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Staff Responses to Public Comment

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**ADAMS Accession No.: ML15068A119** *concurred via e-mail

| **OFFICE** | NRR/DPR/PGCB | RES/DE/CIB | NRR/DE/EPNB | NRR/DE/EPNB |
|---|---|---|---|---|
| **NAME** | ELee | JKusnick* | JCollins* | DAlley* |
| **DATE** | 3/12/15 | 03/12/15 | 03/18/15 | 03/26/15 |

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**ANALYSIS OF PUBLIC COMMENTS ON**
**DRAFT NRC REGULATORY ISSUE SUMMARY 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 (ML14196A065)**

Comments on the subject draft regulatory issue summary are available electronically at the U.S. Nuclear Regulatory Commission's (NRC's) electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html. From this page, the public can gain entry into Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. Comments were received from the following individuals or groups:

| Letter No. | ADAMS Accession No. | Commenter Affiliation | Commenter Name | Abbreviation |
|---|---|---|---|---|
| 1 | ML14304A539 | FirstEnergy Nuclear Operating Company | Greg Kammerdeiner | FENOC |
| 2 | ML14356A126 | Nuclear Energy Institute | Mark A. Richter | NEI |
| 3 | ML14364A021 | Entergy Nuclear Operations, Inc. and Babcock & Wilcox Utilities | Jeff Erickson | ENO |
| 4 | ML15005A031 | American Society of Mechanical Engineers | Ralph Hill III | ASME |
| 5 | ML15005A035 | Exelon Generation Company, LLC | James Barstow | EGO |

This document places each public comment into one of the following categories:

I. Comments regarding the nominal pipe size (NPS) 2 requirement for volumetric inspection
II. Other Comments

Within each category, the NRC has either repeated comments as written by the commenter or summarized the comments for conciseness and clarity. At the end of the comment or comment summary, the NRC references the specific public comments and the letters by which they were provided to the NRC. Specific comments are referred to in the form [XXX]-[YYY]-[ZZZ], where [XXX] represents the commenter abbreviation from the table on page 1 of this document, [YYY] represents the letter number from the same table, and [ZZZ] represents the sequential comment number from that commenter.

## I. Comments regarding the NPS 2 requirement for volumetric inspection

*FENOC-1-1 Comment*

*The last sentence of the fourth paragraph on page 3 [of the draft RIS] 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." For butt welds using Alloy 82/182 material that join a branch connection nozzle to a run pipe, is it intended that "NPS 2"or greater" refers to the nominal pipe size of the branch line or does the size of the opening in the run pipe and the*

*corresponding diameter of the weld that connects the branch connection nozzle to the run pipe need to be considered in determining the "NPS 2" or greater" threshold for volumetric inspection of the branch connection nozzle to run pipe weld? Please refer to the attached sketch.*

NRC Response
This comment concerns the definition of NPS in regards to branch connection welds. In accordance with 10 CFR 50.55a, the ASME Code, and Owner Requirements, licensees are required to establish the categorization of each branch connection weld. This RIS does not change any previous requirements for this categorization.

The following sentence was added to the second paragraph of the Background Information section of the RIS for clarification:

*In accordance with 10 CFR 50.55a, the ASME Code, and Owner Requirements, licensees are required to establish the categorization of each branch connection weld.*

*NEI-2-7 Comment*
*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).*

NRC Response
The NRC agrees that the first sentence in the Background Information section should be clarified to indicate that the scope covers Alloy 82/182 dissimilar metal butt welds, rather than all Class 1 dissimilar metal butt welds.

The first sentence of the Background Information section of the RIS was changed to the following:

> *Inspection of Class 1 piping and nozzle dissimilar metal butt welds that rely on Alloy 82/182 material for structural integrity is mandated in 10 CFR 50.55a(g)(6)(ii)(F).*

*NEI-2-8 Comment*
*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." Clarify that the NPS 2 scope definition refers to the diameter of the branch connection 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.*

NRC Response
See FENOC-1-1 comment and NRC response. No change was made to the RIS as a result of this comment.

*NEI-2-10 Comment*
*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).*

NRC Response
See FENOC-1-1 comment and NRC response. No change was made to the RIS as a result of this comment.

