



Steven M. Snider
Vice President
Oconee Nuclear Station

Duke Energy
ON01VP | 7800 Rochester Hwy
Seneca, SC 29672
o: 864.873.3478
f: 864.873.5791

Steve.Snider@duke-energy.com

RA-22-0192
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10 CFR 50.4
10 CFR Part 54

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC (Duke Energy)
Oconee Nuclear Station (ONS), Units 1, 2, and 3
Docket Numbers 50-269, 50-270, 50-287
Renewed License Numbers DPR-38, DPR-47, DPR-55
Subsequent License Renewal Application
Response to ONS SLRA Second Round RAI B2.1.7-4a

References:

1. Duke Energy Letter (RA-21-0132) dated June 7, 2021, Application for Subsequent Renewed Operating Licenses, (ADAMS Accession Number ML21158A193)
2. NRC Letter dated July 22, 2021, Oconee Nuclear Station, Units 1, 2, and 3 - Determination of Acceptability and Sufficiency for Docketing, Proposed Review Schedule, and Opportunity for a Hearing Regarding Duke Energy Carolinas' Application for Subsequent License Renewal (ADAMS Accession Number ML21194A245)
3. NRC E-mail dated September 22, 2021, Oconee SLRA - Request for Additional Information B2.1.27-1 (ADAMS Accession Number ML21271A586)
4. Duke Energy Letter (RA-21-0281) dated October 22, 2021, Subsequent License Renewal Application, Response to Request for Additional Information B2.1.27-1 (ADAMS Accession Number ML21295A035)
5. NRC E-mail dated November 23, 2021, Oconee SLRA – Request for Additional Information - Set 1 and Second Round Request for Additional Information RAI B2.1.27-1a (ADAMS Accession Number ML21327A277)
6. Duke Energy Letter (RA-21-0332) dated January 7, 2022, Subsequent License Renewal Application Responses to NRC Request for Additional Information Set 1 and Second Round Request for Additional Information B2.1.27-1a (ADAMS Accession Number ML22010A129)
7. NRC E-mail dated January 11, 2022, Oconee SLRA – Request for Additional Information - Set 2 (ADAMS Accession Numbers ML22012A043 and ML22012A042)
8. Duke Energy Letter (RA-22-0036) dated February 14, 2022, Subsequent License Renewal Application Responses to NRC Request for Additional Information Set 2 (ADAMS Accession Number ML22045A021)
9. NRC E-mail dated January 18, 2022, Oconee SLRA – Request for Additional Information Set 3 (ADAMS Accession Numbers ML22019A103 and ML22019A104)

Enclosure 1, Attachment 1P of this letter contains proprietary information that is being withheld from public disclosure under 10 CFR 2.390. Upon separation of Attachment 1P from Enclosure 1 Attachments, this letter is decontrolled.

10. Duke Energy Letter (RA-22-0040) dated February 21, 2022, Subsequent License Renewal Application Responses to NRC Request for Additional Information Set 3 (ADAMS Accession Numbers ML22052A002)
11. NRC E-mail dated March 16, 2022, Oconee SLRA – Request for Additional Information Set 4 (ADAMS Accession Numbers ML22080A077)
12. NRC E-mail dated March 21, 2022, Oconee SLRA – 2nd Round RAI B4.1-3 (ADAMS Accession Numbers ML22081A005 and ML22081A006)
13. NRC E-mail dated March 29, 2022, Oconee SLRA – 2nd Round RAI 4.6.1-1a (ADAMS Accession Number ML22091A092)
14. Duke Energy Letter (RA-22-0111) dated March 31, 2022, Subsequent License Renewal Application Follow-up Request for Additional Information Set 2 and 3 Updates (ADAMS Accession Number ML22090A046)
15. Duke Energy Letter (RA-22-0129) dated April 20, 2022, Subsequent License Renewal Application Responses to Oconee SLRA - 2nd Round RAI B4.1-3 (ADAMS Accession Number ML22110A207)
16. NRC E-mail dated April 20, 2022, Oconee SLRA – Request for Additional Information 3.1.2-1 (ADAMS Accession Number ML22113A008 and ML22113A009)
17. Duke Energy Letter (RA-22-0124) dated April 22, 2022, Subsequent License Renewal Application Responses to NRC Request for Additional Information Set 4 (ADAMS Accession Numbers ML22112A016)
18. NRC E-mail dated April 28, 2022, Oconee SLRA – 2nd Round RAI B2.1.9-2a (ADAMS Accession Numbers ML22122A018 and ML22122A019)
19. NRC E-mail dated May 3, 2022, Oconee SLRA – Second Round Requests for Additional Information B2.1.7-4a (ADAMS Accession Number ML22124A161)
20. Duke Energy Letter (RA-22-0137) dated May 20, 2022, Response to ONS SLRA Second Round RAI 4.6.1-1a (ADAMS Accession Number ML22140A016)
21. Duke Energy Letter (RA-22-0159) dated May 27, 2022, Response to ONS SLRA – Request for Additional Information 3.1.2-1 (ADAMS Accession Number ML22147A001)
22. NRC E-mail dated June 1, 2022, Oconee SLRA – 2nd Round RAI B2.1.7-4b (ADAMS Accession Number ML22154A214)
23. Duke Energy Letter (RA-22-0157) dated June 7, 2022, First Annual Amendment to the License Renewal Application and Subsequent License Renewal Application Supplement 4 (ADAMS Accession Number ML22158A028)
24. Duke Energy Letter (RA-22-0158) dated June 8, 2022, Response to ONS SLRA – 2nd Round Request for Additional Information 2.1.9-2a (ADAMS Accession Number ML22159A151)
25. Duke Energy Letter (RA-22-0193) dated July 8, 2022, Response to ONS SLRA Second Round RAI B2.1.7-4b (ADAMS Accession Number ML22189A010)
26. Duke Energy Letter (RA-22-160) dated July 25, 2022, Responses to ONS SLRA – Second Round RAIs – TRP 76 (Irradiation Structural) –FE 3.5.2.2.2.6 (ADAMS Accession Number ML22206A007)

By letter dated June 7, 2021 (Reference 1), Duke Energy Carolinas, LLC (Duke Energy) submitted an application for the subsequent license renewal of Renewed Facility Operating License Numbers DPR-38, DPR-47, and DPR-55 for the Oconee Nuclear Station (ONS), Units 1, 2, and 3 to the U.S. Nuclear Regulatory Commission (NRC). On July 22, 2021 (Reference 2), the NRC determined that ONS subsequent license renewal application (SLRA) was acceptable and sufficient for docketing. In emails from the NRC to Steve Snider (Duke Energy) dated September 22, 2021, November 23, 2021, January 11, 2022, January 18, 2022, March 16, 2022, March 21, 2022, March 29, 2022, April 20, 2022, April 28, 2022, and June 1, 2022 (References 3, 5, 7, 9, 11, 12, 13, 16, 18, and 22), the NRC transmitted specific requests for additional information (RAI) to support completion of the Safety Review. The

responses were provided to the NRC on October 22, 2021, January 7, 2022, February 14, 2022, February 21, 2022, March 31, 2022, April 20, 2022, April 22, 2022, May 20, 2022, May 27, 2022, June 8, 2022, July 8, 2022, and July 25, 2022 (References 4, 6, 8, 10, 14, 15, 17, 20, 21, 24, 25, and 26).

In an email from the NRC to Steve Snider (Duke Energy) dated May 3, 2022 (Reference 19), the NRC transmitted a second round for RAI B2.1.7-4a also to support completion of the Safety Review. Enclosure 1 contains a non-proprietary (Attachment 1) and proprietary (Attachment 1P) response for RAI B2.1.7-4a. Enclosure 2 contains the affidavit for the proprietary information. SLRA changes are provided along with the affected SLRA section(s), SLRA page number(s), and SLRA mark-ups. For clarity, deletions are indicated by strikethrough and inserted text by bold underlined red font.

As directed by the NRC Project Manager, the revised due date for this response is September 2, 2022. This submittal contains revisions to the PWR Vessel Internals program in Table A6.0-1, Commitment 7.

Since Enclosure 1 contains proprietary information, it is supported by an affidavit signed by the owner of the information (Enclosure 2). The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in 10 CFR 2.390(b)(4) and consistent with NRC Regulatory Issue Summary 2014-01, Regulatory Requirements for Withholding of Proprietary Information from Public Disclosure. Accordingly, it is respectfully requested that the proprietary information be withheld from public disclosure in accordance with 10 CFR 2.390. A redacted, non-proprietary version is provided in Enclosure 1, Attachment 1. Correspondence with respect to the copyright or proprietary aspects of the vendor information or affidavit should be addressed to the Framatome representative identified in the respective affidavit.

Enclosure 3 contains an editorial correction to a typographical error identified in Enclosure 1 of the Annual Update (Reference 23).

Should you have any questions regarding this submittal, please contact Paul Guill at (704) 382-4753 or by email at paul.quill@duke-energy.com.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 2, 2022.