**II. Other comments**

*NEI-2-1 Comment*
*Not all plants were designed and constructed to the ASME Code years and addenda that classified these welds as 'full penetration butt welds,' as identified in the RIS. Some were designed and constructed to earlier codes such as the USAS B31.7 Code, February 1968 draft Edition with errata through June 1968. Paragraph 1-727.4.6 of B31.7 classifies [the subject welds] as 'complete penetration groove welds' and references Figure 1-727.4.6 for their weld geometry. The examination requirements are specified in paragraphs 1-727.4.2(e)2 and 3 for four inch and under nominal pipe sizes and only surface examinations are required for this weld type. Therefore, there was no design or construction Code requirement for volumetric examination for these types of 'complete penetration groove welds'. Performing volumetric examination of these welds now would result in identification of weld issues that were not included in the original design and construction of these components.*

NRC Response
The NRC staff disagrees with this comment. This RIS is not imposing a new inspection requirement. These requirements were determined to be necessary for adequate protection of public health and safety under the final rule to implement 10 CFR 50.55a(g)(6)(ii)(F) published in the *Federal Register* (76 FR 36231). As part of the basis for adequate protection determination, the NRC found that primary water stress-corrosion cracking is an active degradation mechanism that can potentially cause the failure of welds using this material in this environment. The NRC has found the safety significance of the failure of a branch connection butt weld categorized by the owner as NPS 2 or greater to warrant the use of a qualified volumetric inspection technique to increase the chance of identifying flaws before leaktightness or structural integrity are challenged. The NRC believes an effective qualification program, inspector training on mockups, and owners' procedures with well-defined acceptance criteria should allow licensees to perform effective examinations in accordance with the requirements of 10 CFR 50.55a(g)(6)(ii)(F).

No change was made to the RIS as a result of this comment.

*NEI-2-2 Comment*
*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 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." Actually, the NRC became aware of the design prior to receipt of the February 25, 2014 request for relief. 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.*

NRC Response

The NRC agrees with this comment. NRC inspectors identified the subject welds that should be included within the scope of the Code Case N-770-1 inspection population which resulted in a request for relief submitted on February 25, 2014 (ADAMS Accession No. ML14056A533).

The Summary of Issue section of the RIS was changed to reference regional inspector involvement:

> *In February 2014, NRC inspectors identified several welds at the Palisades Nuclear Plant that should have been included within the scope of the* 10 CFR 50.55a(g)(6)(ii)(F) *inspection population, which resulted in a request for relief submitted on February 25, 2014 (ADAMS Accession No. ML14056A533).*

*NEI-2-3 Comment*
*The first paragraph of the Summary of Issue section states "... the licensee failed to classify these welds as butt welds." The licensee 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.*

NRC Response
The NRC disagrees with this comment. The NRC previously addressed this issue in its letter dated June 23, 2014, to the ASME (ADAMS Accession No. ML14169A094).

No change was made to the RIS as a result of this comment.

*NEI-2-4 Comment*
*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, NRC cited 10 CFR 50.55a(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 50.55a(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.*

NRC Response
The NRC staff disagrees with this comment. This comment addresses 10 CFR 50.55a(g)(6)(ii)(F) and its applicability to dissimilar metal butt welds fabricated using Alloy 82/182. 10 CFR 50.55a(g)(6)(ii)(F) is titled "Augmented ISI requirements: Examination requirements for Class 1 piping and nozzle dissimilar-metal butt welds." The regulation implements the requirements of ASME Code Case N-770-1, subject to the conditions specified in (g)(6)(ii)(F)(2) through (10). Applying the code case subject to the specified conditions requires that all butt welds using Alloy 82/182 material that are NPS 2 or greater be volumetrically inspected. Because the rule references the code case, which applies to both unmitigated and (some) mitigated welds, no revision is needed to 10 CFR 50.55a(g)(6)(ii)(F).

No change was made to the RIS as a result of this comment.

*NEI-2-5 Comment*
*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.*

NRC Response
The NRC disagrees with this comment. The NRC previously addressed this issue in its letter dated June 23, 2014, to the ASME (ADAMS Accession No. ML14169A094). The words "circumferential weld" do not appear in Code Case N-770-1, and the NRC finds no reason that

the figures in Code Case N-770-1 cannot be used for inspection volume definition on branch connection butt welds.