Sincerely,



Steven M. Snider
Site Vice President
Oconee Nuclear Station

Enclosure:

1. Response to ONS SLRA Second Round RAI B2.1.7-4a
 - Attachment 1 Response To ONS SLRA 2ND Round RAI B2.1.7-4a – Non-Proprietary Version
 - Attachment 1P Response To ONS SLRA 2ND Round RAI B2.1.7-4a – Proprietary Version
2. Framatome Affidavit
3. Editorial Correction for SLRA Table 3.3.2-13

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CC: W/O Enclosures:

Laura A. Dudes Regional Administrator
U.S. Nuclear Regulatory Commission – Region II
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

Angela X. Wu, Project manager
(by electronic mail only)
U.S. Nuclear Regulatory Commission
Mail Stop 11 G3
11555 Rockville Pike
Rockville, Maryland 20852

Shawn A. Williams, Project Manager
(by electronic mail only)
U.S. Nuclear Regulatory Commission
Mail Stop 8 B1A
11555 Rockville Pike
Rockville, Maryland 20852

Jared Nadel
(by electronic mail only)
NRC Senior Resident Inspector
Oconee Nuclear Station

Anuradha Nair
(by electronic mail only: naira@dhec.sc.gov)
Bureau Environmental Health Services
Department of Health & Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

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BCC: W/O Enclosures:

T.P. Gillespie

K. Henderson

S.D. Capps

T.M. Hamilton

P.V. Fisk

H.T. Grant

D. Wilson

K.M. Ellis

R. Treadway

S.M. Snider

R.K. Nader

G.D. Robison

T.M. LeRoy

P.F. Guill

R.V. Gambrell

File: (Corporate)

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ENCLOSURE 1

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
SUBSEQUENT LICENSE RENEWAL APPLICATION
RESPONSE TO ONS SLRA 2ND ROUND RAI B2.1.7-4a

Attachment	RAI Number
1	B2.1.7-4a – Non-proprietary Version
1P	B2.1.7-4a – Proprietary Version

ENCLOSURE 1

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
SUBSEQUENT LICENSE RENEWAL APPLICATION
RESPONSE TO ONS SLRA 2ND ROUND RAI B2.1.7-4a

ATTACHMENT 1
[NON PROPRIETARY VERSION]

Note: Text that is within brackets is proprietary to Framatome, Inc.

Request for Additional Information (RAI) B2.1.7-4a:

Regulatory Basis:

Title 10 of the *Code of Federal Regulations* (CFR) Section 54.21(a)(3) requires an applicant to demonstrate that the effects of aging for each structure and component identified in 10 CFR 54.21(a)(1) will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the U.S. Nuclear Regulatory Commission (NRC) staff must make to issue a renewed license (10 CFR 54.29(a)) is that actions have been identified and have been or will be taken with respect to managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis. In order to complete its review and enable making a finding under 10 CFR 54.29(a), the staff requires additional information in regard to the matters described below.

Background:

In Section B2.1.7 of SLRA Appendix B, the applicant downgraded the core barrel (CB) top cylinder-to-bottom cylinder circumferential seam welds (henceforth CB cylinder middle circumferential seam welds), the CB top flange-to-top cylinder circumferential seams welds (henceforth the CB top flange circumferential seam welds), and the CB bottom flange-to-bottom cylinder circumferential seam welds (henceforth the CB bottom flange circumferential seam welds) in Units 1 and 3 and the CB top cylinder and bottom cylinder vertical seam welds (henceforth CB cylinder vertical seam welds) in ONS Units 1, 2 and 3 from being designated as “Expansion” category components of the program to “No Additional Measures” (NAM) category components of the program.

The applicant’s response to RAI B2.1.7-4 (ADAMS Accession No. ML22045A020) states that the CB cylinder vertical seam welds and CB middle circumferential seam welds meet the dose and stress levels for susceptibility to both irradiation-assisted stress corrosion cracking (IASCC) and neutron irradiation embrittlement (IE). The response also identifies these welds as **[[** **]]** (ADAMS Accession No. ML20091K284 as a proprietary, non-publicly available record in ADAMS). The RAI response further states that “IASCC has been addressed” for these welds, “and it is justified and concluded these welds at all three Oconee Units are downgraded to No Additional Measures,” however, no basis was provided for this statement.

The applicant’s response also states that the referenced CB weld types are **[[** **]]**.

In addition, the applicant’s proprietary response to RAI B2.1.7-4 states:

“A cumulative usage factor (CUF) value for the Oconee Units 1, 2, and 3 core barrel was recently calculated. As a result of this calculation, fatigue is downgraded to No Additional Measures for the core barrel of all Oconee Units”

“IE has been addressed for the core barrel cylinder, and **[[**

]]. Therefore, for Oconee Units 1 and 3, IE for the core barrel cylinder and top flange is considered No Additional Measures.”

Further, in the applicant's response to RAI B2.1.7-5 in letter dated February 14, 2022 (ADAMS Accession No. ML22045A020), the applicant amended SLRA Table 3.1.2-2 to include new plant-specific Note 3, which states:

"The core barrel cylinder (including vertical and circumferential seam welds) was downgraded to No Additional Measures for Units 1 and 3 as justified in MRP-227-A Applicant/Licensee Action Item 6."

The CB assemblies containing the CB cylinder vertical seam welds, CB flange circumferential seam welds, and CB cylinder middle circumferential seam welds serve a safety-related intended function pursuant to the requirements in 10 CFR 54.4(a)(1)(ii) and (iii), specifically, to control bypass around the core during a loss-of-coolant-accident (LOCA) (see the response to RAI #4-1 on MRP-227, Rev. 0 report, as given in ADAMS Accession No. ML103160381).

Issues:

1. The applicant's statements in its response to RAI B2.1.7-4 are internally inconsistent and do not provide a sufficient basis for the proposed NAM categorization of the CB cylinder vertical seam welds and CB middle circumferential seam welds for either IASCC or IE, given the safety-related function of the CB cylinders and welds.

This issue applies to the applicant's NAM category basis for the referenced CB welds in the new plant-specific Note 3 that was added to SLRA Table 3.1.2-2, which uses the staff's past issuance of Applicant/Licensee Action Item (A/LAI) #6 as the rationale for the NAM category ranking of the CB welds in the Note 3 basis. However, in A/LAI #6 (as evaluated and issued in Section 3.3.6 of the staff's December 16, 2011, safety evaluation for the MRP-227, Revision 0 report [ADAMS Accession No. ML11308A770]), the staff left the CB cylinders and associated cylinder seam welds as "*inaccessible*" Expansion category components for B&W-designed PWR Vessel Internals Programs. In turn, these A/LAI criteria formed the current EPRI MRP bases for designating the referenced CB assembly weld components as "*inaccessible*" Expansion category components in I&E Item B10.1 of Table 4-4 in the MRP-227, Revision 1-A report and in the corresponding I&E line item for the components in Table 4-4 of the previous MRP-227-A report. Thus, use of the A/LAI #6 basis would actually place the referenced CB assembly welds into the "Expansion" category grouping of the program, which is in direct opposition to the applicant's claim that the referenced CB assembly welds can be placed into the NAM category of the program based on the criteria of A/LAI #6.

2. The applicant's inspection category basis for all CB assembly seam welds (including the ONS Unit 2 CB flange and middle circumferential seam weld types that are designated as Primary components for the AMP) alters the weld accessibility considerations from those previously defined for the welds by Framatome and the EPRI MRP in MRP-227-A and MRP-227, Rev. 1-A; in these reports, the EPRI MRP previously identified that all B&W-designed CB assembly seam weld types are inaccessible to EVT-1 visual inspection equipment and left the welds as Expansion category welds for the MRP-227, Rev. -A and 1-A versions of the program (with the linked Primary components being the core baffle plates in the units). Given the safety-related intended function of the CB assemblies, the change to the "*accessibility*" criteria for B&W-design CB assembly seam weld types, and the safety-significance of the matter raised in Part 1 of this RAI, CB seam weld accessibility needs to be properly defined and justified for the version of the ONS PWR Vessel Internals Program that will be implemented during the subsequent period of extended operation.

Request:¹

1. Provide a justification for the NAM categorization of the welds for the CB cylinder vertical seam welds in Units 1, 2, and 3, and the CB top and bottom flange circumferential seam welds and the CB cylinder middle circumferential seam welds in Units 1 and 3. Alternatively, propose an alternate inspection category and basis (other than NAM category).
2. Given the request in Part 1, define the percentage of weld length that is accessible to EVT-1 visual inspection equipment for the following CB assembly seam weld types in ONS Units 1, 2, and 3: (a) CB top flange circumferential seam welds, (b) CB top cylinder vertical seam welds, (c) CB bottom cylinder vertical seam welds, (d) CB cylinder middle circumferential seam welds, and (e) CB bottom flange circumferential seam welds.

For each seam weld type, provide the following additional information if it is determined and established that the given CB assembly seam weld type is only partially accessible to inspection:

- (a) clarify and demonstrate how the portion of the weld that is accessible to inspection meets the minimum 75% accessibility criterion on weld length established by the EPRI MRP for partially accessible welds in its response to RAI 4-8 on the MRP-227, Revision 0 report methodology (Refer to the response to RAI 4-8 in ADAMS Accession No. ML103160381), and
- (b) clarify how potential aging will be addressed for those portions of the weld lengths that may be identified as being inaccessible to the inspection equipment.

If it is determined that the weld type is inaccessible to inspection or would not meet the minimum 75% criterion on accessible weld length, provide sufficient technical information to support and justify the inspection category basis for the weld type (including details on inspections and potential Expansion bases), given the RAI Part 1 consideration above that the proposed NAM categorizations for the given CB assembly seam weld types have not been adequately justified. Provide the basis of your findings for this Part of the RAI.

¹ The scope of this request applies to both the NAM category basis for the referenced CB assembly welds in SLRA Appendix B, Section B2.1.7, "PWR Vessels Internals Program," and in the newly developed Note 3 that was added to SLRA Table 3.1.2-2 in Attachment 44 of the letter of February 14, 2022 (ADAMS Accession No. ML22045A020).

Response to RAI B2.1.7-4a:

The Oconee SLRA (ADAMS Accession Number ML21158A193), SLRA Tables 2.3.1-2, 3.1.1, 3.1.2-2, A6.0-1, portions of the text in Appendix A2.7, B2.1.7, and Tables B2.1.7-1, B2.1.7-2, B2.1.7-3 in Appendix B2.1.7 require revision. Revisions to the SLRA are provided in the SLRA Revisions of this RAI response.

Response to Request 1:

With this response, alternate inspection categories are proposed for the core barrel cylinder welds and weld regions previously categorized as requiring No Additional Measures (NAM). The following describes the bases for revisions to Primary, Expansion, and Secondary Expansion relationships relative to that reported in SLRA Tables B2.1.7-1, B2.1.7-2, and B2.1.7-3, as provided below in the SLRA Revisions section of this RAI response.

Oconee Core Barrel Cylinder and Core Barrel Cylinder Welds

The analysis used in the development of inspection and evaluation guidelines for the Oconee core barrel cylinder and core barrel cylinder welds included a review of fabrication records related to post-weld heat treatment (PWHT) and weld repairs following the PWHT and a weld residual stress (WRS) analysis. For the Oconee units, the records indicate some weld repairs were performed after the PWHT. [[

]]d,e.

Nevertheless, the core barrel and core barrel welds will be treated very conservatively by only using PWHT to assign a specific component item as either “Primary” or “Expansion” and not to justify the lack of applicability of damage mechanisms (e.g., SCC, IE, or IASCC). Therefore, the following Primary-Expansion-Secondary Expansion relationships are developed for SCC/IE and IASCC/IE. Note that when “weld region” is specified, it is intended to include the weld and the adjacent base metal.

Note 3, associated with Table 3.1.2-2, “Reactor Vessel, Reactor Internals, and Reactor Coolant System – Reactor Vessel Internals – Aging Management Evaluation,” as provided in Duke’s response to RAI B2.1.7-5 in a letter dated February 14, 2022 (ADAMS Accession Number ML22045A020), is revised as part of this RAI response.

SCC/IE

Due to the presumed weld repairs, the Oconee Unit 2 core barrel cylinder top flange circumferential weld region is the Primary item. **[[**

]]d,e. Therefore, the Oconee Unit 2 core barrel cylinder top flange circumferential weld region is the Primary item and the Oconee Unit 2 core barrel cylinder bottom flange circumferential weld region is Expansion. **[[**

]]d,e. Therefore, it is appropriate that the Oconee Units 1 and 3 core barrel cylinder top flange circumferential weld regions are Expansion to the Oconee Unit 2 core barrel cylinder top flange circumferential weld region. These are identified as items B16 (Primary) and B16.1, B16.2, and B16.3 (Expansion) in revised Table B2.1.7-1.

Similar to Oconee Unit 2, the Oconee Units 1 and 3 core barrel cylinder bottom flange circumferential weld region has a lesser assigned safety consequence and challenging accessibility issues, so it is appropriate they are Secondary Expansion items led by the core barrel cylinder top flange circumferential weld region at Oconee Unit 1 or 3. These are identified as items B16.4 and B16.5 (Secondary Expansion) in revised Table B2.1.7-1.

IASCC/IE

Due to the presumed weld repairs, the Oconee Unit 2 core barrel cylinder center circumferential weld region is the Primary item. There is no evidence of weld repairs in the core barrel cylinder vertical seam welds at Oconee Unit 2, and therefore it is appropriate they are Expansion items. Additionally, there is no evidence of weld repairs in the core barrel cylinder center circumferential welds at Oconee Units 1 or 3; therefore, it is appropriate they are also Expansion items. These are identified as items B17 (Primary) and B17.1, B17.2, and B17.3 (Expansion) in revised Table B2.1.7-1.

Similar to Oconee Unit 2, there is also no evidence of weld repairs in the core barrel cylinder vertical seam welds at Oconee Units 1 and 3, so it is appropriate that they are Secondary Expansion items, which are led by the core barrel cylinder center circumferential welds at Oconee Units 1 or 3. For Oconee Units 1 and 3, the core barrel cylinder center circumferential weld region leads the vertical seam weld region because failure of a circumferential weld has a higher safety consequence. The Oconee Units 1 and 3 core barrel vertical seam weld regions are identified as items B17.4 and B17.5 (Secondary Expansion) in revised Table B2.1.7-1.

Examination Method/Frequency and Examination Coverage for the Primary and Expansion Core Barrel Cylinder Welds

Examination Method/Frequency for the Core Barrel Cylinder Welds

- Primary category core barrel cylinder welds (applicable to Unit 2), Table B2.1.7-1:
 - Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination prior to entering the subsequent period of extended operation.
 - Subsequent examination during each 10-year ISI interval.

Enclosure 1, Attachment 1
Response to ONS SLRA 2nd Round RAI B2.1.7-4a – Non-Proprietary Version

- Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to entering the subsequent period of extended operation.
- Expansion category core barrel cylinder welds, Table B2.1.7-2:
 - Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.
 - Subsequent examination during each 10-year ISI interval.
 - Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.

Examination Coverage-Core Barrel Cylinder Welds

- Tables B2.1.7-1 and B2.1.7-2:
 - Essentially 100% of the OD surfaces of the weld and $\frac{3}{4}$ " of the adjacent base metal
- The term "essentially 100%" as used herein is to be consistent with ASME Section XI, 2017 Edition, SubArticle S-2300(a), General Requirements: (a) During performance of a preservice or inservice examination, essentially 100% coverage is required of the examination surface for surface and visual examination and of the examination volume for volumetric examination. Consistent with ASME Section XI, 2017 Edition, SubArticle IWA-2200(c), essentially 100% coverage is achieved when the applicable examination coverage is greater than 90%. Consistent with the programmatic actions that are taken in the event non-conforming conditions or conditions adverse to quality are found, any reduction in inspection coverage resulting in less than essentially 100% of the OD surfaces of the weld and $\frac{3}{4}$ " of the adjacent base metal for the core barrel cylinder welds shall be addressed through the Duke Energy 10 CFR Part 50, Appendix B corrective action program.

Revisions to the Examination Method/Frequency requirement to examine the Oconee Unit 2 Primary category core barrel cylinder welds prior to entering the subsequent period of extended operation are added as an enhancement to SLRA Appendix B2.1.7, Table A6.0-1, and Appendix A2.7, and are reported in the Revisions section of this RAI response.

Response to Request 2

The alternate inspection categories described in the response to Request 1 will be the focus of the core barrel examinations for subsequent license renewal. Instead of establishing inspection specifics, such as weld coverage lengths, Duke will inspect essentially 100% of the welds falling into the various alternate inspection categories. Alternatively, in lieu of any of these examinations, the aging management of the subcomponents can be addressed by evaluation that is submitted and approved by the NRC. These evaluations can include applicable evaluations performed under the EPRI MRP program and reviewed and approved by the NRC.

The NAM categorization has been removed for all core barrel cylinder welds and essentially 100% OD weld coverage with no provisions for accessibility have been applied in Tables B2.1.7-1 through B2.1.7-3 for core barrel cylinder welds. As such, there are no relevant accessibility discussions required at this time.

SLRA Revisions:

The Oconee SLRA (ADAMS Accession Number ML21158A193) is revised as follows:

- Table 2.3.1-2, “Reactor Vessel Internals:” For the Component/Commodity Group entry Core Barrel Cylinder (including core barrel cylinders, top flange, and bottom flange), SLRA page 2-54: the Intended Function entry is revised to “Core Support” and “Flow Distribution.”
- Table 3.1.1, “Summary of Aging Management Programs for Reactor Vessel, Internals, and Reactor Coolant System Evaluated in Chapter IV of the GALL-SLR Report,” Item Number 3.1.1-118, SLRA page 3-75: The Discussion entry is revised to “Consistent with NUREG-2191.”
- Table 3.1.2-2, “Reactor Vessel, Reactor Internals, and Reactor Coolant System – Reactor Vessel Internals – Aging Management Evaluation,” component type “Core Barrel Cylinder (including core barrel cylinders, top flange, and bottom flange),” SLRA page 3-115: The following is revised:
 - Add the intended function “Flow Distribution.”
 - For the intended function “Core Support” aging effect “Cracking” and Aging Management Program “PWR Vessel Internals (B2.1.7),” the NUREG-2191 Item entry is revised to “IV.B4.R-423,” the NUREG-2192 Table 1 entry is revised to “3.1.1-118,” and the Notes entry is revised to “B, 3.”
 - For the intended function “Core Support” aging effect “Cracking” and Aging Management Program “Water Chemistry (B2.1.2),” the NUREG-2191 Item entry is revised to “IV.B4.R-423,” the NUREG-2192 Table 1 entry is revised to “3.1.1-118,” and the Notes entry is revised to “B.”
 - For the intended function “Core Support,” aging effect “Loss of Fracture Toughness” and aging management program “PWR Vessel Internals,” the NUREG-2191 Item entry is revised to “IV.B4.R-424,” the NUREG-2192 Table 1 entry is revised to “3.1.1-119,” and the Notes entry is revised to “B, 3.”
 - Note 3 is revised to remove the use of the NRC staff’s past issuance of Applicant/Licensee Action Item (A/LAI) #6 as the rationale for the No Additional Measures (NAM) category ranking of the core barrel cylinder welds, and to provide a summary of the revisions to Primary, Expansion, and Secondary Expansion relationships of the core barrel cylinder welds.
- Appendix A2.7, PWR Vessel Internals, SLRA page A-9, is revised to add a list of the specific enhancements to the PWR Vessel Internals AMP.
- Appendix A6.0-1, Subsequent License Renewal Commitments List, Item 7, SLRA page A-74: The PWR Vessel Internals program Commitment entry is revised to add a list of the specific enhancements to the PWR Vessel Internals AMP.
- Appendix B2.1.7, subsection titled “Revisions to MRP-227, Revision 1-A, Table 4-1, B&W Plants Primary, for the ONS Units,” is revised starting on SLRA page B-69 to include the list of core barrel cylinder weld Primary-Expansion-Secondary Expansion relationships that have been developed for SCC/IE and IASCC/IE.
- Appendix B2.1.7, Table B2.1.7-1, “MRP-227-1-A Table 4-1, B&W Plants Primary Items,” SLRA page B-70, is revised to include the core barrel cylinder weld Primary-Expansion-Secondary Expansion relationships that have been developed for SCC/IE and IASCC/IE, and changes to