No change was made to the RIS as a result of this comment.

*NEI-2-6 Comment*
*It seems inappropriate to use the RIS to accuse Palisades of a failure to comply with the NRC's interpretation of the ASME Code and 10CFR50.55a when that interpretation is not consistent with that held by the industry.*

NRC Response
The NRC disagrees with this comment. This comment challenges the appropriateness of using a regulatory issue summary to address the misclassification and missed inspection of an Alloy 82/182 full penetration butt weld in the reactor coolant system piping of a nuclear power plant. Regulatory issue summaries are commonly used to communicate staff technical or policy positions on matters that have not been communicated to or are not broadly understood by the nuclear industry. In some cases, it is appropriate to also include relevant examples (e.g., operating experience and/or enforcement actions) within the regulatory issue summary to further illustrate the matter that is not broadly understood by industry. The RIS serves as an appropriate method of communication to clarify the staff technical position.

No change was made to the RIS as a result of this comment.

*NEI-2-9 Comment*
*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).*

NRC Response
The NRC agrees with this comment. The second sentence in the third paragraph on page three was revised to clarify that Alloy 82/182 dissimilar metal butt welds are the scope, rather than all Class 1 dissimilar metal butt welds.

The Summary of Issue section in the RIS was changed to include the following:

> *In that letter, the NRC staff reiterated that the inspection requirements in 10 CFR 50.55a(g)(6)(ii)(F) apply to Class 1 piping and nozzle dissimilar metal butt welds fabricated with Alloy 82/182, including branch connection butt welds.*

*NEI-2-11 Comment*
*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)(ii)(F) based on the lack of discussion in the Code Case N-770-1 implementation guidance provided by the NRC.*

NRC Response
The NRC staff disagrees with this comment. The language used in the regulation is all-inclusive; it neither expressly excludes branch connection butt welds, nor does it include language that can be reasonably interpreted as limiting application of the Code Case to butt welds of a particular configuration. In addition, nothing in the rulemaking record indicates that the NRC intended such a limitation. There is also no safety basis for such an implicit limitation. Further, Code Case N-770-1 itself does not include an express exclusion of branch connectionbutt welds. Finally, the comment did not identify, and the staff is not aware, of any other documents or guidance that constitute a staff position or interpretation contrary to that set forth in the RIS. The comment did not identify any reasons for concluding that the NRC intended or would have a reason to limit the required application of Code Case N-770-1 to a single butt weld configuration.

The requirements for the volumetric inspection of butt welds using Alloy 182/82 for their structural integrity, including branch connection butt welds, are within the scope of 10 CFR 50.55a(g)(6)(ii)(F). As a result of the weld misclassification at Palisades, the NRC identified that this may be an issue not broadly understood by the nuclear industry. This RIS is being used to communicate this clarification to NRC licensees. There is no regulatory change identified in this RIS.

No change was made to the RIS as a result of this comment.

*ENO-3-1 Comment*
*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 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.*

NRC Response
See NEI-2-2 comment and NRC response.

*ENO-3-2 Comment*
*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.*

NRC Response
See NEI-2-3 comment and NRC response.

*ENO-3-3 Comment*
*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, NRC cited 10 CFR 50.55a(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 50.55a(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.*

NRC Response
See NEI-2-4 comment and NRC response.

*ENO-3-4 Comment*
*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.*

NRC Response
The NRC disagrees with this comment. The NRC previously addressed this issue in its letter dated June 23, 2014, to the ASME (ADAMS Accession No. ML14169A094).

No change was made to the RIS as a result of this comment.

*ENO-3-5 Comment*
*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.*

NRC Response
See NEI-2-5 Comment and NRC response.

*ENO-3-6 Comment*
*It seems inappropriate to use the RIS to accuse Palisades of a failure to comply with the NRC's interpretation of the ASME Code and 10CFR50.55a when that interpretation is not consistent with that held by the industry.*

NRC Response
See NEI-2-6 Comment and NRC response.