examination method/frequency requirements for the Oconee Unit 2 Primary category core barrel cylinder welds.

- Appendix B2.1.7, subsection titled “Revisions to MRP-227, Revision 1-A, Table 4-4, B&W Plants Expansion, for the ONS Units,” is revised starting on SLRA page B-71 to include the list of core barrel cylinder weld Primary-Expansion-Secondary Expansion relationships that have been developed for SCC/IE and IASCC/IE.
- Appendix B2.1.7, Table B2.1.7-2, “MRP-227-1-A Table 4-4, B&W Plants Expansion Items,” is revised starting on SLRA page B-72 to include the core barrel cylinder weld Primary-Expansion-Secondary Expansion relationships that have been developed for SCC/IE and IASCC/IE.
- Appendix B2.1.7, subsection titled “Revisions to MRP-227, Revision 1-A, Table 5-1, B&W Plants Acceptance and Expansion Criteria,” is revised starting on SLRA page B-74 to include the list of core barrel cylinder weld Primary-Expansion-Secondary Expansion relationships that have been developed for SCC/IE and IASCC/IE.
- Appendix B2.1.7, Table B2.1.7-3, MRP-227-1-A Table 5-1, B&W Plants Acceptance and Expansion Criteria,” is revised starting on SLRA page B-75 to include the core barrel cylinder weld Primary-Expansion-Secondary Expansion relationships that have been developed for SCC/IE and IASCC/IE.
- Appendix B2.1.7, Enhancements, is revised starting on SLRA page B-77 to add a list of the specific enhancements to the PWR Vessel Internals AMP.

SLRA Table 2.3.1-2, starting at page 2-54, is revised as follows:

Table 2.3.1-2 Reactor Vessel Internals

Component/Commodity Group	Intended Function
Core Barrel Cylinder (including core barrel cylinders, top flange, and bottom flange)	Core Support <u>Flow Distribution</u>

Enclosure 1, Attachment 1
 Response to ONS SLRA 2nd Round RAI B2.1.7-4a – Non-Proprietary Version

SLRA Table 3.1.1 starting at page 3-75, is revised as follows:

Table 3.1.1 Summary of Aging Management Programs for Reactor Vessel, Internals, and Reactor Coolant System Evaluated in Chapter IV of the GALL-SLR Report

Item Number	Component	Aging Effect/ Mechanism	Aging Management Program	Further Evaluation Recommended	Discussion
3.1.1-118	Stainless steel, nickel alloy PWR reactor vessel internal components exposed to reactor coolant, neutron flux	Cracking due to stress corrosion cracking, IASCC, cyclic loading, fatigue	Plant-specific aging management program or AMP XI.M16A, "PWR Vessel Internals," and AMP XI.M2, "Water Chemistry" (SCC and IASCC only), with adjusted site-specific or component-specific aging management basis for a given component	Yes (SRP-SLR Section 3.1.2.2.9)	Not applicable. Cracking of stainless steel and nickel alloy PWR reactor vessel internal components exposed to reactor coolant and neutron flux is addressed by items 3.1.1-051a and 3.1.1-051b. The associated NUREG 2191 aging items are not used. See further evaluation in Section 3.1.2.2.9. <u>Consistent with NUREG-2191.</u>

Enclosure 1, Attachment 1
 Response to ONS SLRA 2nd Round RAI B2.1.7-4a – Non-Proprietary Version

SLRA Table 3.1.2-2, starting at page 3-115, is revised as follows:

Table 3.1.2-2 Reactor Vessel, Reactor Internals, and Reactor Coolant System - Reactor Vessel Internals - Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect	Aging Management Program	NUREG-2191 Item	NUREG-2192 Table 1	Notes
Core Barrel Cylinder (including core barrel cylinders, top flange, and bottom flange)	Core Support	Stainless Steel	Reactor Coolant and Neutron Flux (External)	Cracking	PWR Vessel Internals (B2.1.7)	IV.B4.RP-241a <u>IV.B4.R-423</u>	3.1.1-051a <u>3.1.1-118</u>	D, 3 <u>B, 3</u>
					Water Chemistry (B2.1.2)	IV.B4.RP-241a <u>IV.B4.R-423</u>	3.1.1-051a <u>3.1.1-118</u>	C <u>B</u>
				Cumulative Fatigue Damage	TLAA	IV.B4.R-53	3.1.1-003	A
				Loss of Fracture Toughness	PWR Vessel Internals (B2.1.7)	IV.B4.RP-240 <u>IV.B4.R-424</u>	3.1.1-058a <u>3.1.1-119</u>	D, 4 <u>B, 3</u>
				Loss of Material	Water Chemistry (B2.1.2)	IV.B4.RP-24	3.1.1-087	A
	<u>Flow Distribution</u>	<u>Stainless Steel</u>	<u>Reactor Coolant and Neutron Flux (External)</u>	<u>Cracking</u>	<u>PWR Vessel Internals (B2.1.7)</u>	<u>IV.B4.R-423</u>	<u>3.1.1-118</u>	<u>B, 3</u>
					<u>Water Chemistry (B2.1.2)</u>	<u>IV.B4.R-423</u>	<u>3.1.1-118</u>	<u>B</u>
				<u>Cumulative Fatigue Damage</u>	<u>TLAA</u>	<u>IV.B4.R-53</u>	<u>3.1.1-003</u>	<u>A</u>
				<u>Loss of Fracture Toughness</u>	<u>PWR Vessel Internals (B2.1.7)</u>	<u>IV.B4.R-424</u>	<u>3.1.1-119</u>	<u>B, 3</u>
				<u>Loss of Material</u>	<u>Water Chemistry (B2.1.2)</u>	<u>IV.B4.RP-24</u>	<u>3.1.1-087</u>	<u>A</u>

Table 3.1.2-2 Reactor Vessel, Reactor Internals, and Reactor Coolant System - Reactor Vessel Internals - Aging Management Evaluation

Plant Specific Notes:

- 3. The Unit 2 core barrel cylinder top flange circumferential weld region is Primary for SCC/IE. The Expansion items are the Unit 2 core barrel cylinder bottom flange circumferential weld region and the Units 1 and 3 core barrel cylinder top flange circumferential weld regions. Secondary Expansion from any findings on the Units 1 and 3 core barrel cylinder top flange circumferential weld regions are the Units 1 and 3 core barrel cylinder bottom flange circumferential weld regions. The Unit 2 core barrel cylinder center circumferential weld region is Primary for IASCC/IE. The Expansion items are the Unit 2 core barrel cylinder vertical seam weld region and also the Units 1 and 3 core barrel cylinder center circumferential weld regions. Secondary Expansion from any findings on the Units 1 and 3 core barrel cylinder center circumferential weld regions are the Units 1 and 3 core barrel cylinder vertical seam weld regions.**

SLRA Appendix A2.7, starting at page A-9, enhancements are revised as follows:

Enhancements

The following enhancement(s) will be implemented to the following program element(s):
Detection of Aging Effects (Element 4) and Acceptance Criteria (Element 6):

1. The *PWR Vessel Internals* AMP will be updated as necessary to provide guidance for implementing the changes to primary and expansion items in MRP-227, Rev 1-A, Tables 4-1, 4-4 (and Table 5-1 for Element 6 only), as modified by the ONS gap analysis reported in [Appendix B2.1.7](#). (Elements 4 and 6)

The specific enhancements to the ONS-specific MRP-227 Revision 1-A program will be as follows:

2. Enhancements to MRP-227, Revision 1-A, Table 4-1, B&W Plants Primary, for the Oconee Units:

- **Remove visual VT-3 examination of high-strength bolt locking devices.**
- **Examination method/frequency for the plenum cover assembly and core support shield assembly (Item B1) will be updated. The initial one-time physical measurement required by the MRP-227 guideline is complete for all Oconee units; no relevant indications have been observed. Subsequent visual (VT-3) examination will be performed during each 10-year ISI interval.**
- **Examination coverage for the plenum cover assembly and core support shield assembly (Item B1) will be updated. Accessible top surfaces of the plenum cover support ring/plenum cover weldment rib pads and CSS top flange when the RV closure head and plenum assembly will be removed as areas for examination.**
- **The expansion link to vent valve bodies for the control rod guide tube assembly, control rod guide tube spacer castings (Item B2) will be removed. It has been determined that the vent valve bodies are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2). There is no expansion link for the control rod guide tube assembly, control rod guide tube spacer castings (Item B2).**
- **New age-related degradation mechanisms will be added for the core support shield assembly, upper core barrel bolts (Item B7). The new age-related degradation mechanisms are irradiation-enhanced stress relaxation and irradiation-enhanced creep, fatigue, and wear.**
- **An expansion link note will be added for the core support shield assembly, upper core barrel bolts (Item B7). The note states that the primary-expansion relationship between the upper core barrel, lower core barrel, and flow-distributor bolts and the upper thermal shield and lower thermal shield bolts/studs is for stress corrosion cracking only.**

- A new expansion link note will be added for the core barrel assembly, lower core barrel bolts (Item B8). The note states that the primary-expansion relationship between the upper core barrel, lower core barrel, and flow distributor bolts and the upper thermal shield and lower thermal shield bolts/studs is for stress corrosion cracking only.
- A new age-related mechanism will be added for the core barrel assembly, baffle-to-former bolts (Item B9). The new age-related degradation mechanism is void swelling.
- An expansion link note will be added for the core barrel assembly, baffle-to-former bolts (Item B9). The note states that the core barrel-to-former bolts are Category A for void swelling, so expansion does not apply.
- A new age-related degradation mechanism will be added for the core barrel assembly, baffle plates (Item B10). The new age-related degradation mechanism is void swelling.
- Expansion links for the core barrel assembly, baffle plates (Item B10) will be revised. Core barrel cylinder (including vertical and circumferential seam welds) and lower grid rib section will be removed as expansion links. Former plates will be retained as an expansion link.
- An expansion link note will be added for the flow distributor assembly, flow distributor bolts (Item B12). The note states the Primary-Expansion relationship between the upper core barrel, lower core barrel, and flow distributor bolts and the upper thermal shield and lower thermal shield bolts/studs/nuts is for stress corrosion cracking only.
- An age-related degradation mechanism will be removed for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15). Thermal aging embrittlement will be removed as an applicable degradation mechanism for the incore monitoring instrumentation spiders as ferrite screening has determined that these items are not susceptible to thermal aging embrittlement.
- A new expansion link for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15) will be added. The new expansion link is upper grid fuel assembly support pad items: pad, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.2).
- Examination coverage for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15) will be clarified. Clarification of the meaning of adjacent will be provided along with a corresponding note.

- New Primary Items will be added:
 - Core barrel assembly: core barrel cylinder top flange circumferential weld region (Unit 2) (Item B16)
 - Core barrel assembly: core barrel cylinder center circumferential weld regions (Unit 2) (Item B17)
 - Lower grid rib assembly: lower grid rib section (Item B18)
- New Expansion and Secondary Expansion Links will be added for the new Primary Items as reported below (i.e., Items B16.1 through B16.5 relative to Item B16, and Items B17.1 through B17.5 relative to Item B17).
- Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) will be examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.

3. Enhancements to MRP-227, Revision 1-A, Table 4-4, B&W Plants Expansion, for the Oconee Units:

- Remove visual VT-3 examination of high-strength bolt locking devices.
- Vent valve assembly, vent valve bodies (Item B2.1) will be removed as an expansion item as it has been determined that these component items are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2).
- A new age-related degradation mechanism for the core barrel assembly, baffle-to-baffle bolts (Item B9.1) will be added. The new age-related degradation mechanism is void swelling.
- A new age-related degradation mechanism for the core barrel assembly, former plates (Item B10.2) will be added. The new age-related degradation mechanism is void swelling.
- Lower grid rib section (Item B10.3) will be reclassified as a primary item.
- Examination method/frequency for the lower grid assembly, lower thermal shield studs (Item B8.1) will be updated. The updated examination method is a new visual (VT-3) examination of the lower thermal shield nuts.
- New expansion items will be added based on a revision to primary item incore monitoring instrumentation guide tube spiders and spider-to-lower grid rib section welds (Item B15).

- New expansion items will be added for core barrel cylinder welds: Items B16.1 through B16.5, which are tied to new primary item B16, core barrel cylinder top flange circumferential weld region (Unit 2)
 - Core barrel cylinder top flange circumferential weld region (Unit 1) (Item B16.1)
 - Core barrel cylinder top flange circumferential weld region (Unit 3) (Item B16.2)
 - Core barrel cylinder bottom flange circumferential weld region (Unit 2) (Item B16.3)
 - Core barrel cylinder bottom flange circumferential weld region (Unit 1) (Item B16.4) (Secondary Expansion of Item B16.1)
 - Core barrel cylinder bottom flange circumferential weld region (Unit 3) (Item B16.5) (Secondary Expansion of Item B16.2)
 - Core barrel cylinder center circumferential weld region (Unit 1) (Item B17.1)
 - Core barrel cylinder center circumferential weld region (Unit 3) (Item B17.2)
 - Core barrel cylinder vertical seam weld region (Unit 2) (Item B17.3)
 - Core barrel cylinder vertical seam weld region (Unit 1) (Item B17.4) (Secondary Expansion of Item B17.1)
 - Core barrel cylinder vertical seam weld region (Unit 3) (Item B17.5) (Secondary Expansion of Item B17.2)

4. Enhancements to MRP-227, Revision 1-A, B&W Plants Acceptance and Expansion Criteria, for the Oconee Units:

- Remove references to visual VT-3 examination of high-strength bolt locking devices.
- The expansion link to vent valve bodies for the control rod guide tube assembly spacer castings (Item B2) will be removed.
- Expansion criteria wording for the core barrel assembly, upper core barrel bolts (Item B7) will be updated to include expansion to 100% of the lower thermal shield nuts.
- Expansion criteria for the core barrel assembly, lower core barrel bolts (Item B8) will be updated to include expansion to 100% of the lower thermal shield nuts.
- Expansion links to the core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) and lower grid rib section (Item B10.3) for the core barrel assembly, baffle plates (Item B10) will be removed.
- Expansion criteria for the core barrel assembly, baffle plates (Item B10) will be updated. The expansion criteria will be updated to remove the expansion links to the core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) and lower grid rib section (Item B10.3) from the wording.
- Expansion criteria wording for the flow distributor assembly, flow distributor bolts (Item B12) will be updated to include expansion to 100% of the lower thermal shield nuts.

- An expansion link for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, and incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15), will be added. The expansion link will be added to the upper grid fuel assembly support pad items: pad, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.2). This item expands from the existing expansion item lower grid assembly, lower grid fuel assembly support pad component items: pad, pad-to-rib section welds, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.1) as a secondary expansion.

- New primary items will be added:
 - Core barrel assembly, core barrel cylinder top flange circumferential weld region (Unit 2) (Item B16)
 - Core barrel assembly, core barrel cylinder center circumferential weld region (Unit 2) (Item B17)
 - Lower grid rib assembly, lower grid rib section (Item B18)

- New Expansion Links, Expansion Criteria, and Acceptance Criteria will be added:
 - For the core barrel cylinder top flange circumferential weld region (Item B16), Expansion Links will include Items B16.1 through B16.5 with expansion criteria as discussed above. Acceptance criteria will be as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.
 - For the core barrel cylinder center circumferential weld region (Item B17), Expansion Links will include Items B17.1 through B17.5 with expansion criteria as discussed above. Acceptance criteria will be as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.

- Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) will be examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.

SLRA Table A6.0-1, Item 7, starting at page A-74, is revised as follows:

A6.0 SUBSEQUENT LICENSE RENEWAL COMMITMENTS LIST

Table A6.0-1: Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
7	<i>PWR Vessel Internals program</i>	<p>The <i>PWR Vessel Internals</i> AMP is an existing program that will be enhanced as follows:</p> <ol style="list-style-type: none"> The <i>PWR Vessel Internals</i> AMP will be updated as necessary to provide guidance for implementing the changes to primary and expansion items in MRP-227, Rev 1-A, Tables 4-1, 4-4 (and Table 5-1 for Element 6 only), as modified by the ONS gap analysis reported in Appendix B2.1.7. (Elements 4 and 6) <u>Enhancements to MRP-227, Revision 1-A, Table 4-1, B&W Plants Primary, for the ONS Units:</u> <ul style="list-style-type: none"> <u>Remove visual VT-3 examination of high-strength bolt locking devices.</u> <u>Examination method/frequency for the plenum cover assembly and core support shield assembly (Item B1) will be updated. The initial one-time physical measurement required by the MRP-227 guideline is complete for all Oconee units; no relevant indications have been observed. Subsequent visual (VT-3) examination will be performed during each 10-year ISI interval.</u> <u>Examination coverage for the plenum cover assembly and core support shield assembly (Item B1) will be updated. Accessible top surfaces of the plenum cover support ring/plenum cover weldment rib pads and CSS top flange when the RV closure head and plenum assembly will be removed as areas for examination.</u> <u>The expansion link to vent valve bodies for the control rod guide tube assembly, control rod guide tube spacer castings (Item B2) will be removed. It has been determined that the vent valve bodies are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2). There is no expansion link for the control rod guide tube assembly, control rod guide tube spacer castings (Item B2).</u> <u>New age-related degradation mechanisms will be added for the core support shield assembly, upper core barrel bolts (Item B7). The new age-related degradation mechanisms are irradiation-enhanced stress relaxation and irradiation-enhanced creep, fatigue, and wear.</u> <u>An expansion link note will be added for the core support shield assembly, upper core barrel bolts (Item B7). The note states that the primary-expansion relationship between the upper core barrel, lower core barrel, and flow-distributor bolts and the upper thermal shield and lower thermal shield bolts/studs is for stress corrosion cracking only.</u> 	B2.1.7	Program enhancements for SLR will be implemented six months prior to the SPEO.