*ENO-3-7 Comment*
*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).*

NRC Response
See NEI-2-7 Comment and NRC response.

*ENO-3-8 Comment*
*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 connection 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.*

NRC Response
See NEI-2-8 Comment and NRC response.

*ENO-3-9 Comment*
*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).*

NRC Response
See NEI-2-9 Comment and NRC response.

*ENO-3-10 Comment*
*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.*

NRC Response
See NEI-2-10 Comment and NRC response.

*ENO-3-11 Comment*
*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.*

NRC Response
See NEI-2-11 Comment and NRC response.

*ENO-3-12 Comment*
*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?*

NRC Response
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, the licensee shall follow -2430 of Code Case N-770-1. Depending on the operating temperature of the component, an unmitigated branch nozzle butt weld could be either inspection item A-1, A-2, or B of Table 1 of Code Case N-770-1. Table 1, Figure 1 of the code case defines the examination volume for those inspection items, including indication of the location of the (branch) nozzle in the case of a branch connection.

No change was made to the final RIS as a result of this comment.

*ASME-4-1 Comment*
*In the Background Information on page 1 of the draft RIS, the NRC states that "Inspection of all Class 1 piping and nozzle dissimilar metal butt welds is mandated in 10 CFR 50.55a(g)(6)(ii)(F)." A similar statement is made in the third paragraph on page 3 of the draft RIS.*

*ASME Comments:*

a. *ASME Code Case N-770-1, paragraph -1000(a) specifies that this case applies only to volumetric and surface examination of NPS 2 (DN 50) and greater piping and nozzles and to visual examination of NPS 1 (DN 25) and greater pressure retaining Class I PWR piping and vessel nozzle butt welds fabricated with Alloy 82/182 materials, with or without application of mitigation activities. Exceptions to these requirements are specified in -1000(c) through -1000(f) of this case.*

b. *10 CFR 50.55a(g)(6)(ii)(F) does not impose a condition on the use of ASME Code Case N-770-1 that would require application of this case to components of a size smaller than that prescribed in -1000(a).*

*ASME Recommendations: In light of the above information, ASME recommends that the NRC revise the Background Information in this RIS to clarify that Code Case N-770-1 does not apply to "all Class 1 piping and nozzle dissimilar metal butt welds" and that it applies only to volumetric and surface examination of NPS 2 (DN 50) and greater piping and nozzles and to visual examination of NPS 1 (DN 25) and greater pressure retaining Class I PWR piping and vessel nozzle butt welds fabricated with Alloy 82/182 materials, except as specified in -1000(c) through -1000(f) of this case. The NRC should consider whether the Intent paragraph on page 1 of the draft RIS should be clarified as the opinion of the NRC, as ASME does not believe that Alloy 82/182 dissimilar metal full penetration branch connection welds are required to be classified as butt welds for application of Code Case N-770-1.*

NRC Response
The NRC agrees with this comment in that the scope of ASME Code Case N-770-1 should be clarified in the RIS.

The following changes were made to the final RIS:

- The first sentence of the Background Information section was changed to the following:

  *Inspection of Class 1 piping and nozzle dissimilar metal butt welds that rely on Alloy 82/182 material for structural integrity is mandated in 10 CFR 50.55a(g)(6)(ii)(F).*

- The regulatory requirements were revised in the Background Information section to the following:

  *These regulations require volumetric and surface inspection of all pressure retaining Class I PWR piping and vessel nozzle butt welds fabricated from Alloy 82/182 materials which are nominal pipe size (NPS) 2 or larger. These regulations also require visual*

*examination of all pressure retaining Class I PWR piping and vessel nozzle butt welds fabricated from Alloy 82/182 materials which are NPS 1 or larger.*

*ASME-4-2 Comment*
*In the Background Information on page 2 of the draft RIS, the NRC states that "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." In addition, this paragraph also references ASME Section III provisions related to the design and construction of branch connection full penetrations nozzles.*