#	Program	Commitment	AMP	Implementation
		<ul style="list-style-type: none"> • <u>A new expansion link note will be added for the core barrel assembly, lower core barrel bolts (Item B8). The note states that the primary-expansion relationship between the upper core barrel, lower core barrel, and flow distributor bolts and the upper thermal shield and lower thermal shield bolts/studs is for stress corrosion cracking only.</u> • <u>A new age-related mechanism will be added for the core barrel assembly, baffle-to-former bolts (Item B9). The new age-related degradation mechanism is void swelling.</u> • <u>An expansion link note will be added for the core barrel assembly, baffle-to-former bolts (Item B9). The note states that the core barrel-to-former bolts are Category A for void swelling, so expansion does not apply.</u> • <u>A new age-related degradation mechanism will be added for the core barrel assembly, baffle plates (Item B10). The new age-related degradation mechanism is void swelling.</u> • <u>Expansion links for the core barrel assembly, baffle plates (Item B10) will be revised. Core barrel cylinder (including vertical and circumferential seam welds) and lower grid rib section will be removed as expansion links. Former plates will be retained as an expansion link.</u> • <u>An expansion link note will be added for the flow distributor assembly, flow distributor bolts (Item B12). The note states the Primary-Expansion relationship between the upper core barrel, lower core barrel, and flow distributor bolts and the upper thermal shield and lower thermal shield bolts/studs/nuts is for stress corrosion cracking only.</u> • <u>An age-related degradation mechanism will be removed for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15). Thermal aging embrittlement will be removed as an applicable degradation mechanism for the incore monitoring instrumentation spiders as ferrite screening has determined that these items are not susceptible to thermal aging embrittlement.</u> • <u>A new expansion link for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15) will be added. The new expansion link is upper grid fuel assembly support pad items: pad, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.2).</u> 		

#	Program	Commitment	AMP	Implementation
		<ul style="list-style-type: none"> • <u>Examination coverage for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15) will be clarified. Clarification of the meaning of adjacent will be provided along with a corresponding note.</u> • <u>New Primary Items will be added:</u> <ul style="list-style-type: none"> ○ <u>Core barrel assembly: core barrel cylinder top flange circumferential weld region (Unit 2) (Item B16)</u> ○ <u>Core barrel assembly: core barrel cylinder center circumferential weld regions (Unit 2) (Item B17)</u> ○ <u>Lower grid rib assembly: lower grid rib section (Item B18)</u> • <u>New Expansion and Secondary Expansion Links will be added for the new Primary Items as reported below (i.e., Items B16.1 through B16.5 relative to Item B16, and Items B17.1 through B17.5 relative to Item B17).</u> • <u>Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) will be examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.</u> <p>3. Enhancements to MRP-227, Revision 1-A, Table 4-4, B&W Plants Expansion, for the ONS Units:</p> <ul style="list-style-type: none"> • <u>Remove visual VT-3 examination of high-strength bolt locking devices.</u> • <u>Vent valve assembly, vent valve bodies (Item B2.1) will be removed as an expansion item as it has been determined that these component items are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2).</u> • <u>A new age-related degradation mechanism for the core barrel assembly, baffle-to-baffle bolts (Item B9.1) will be added. The new age-related degradation mechanism is void swelling.</u> • <u>A new age-related degradation mechanism for the core barrel assembly, former plates (Item B10.2) will be added. The new age-related degradation mechanism is void swelling.</u> • <u>Lower grid rib section (Item B10.3) will be reclassified as a primary item.</u> • <u>Examination method/frequency for the lower grid assembly, lower thermal shield studs (Item B8.1) will be updated. The updated examination method is a new visual (VT-3) examination of the lower thermal shield nuts.</u> 		

#	Program	Commitment	AMP	Implementation
		<ul style="list-style-type: none"> • <u>New expansion items will be added based on a revision to primary item incore monitoring instrumentation guide tube spiders and spider-to-lower grid rib section welds (Item B15).</u> • <u>New expansion items will be added for core barrel cylinder welds: Items B16.1 through B16.5, which are tied to new primary item B16, core barrel cylinder top flange circumferential weld region (Unit 2)</u> <ul style="list-style-type: none"> ○ <u>Core barrel cylinder top flange circumferential weld region (Unit 1) (Item B16.1)</u> ○ <u>Core barrel cylinder top flange circumferential weld region (Unit 3) (Item B16.2)</u> ○ <u>Core barrel cylinder bottom flange circumferential weld region (Unit 2) (Item B16.3)</u> ○ <u>Core barrel cylinder bottom flange circumferential weld region (Unit 1) (Item B16.4) (Secondary Expansion of Item B16.1)</u> ○ <u>Core barrel cylinder bottom flange circumferential weld region (Unit 3) (Item B16.5) (Secondary Expansion of Item B16.2)</u> ○ <u>Core barrel cylinder center circumferential weld region (Unit 1) (Item B17.1)</u> ○ <u>Core barrel cylinder center circumferential weld region (Unit 3) (Item B17.2)</u> ○ <u>Core barrel cylinder vertical seam weld region (Unit 2) (Item B17.3)</u> ○ <u>Core barrel cylinder vertical seam weld region (Unit 1) (Item B17.4) (Secondary Expansion of Item B17.1)</u> ○ <u>Core barrel cylinder vertical seam weld region (Unit 3) (Item B17.5) (Secondary Expansion of Item B17.2)</u> 4. <u>Enhancements to MRP-227, Revision 1-A, Table 5-1, B&W Plants Acceptance and Expansion Criteria, for the ONS Units:</u> <ul style="list-style-type: none"> • <u>Remove references to visual VT-3 examination of high-strength bolt locking devices.</u> • <u>The expansion link to vent valve bodies for the control rod guide tube assembly spacer castings (Item B2) will be removed.</u> • <u>Expansion criteria wording for the core barrel assembly, upper core barrel bolts (Item B7) will be updated to include expansion to 100% of the lower thermal shield nuts.</u> • <u>Expansion Criteria wording for the core barrel assembly, lower core barrel bolts (Item B8) will be updated to include expansion to 100% of the lower thermal shield nuts.</u> • <u>Expansion links to the core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) and lower grid rib section (Item B10.3) for the core barrel assembly, baffle plates (Item B10) will be removed.</u> 		

#	Program	Commitment	AMP	Implementation
		<ul style="list-style-type: none"> • <u>Expansion criteria for core barrel assembly, baffle plates (Item B10) will be updated. The expansion criteria will be updated to remove the expansion links to core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) and lower grid rib section (Item B10.3) from the wording.</u> • <u>Expansion criteria wording for the flow distributor assembly, flow distributor bolts (Item B12) will be updated to include expansion to 100% of the lower thermal shield nuts.</u> • <u>An expansion link for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, and incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15), will be added. The expansion link will be added to the upper grid fuel assembly support pad items: pad, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.2). This item expands from the existing expansion item lower grid assembly, lower grid fuel assembly support pad component items: pad, pad-to-rib section welds, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.1) as a secondary expansion.</u> • <u>New primary items will be added:</u> <ul style="list-style-type: none"> ○ <u>Core barrel assembly, core barrel cylinder top flange circumferential weld zone (Unit 2) (Item B16)</u> ○ <u>Core barrel assembly, core barrel cylinder center circumferential weld region (Unit 2) (Item B17)</u> ○ <u>Lower Grid Assembly, lower grid rib section (B18)</u> • <u>New Expansion Links, Expansion Criteria, and Acceptance Criteria will be added:</u> <ul style="list-style-type: none"> ○ <u>For the core barrel cylinder top flange circumferential weld region (Item B16), Expansion Links will include Items B16.1 through B16.5 with expansion criteria as discussed above. Acceptance criteria will be as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.</u> ○ <u>For the core barrel cylinder center circumferential weld region (Item B17), Expansion Links will include Items B17.1 through B17.5 with expansion criteria as discussed above. Acceptance criteria will be as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.</u> 		

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#	Program	Commitment	AMP	Implementation
		<ul style="list-style-type: none"> Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) will be examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation. 		