*ASME Comments/Recommendations:*

a. *Although the NRC has the authority to interpret requirements of 10 CFR 50.55a(g)(6)(ii)(F), only ASME has the authority to interpret its Codes and Standards (Including Code Cases). This position is supported by the NRC in its Inspection Manual, Part 9900, in which the NRC "acknowledges that ASME is the official interpreter of the Code...". The above statement in the draft RIS is in conflict with a recent ASME interpretation that cases N-770-1, N-770-2, and N- 770-3 do not apply to branch connection butt welds. This interpretation is documented in ASME Record #14-382, but has not yet been published. ASME recommends that the above statement in the draft RIS be revised to delete reference to Code Case N-770-1 and indicate that the NRC intended that all such full penetration welds be examined, regardless of configuration.*

b. *ASME understands that many plants were designed to Construction Code requirements other than Section III. In addition, when applying the rules of Section XI, Figures IWB-2500-9, -10, and -11 are used to define examination boundaries for full penetration branch connection welds examined in accordance with Category B-J. Because many plants were designed and constructed to requirements other than Section III, ASME recommends that the NRC clarify that information describing Section III design and construction requirements is only applicable when Section XI specifically references these construction code requirements.*

NRC Response
The NRC disagrees with these comments. The NRC previously addressed the interpretation of N-770-1 in its letter dated June 23, 2014, to the ASME (ADAMS Accession No. ML14169A094). In accordance with 10 CFR 50.55a, the ASME Code, and Owner Requirements, licensees are required to establish the categorization of each branch connection weld. This RIS does not change any previous requirements for this categorization. All branch connection butt welds that rely on alloy 182/82 material and are categorized NPS 1 or greater by the owner are under the scope of 10 CFR 50.55a(g)(6)(ii)(F).

No change was made to the final RIS as a result of this comment.

*ASME-4-3 Comment*
*In the Summary of Issue paragraph on page 2 of the draft RIS, the NRC appears to be making the case that the criteria in the ASME Code, Section III, Figure NB-4244(a)-1 should be used to classify whether a branch connection weld is a full penetration butt weld.*

*ASME Comments/Recommendations:*

a. *As mentioned in the previous comment, not all plants were designed and constructed to ASME Section III rules, so it would seem inappropriate to cite Section III figures that should be used by all licensees to classify these welds. When applying Section XI rules, Figures IWB-2500-9, -10, and -11 are required to be used for examination of full penetration branch connection welds.*

*ASME recommends that the RIS be revised to reference Section XI, Figures IWB-2500-9, - 10, and -11 for in-service inspection in place of Section III, Figure NB-4244(a)-1.*

NRC Response
The NRC disagrees with this comment. The intent of the references to ASME Code Section III were to illustrate that the subject weld configuration is classified as a butt weld by the ASME Code. In accordance with 10 CFR 50.55a, the ASME Code, and Owner Requirements, licensees are required to establish the categorization of each branch connection weld. This RIS does not change any previous requirements for this categorization. All branch connection butt welds that rely on alloy 182/82 material and are categorized NPS 1 or greater by the owner are under the scope of 10 CFR 50.55a(g)(6)(ii)(F).

No change was made to the final RIS as a result of this comment.

*ASME-4-4 Comment*
*In paragraph 3 on page 3 of the draft RIS, the NRC indicates that "...ASME intended that the subject welds [full penetration branch connection welds] be inspected under Code Case N-770-1."*

*ASME Comments/Recommendations:*

a. *This statement implies that, by removing hot leg and cold leg full penetration Alloy 82/182 welds from Code Case N-722-1, it was the "intent" of ASME that such welds would require examination in accordance with Code Case N-770-1. Only ASME has the authority to interpret its intent relative to ASME Codes and Standards (including Code Cases), and the ASME interpretation approved under ASME Record #14-382 conflicts with this opinion by clarifying that ASME did not intend for Alloy 82/182 full penetration branch connection welds to be examined in accordance with N-770-1. ASME recognizes that removal of these welds from the scope of Code Case N-722-1 may have been inappropriate, and ASME is taking action to investigate and correct this oversight, as appropriate. When Code Case N-722-1 was revised to eliminate these welds from the scope of the case, ASME was unaware that certain plants (i.e., Palisades) had these types of welds in their Class I systems. Furthermore, it is ASME's position that none of the figures in Code Case N-770-1 include configurations that are applicable to branch connections, supporting ASME's position documented in the referenced interpretation.*