SLRA Appendix B2.1.7, starting at page B-69, is revised as follows:

- New Primary Items were added:
 - Core barrel assembly: core barrel cylinder top flange circumferential weld region heat affected zone (Item B16, Unit 2 only) (~~Item B16~~)
 - Expansion link is the core barrel cylinder top flange circumferential weld region (Item B16.1, Unit 1)
 - Secondary Expansion link is the core barrel cylinder bottom flange circumferential weld region (Item B16.4, Unit 1)
 - Expansion link is the core barrel cylinder top flange circumferential weld region (Item B16.2, Unit 3)
 - Secondary Expansion link is the core barrel cylinder bottom flange circumferential weld region (Item B16.5, Unit 3)
 - Expansion link is the core barrel cylinder bottom flange circumferential weld region (Item B16.3, Unit 2)
 - Core barrel assembly: core barrel cylinder center circumferential weld regions (Item B17, Unit 2 only) (~~Item B17~~)
 - Expansion link is the core barrel cylinder center circumferential weld region (Item B17.1, Unit 1)
 - Secondary Expansion link is the core barrel cylinder vertical seam weld region (Item B17.4, Unit 1)
 - Expansion link is the core barrel cylinder center circumferential weld region (Item B17.2, Unit 3)
 - Secondary Expansion link is the core barrel cylinder vertical seam weld region (Item B17.5, Unit 3)
 - Expansion link is the core barrel cylinder vertical seam weld region (Item B17.3, Unit 2)
 - Lower grid rib assembly: lower grid rib section (Item B18)
 - New Expansion and Secondary Expansion Links were added for the new Primary Items as reported below (i.e., Items B16.1 through B16.5 relative to Item B16, and Items B17.1 through B17.5 relative to Item B17).
 - Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) are examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.

SLRA Table B2.1.7-1, starting at page B-70, is revised as follows:

The new Primary Items have the following attributes:

Table B2.1.7-1: MRP-227-1-A Table 4-1, B&W Plants Primary Items

Primary Component Item	Applicability	Effect (Mechanism)	Expansion Link	Examination Method/Frequency	Examination Coverage
<p>B16.Core Barrel Assembly</p> <p>Core barrel cylinder top flange circumferential weld <u>region</u> HAZ</p>	ONS Unit 2	Cracking (SCC, IE), including the detection of surface-breaking crack-like indications	<p>None</p> <p><u>B16.1.Core barrel cylinder top flange circumferential weld region (ONS Unit 1)</u></p> <p><u>B16.2.Core barrel cylinder top flange circumferential weld region (ONS Unit 3)</u></p> <p><u>B16.3.Core barrel cylinder bottom flange circumferential weld region (ONS Unit 2)</u></p> <p><u>B16.4.Core barrel cylinder bottom flange circumferential weld region (ONS Unit 1) (Secondary Expansion of B16.1)</u></p> <p><u>B16.5.Core barrel cylinder bottom flange circumferential weld region (ONS Unit 3) (Secondary Expansion of B16.2)</u></p>	<p>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination <u>prior to entering the subsequent period of extended operation</u> no later than two refueling outages from the beginning of the license renewal period.</p> <p>Subsequent examination during each 10-year ISI interval.</p> <p>Alternatively, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC Staff approval <u>at least four years prior to Unit 2 entering the subsequent period of extended operation.</u></p>	<p><u>Essentially</u> 100% of the OD surfaces of <u>the weld and</u> ¼" of the adjacent base metal to the core barrel cylinder top flange weld.</p> <p><u>(Note 1)</u></p>
<p>B17.Core Barrel Assembly</p> <p>Core barrel cylinder center circumferential weld region</p>	ONS Unit 2	Cracking (IASCC, IE), including the detection of surface-breaking crack-like indications and/or readily detectable cracking	<p>None</p> <p><u>B17.1.Core barrel cylinder center circumferential weld region (ONS Unit 1)</u></p> <p><u>B17.2.Core barrel cylinder center circumferential weld region (ONS Unit 3)</u></p> <p><u>B17.3.Core barrel cylinder vertical seam weld region (ONS Unit 2)</u></p> <p><u>B17.4.Core barrel cylinder vertical seam weld region (ONS Unit 1) (Secondary Expansion of B17.1)</u></p> <p><u>B17.5.Core barrel cylinder vertical seam weld region (ONS Unit 3) (Secondary Expansion of B17.2)</u></p>	<p>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination <u>prior to entering the subsequent period of extended operation</u> no later than two refueling outages from the beginning of the license renewal period.</p> <p>Subsequent examination during each 10-year ISI interval.</p> <p>Alternatively, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC Staff approval <u>at least four years prior to Unit 2 entering the subsequent period of extended operation.</u></p>	<p><u>Essentially</u> 100% of the <u>OD surfaces of the</u> weld-length of the OD of the center circumferential weld and ¼" of the adjacent base metal.</p> <p><u>(Note 1)</u></p>

Note 1: Consistent with ASME Section XI, 2017 Edition, SubArticles S-2300(a) and IWA-2200(c), essentially 100% coverage is achieved during the performance of an inservice examination (surface, visual, or volumetric) when the applicable examination coverage is greater than 90%.

SLRA Appendix B2.1.7, starting at page B-71, is revised as follows:

Revisions to MRP-227, Revision 1-A, Table 4-4, B&W Plants Expansion, for the ONS Units

The following listing identifies the changes that are included in the ONS *PWR Vessel Internals* AMP:

- General: Removed visual VT-3 examination of high-strength bolt locking devices.
- Vent valve assembly, vent valve bodies (Item B2.1) was removed as an expansion Item as it has been determined that these component items are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2).
- A new age-related degradation mechanism for the core barrel assembly, baffle-to-baffle bolts (Item B9.1) was added. The new age-related degradation mechanism is void swelling.
- A new age-related degradation mechanism for the core barrel assembly, former plates (Item B10.2) was added. The new age-related degradation mechanism is void swelling.
- ~~Core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) was reclassified as “No additional Measures” for ONS Unit 1 and ONS Unit 3. The vertical seam welds were also reclassified as “No Additional Measures” for ONS Unit 2. The top flange circumferential weld heat affected zone and center circumferential weld region were reclassified as Primary Items for ONS Unit 2 only.~~
- Lower grid rib section (Item B10.3) was reclassified as a primary item.
- Examination method/frequency for the lower grid assembly, lower thermal shield studs (Item B8.1) was updated. The updated examination method is a new visual (VT-3) examination of the lower thermal shield nuts.
- New expansion items were added based on a revision to primary item incore monitoring instrumentation guide tube spiders and spider-to-lower grid rib section welds (Item B15).
- **New expansion items were added based on the reclassification of the core barrel cylinder top flange circumferential weld region (Item B16, Unit 2 only) and core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) as Primary Items:**
 - **Core barrel cylinder top flange circumferential weld region (Item B16.1 for Unit 1, Item B16.2 for Unit 3) are Expansion items led by the Primary item core barrel cylinder top flange circumferential weld region (Item B16, Unit 2)**
 - **Core barrel cylinder bottom flange circumferential weld region (Item B16.3, Unit 2) is an Expansion item led by the Primary item core barrel cylinder top flange circumferential weld region (Item B16, Unit 2)**
 - **Core barrel cylinder bottom flange circumferential weld region (Item B16.4, Unit 1) is a Secondary Expansion item led by the Expansion item core barrel cylinder top flange circumferential weld region (Item B16.1, Unit 1)**
 - **Core barrel cylinder bottom flange circumferential weld region (Item B16.5, Unit 3) is a Secondary Expansion item led by the Expansion item core barrel cylinder top flange circumferential weld region (Item B16.2, Unit 3)**

- Core barrel cylinder center circumferential weld region (Item B17.1 for Unit 1, Item B17.2 for Unit 3) are Expansion items led by the Primary item core barrel cylinder center circumferential weld region (Item B17, Unit 2)
- Core barrel cylinder vertical seam weld region (Item B17.3, Unit 2) is an Expansion item led by the Primary item core barrel cylinder center circumferential weld region (Item B17, Unit 2)
- Core barrel cylinder vertical seam weld region (Item B17.4, Unit 1) is a Secondary Expansion item led by the Expansion item core barrel cylinder center circumferential weld region (Item B17.1, Unit 1)
- Core barrel cylinder vertical seam weld region (Item B17.5, Unit 3) is a Secondary Expansion item led by the Expansion item core barrel cylinder center circumferential weld region (Item B17.2, Unit 3)

SLRA Table B2.1.7-2, starting at page B-72, is revised as follows:

The new expansion items have the following attributes:

Table B2.1.7-2: MRP-227-1-A Table 4-4, B&W Plants Expansion Items

Expansion Component Item	Applicability	Effect (Mechanism)	Primary Link	Examination Method/ Frequency	Examination Coverage
<u>Core barrel cylinder top flange circumferential weld region (B16.1 for ONS Unit 1, B16.2 for ONS Unit 3)</u>	<u>ONS Unit 1</u> <u>ONS Unit 3</u>	<u>Cracking (SCC, IE), including the detection of surface-breaking crack-like indications</u>	<u>B16.Core barrel cylinder top flange circumferential weld region (ONS Unit 2)</u>	<u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u> <u>Subsequent examination during each 10-year ISI interval.</u> <u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u>	<u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder top flange weld (per unit). (Note 1)</u>
<u>B16.3.Core barrel cylinder bottom flange circumferential weld region</u>	<u>ONS Unit 2</u>	<u>Cracking (SCC, IE), including the detection of surface-breaking crack-like indications</u>	<u>B16.Core barrel cylinder top flange circumferential weld region (ONS Unit 2)</u>	<u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u> <u>Subsequent examination during each 10-year ISI interval.</u> <u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u>	<u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder bottom flange weld. (Note 1)</u>
<u>B16.4.Core barrel cylinder bottom flange circumferential weld region (Secondary Expansion of B16.1)</u>	<u>ONS Unit 1</u>	<u>Cracking (SCC, IE), including the detection of surface-breaking crack-like indications</u>	<u>B16.Core barrel cylinder top flange circumferential weld region (ONS Unit 2)</u>	<u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u> <u>Subsequent examination during each 10-year ISI interval.</u> <u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u>	<u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder bottom flange weld. (Note 1)</u>