*ASME recommends that the NRC clarify that the above statement in the RIS represents only the opinion of the NRC. Also, reference to ". .. all Class 1 piping and nozzle dissimilar metal*

*butt welds, ..." should be revised to address the scope of welds covered by 10 CFR 10.55a(g)(6)(ii)(F), as addressed in our comment on the Background Information.*

NRC Response
The NRC disagrees with this comment. The NRC previously addressed the interpretation of N-770-1 in its letter dated June 23, 2014, to the ASME (ADAMS Accession No. ML14169A094). This RIS expresses only the NRC's intent for 10 CFR 50.55a(g)(6)(ii)(F) and the incorporation by reference of Code Case N-770-1.

To remove the implication that the NRC is expressing the intent of the ASME Code committee's action, the statement in question was removed from the Summary of Issue section of the final RIS.

*ASME-4-5 Comment*
*In paragraph 4 on page 3 of the draft RIS, the NRC indicates that "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."*

a. *Code Case N-770-1 does not require that "all butt welds using Alloy 82/182 material that are NPS 2 or greater, including branch connection butt welds, to be volumetrically inspected" Welds identified in- 1000(c) through -1000(f) of this case are not required to be examined. ASME recommends that this statement be revised to clarify the scope of welds required by 10 CFR 50.55a(g)(6)(ii)(F) to be examined.*

b. *ASME has indicated that branch connection welds are not included in N-770-1, as documented in the interpretation issued under ASME Record #14-382. ASME recommends that the above statement in the draft RIS be revised to delete reference to Code Case N-770-1. Further, it is recommended that NRC clarify their use of the term, "branch connection butt welds". Specifically, the NRC should clarify whether the term "branch connection butt welds" in the draft RIS is intended to include both full penetration branch connections and butt welded branch connections.*

c. *ASME recognizes that the diameter of full penetration branch connection welds may be considerably larger than the size of the branch piping. As such, it may be unclear how to determine whether a branch connection weld requires examination in accordance with the guidance proposed in this RIS. When applying requirements of Section X1, Table IWB-2500-1, Category B-J, Item No. B9.30, it is ASME's position that the branch piping size (for application of B9.30 requirements) is based on the nominal diameter of the connected branch piping. ASME recommends that the NRC provide further clarification on how licensees are to determine the size of branch connection welds that would be subject to examination under the guidance in this RIS. ASME cannot provide this clarification because it is ASME position that these welds are not included in the scope of Code Case N-770-1.*

NRC Response
See ASME-4-2 Comment and NRC Response.

*ASME-4-6 Comment*
*ASME recognizes that only the NRC is authorized to interpret 10 CFR 50.55a(g)(6)(ii)(F). Because the NRC's position on the application of Code Case N-770-1 to full penetration branch connection welds conflicts with the ASME interpretation issued under ASME Record #14-382, ASME recommends that the NRC consider taking action to revise conditions in 10 CFR 50.55a(g)(6)(ii)(F) to require examination of full penetration branch connection welds using Alloy 82/182 material, if this action is deemed warranted. ASME believes that clarifying the NRC's position only in this RIS is not appropriate, in light of the ASME Interpretation issued under ASME Record #14-382, and that the NRC should clarify their position on this matter by revising 10 CFR 50.55a(g)(6)(ii)(F).*

NRC Response
The NRC staff believes this comment is outside of the scope of this RIS. The NRC staff notes that there is no regulatory change identified in this RIS. The requirements for the volumetric inspection of all butt welds using alloy 182/82 for their structural integrity, including branch connection butt welds, are within the scope of 10 CFR 50.55a(g)(6)(ii)(F). The NRC does perform rulemaking on regular intervals to update 10 CFR 50.55a to address changes in the ASME Code. Through the rulemaking process the NRC will assess if additional clarification is necessary. Additionally, during the public comment phase of the rulemaking process, the public can provide recommendations.

No change was made to the RIS as a result of this comment.

*EGO-5-1 Comment*
*Exelon fully supports the comments submitted by the Nuclear Energy Institute (NEI) on behalf of the industry in response to the subject draft RIS.*

NRC Response
No change was made to the RIS as a result of this comment.