Expansion Component Item	Applicability	Effect (Mechanism)	Primary Link	Examination Method/Frequency	Examination Coverage
<p><u>B16.5.Core barrel cylinder bottom flange circumferential weld region (Secondary Expansion of B16.2)</u></p>	<p><u>ONS Unit 3</u></p>	<p><u>Cracking (SCC, IE), including the detection of surface-breaking crack-like indications</u></p>	<p><u>B16.Core barrel cylinder top flange circumferential weld region (ONS Unit 2)</u></p>	<p><u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u></p> <p><u>Subsequent examination during each 10-year ISI interval.</u></p> <p><u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u></p>	<p><u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder bottom flange weld.</u> (Note 1)</p>
<p><u>Core barrel cylinder center circumferential weld region (B17.1 for ONS Unit 1, B17.2 for ONS Unit 3)</u></p>	<p><u>ONS Unit 1</u> <u>ONS Unit 3</u></p>	<p><u>Cracking (IASCC, IE), including the detection of surface-breaking crack-like indications and/or readily detectable cracking</u></p>	<p><u>B17.Core barrel cylinder center circumferential weld region (ONS Unit 2)</u></p>	<p><u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u></p> <p><u>Subsequent examination during each 10-year ISI interval.</u></p> <p><u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u></p>	<p><u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the center circumferential weld (per unit).</u> (Note 1)</p>
<p><u>B17.3.Core barrel cylinder vertical seam weld region</u></p>	<p><u>ONS Unit 2</u></p>	<p><u>Cracking (IASCC, IE), including the detection of surface-breaking crack-like indications and/or readily detectable cracking</u></p>	<p><u>B17.Core barrel cylinder center circumferential weld region (ONS Unit 2)</u></p>	<p><u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u></p> <p><u>Subsequent examination during each 10-year ISI interval.</u></p> <p><u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u></p>	<p><u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the vertical seam welds.</u> (Note 1)</p>

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Expansion Component Item	Applicability	Effect (Mechanism)	Primary Link	Examination Method/ Frequency	Examination Coverage
<u>B17.4.Core barrel cylinder vertical seam weld region (Secondary Expansion of B17.1)</u>	<u>ONS Unit 1</u>	<u>Cracking (IASCC, IE), including the detection of surface-breaking crack-like indications and/or readily detectable cracking</u>	<u>B17.Core barrel cylinder center circumferential weld region (ONS Unit 2)</u>	<u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u> <u>Subsequent examination during each 10-year ISI interval.</u> <u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u>	<u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the vertical seam welds.</u> <u>(Note 1)</u>
<u>B17.5.Core barrel cylinder vertical seam weld region (Secondary Expansion of B17.2)</u>	<u>ONS Unit 3</u>	<u>Cracking (IASCC, IE), including the detection of surface-breaking crack-like indications and/or readily detectable cracking</u>	<u>B17.Core barrel cylinder center circumferential weld region (ONS Unit 2)</u>	<u>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</u> <u>Subsequent examination during each 10-year ISI interval.</u> <u>Alternately, in lieu of examination, this item can be addressed by evaluation that is submitted for NRC staff approval.</u>	<u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the vertical seam welds.</u> <u>(Note 1)</u>

Note 1: Consistent with ASME Section XI, 2017 Edition, SubArticles S-2300(a) and IWA-2200(c), essentially 100% coverage is achieved during the performance of an inservice examination (surface, visual, or volumetric) when the applicable examination coverage is greater than 90%.

SLRA Appendix B2.1.7, starting at B-74, is revised as follows:

- New primary items were added:
 - Core barrel assembly, core barrel cylinder top flange circumferential weld region heat-affected zone (ONS Item B16, Unit 2 only) (~~Item B16~~)
 - Expansion link is the core barrel cylinder top flange circumferential weld region (Unit 1) (Item B16.1)
 - Secondary Expansion link is the core barrel cylinder bottom flange circumferential weld region (Item B16.4, Unit 1)
 - Expansion link is the core barrel cylinder top flange circumferential weld region (Item B16.2, Unit 3)
 - Secondary Expansion link is the core barrel cylinder bottom flange circumferential weld region (Item B16.5, Unit 3)
 - Expansion link is the core barrel cylinder bottom flange circumferential weld region (Item B16.3, Unit 2)
 - Core barrel assembly, core barrel cylinder center circumferential weld region (ONS Item B17, Unit 2 only) (~~Item B17~~)
 - Expansion link is the core barrel cylinder center circumferential weld region (Item B17.1, Unit 1)
 - Secondary Expansion link is the core barrel cylinder vertical seam weld region (Item B17.4, Unit 1)
 - Expansion link is the core barrel cylinder center circumferential weld region (Item B17.2, Unit 3)
 - Secondary Expansion link is the core barrel cylinder vertical seam weld region (Item B17.5, Unit 3)
 - Expansion link is the core barrel cylinder vertical seam weld region (Item B17.3, Unit 2)
 - Lower Grid Assembly, lower grid rib section (B18)
 - New Expansion Links, Expansion Criteria, and Acceptance Criteria were added:
 - For the core barrel cylinder top flange circumferential weld region (Item B16), Expansion Links include Items B16.1 through B16.5 with expansion criteria as discussed above. Acceptance criteria are as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.
 - For the core barrel cylinder center circumferential weld region (Item B17), Expansion Links include Items B17.1 through B17.5 with expansion criteria as discussed above. Acceptance criteria are as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.
 - Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) are examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.

SLRA Table B2.1.7-3, starting at page B-75, is revised as follows:

The new Primary Items have the following attributes:

Table B2.1.7-3: MRP-227-1-A Table 5-1, B&W Plants Acceptance and Expansion Criteria

Primary Component Item	Applicability	Primary Item Examination Criteria	Expansion Link	Expansion Criteria	Expansion Item Examination Acceptance Criteria
<p>B16.Core Barrel Assembly</p> <p>Core barrel cylinder top flange circumferential weld <u>region</u> HAZ</p>	<p>ONS Unit 2</p>	<p>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</p> <p>The specific relevant condition is a detectable crack-like surface indication.</p>	<p>None</p> <p><u>B16.1.Core barrel cylinder top flange circumferential weld region (ONS Unit 1)</u></p> <p><u>B16.2.Core barrel cylinder top flange circumferential weld region (ONS Unit 3)</u></p> <p><u>B16.3.Core barrel cylinder bottom flange circumferential weld region (ONS Unit 2)</u></p> <p><u>B16.4.Core barrel cylinder bottom flange circumferential weld region (ONS Unit 1) (Secondary Expansion of B16.1)</u></p> <p><u>B16.5.Core barrel cylinder bottom flange circumferential weld region (ONS Unit 3) (Secondary Expansion of B16.2)</u></p>	<p>None</p> <p><u>B16:</u></p> <p><u>Confirmed evidence of relevant conditions in item B16 shall require that the examination be expanded to include:</u></p> <ul style="list-style-type: none"> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder top flange weld at ONS Unit 1 (B16.1) and ONS Unit 3 (B16.2), and</u> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder bottom flange weld at ONS Unit 2 (B16.3). (Note 1)</u> <p><u>Examination at each unit shall be completed by the completion of two refueling outages at that unit.</u></p> <p><u>B16.1 (Secondary Expansion):</u></p> <p><u>Confirmed evidence of relevant conditions in item B16.1 shall require that the examination be expanded to include:</u></p> <ul style="list-style-type: none"> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder bottom flange weld at ONS Unit 1 (B16.4). (Note 1)</u> <p><u>Examination shall be completed by the completion of two refueling outages.</u></p> <p><u>B16.2 (Secondary Expansion):</u></p> <p><u>Confirmed evidence of relevant conditions in item B16.2 shall require that the examination be expanded to include:</u></p>	<p>None</p> <p><u>The specific relevant condition for the visual examination is a detectable crack-like surface indication.</u></p> <p><u>The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.</u></p>

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Primary Component Item	Applicability	Primary Item Examination Criteria	Expansion Link	Expansion Criteria	Expansion Item Examination Acceptance Criteria
				<ul style="list-style-type: none"> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the core barrel cylinder bottom flange weld at ONS Unit 3 (B16.5). (Note 1)</u> <p><u>Examination shall be completed by the completion of two refueling outages.</u></p>	
<p>B17.Core Barrel Assembly</p> <p>Core barrel cylinder center circumferential weld region</p>	<p>ONS Unit 2</p>	<p>Enhanced visual (EVT-1) examination, ultrasonic (UT) examination, or eddy current (ECT) examination.</p> <p>The specific relevant condition is a detectable cracklike surface indication.</p>	<p>None</p> <p><u>B17.1.Core barrel cylinder center circumferential weld region (ONS Unit 1)</u></p> <p><u>B17.2.Core barrel cylinder center circumferential weld region (ONS Unit 3)</u></p> <p><u>B17.3.Core barrel cylinder vertical seam weld region (ONS Unit 2)</u></p> <p><u>B17.4.Core barrel cylinder vertical seam weld region (ONS Unit 1) (Secondary Expansion of B17.1)</u></p> <p><u>B17.5.Core barrel cylinder vertical seam weld region (ONS Unit 3) (Secondary Expansion of B17.2)</u></p>	<p>None</p> <p><u>B17:</u></p> <p><u>Confirmed evidence of relevant conditions in item B17 shall require that the examination be expanded to include:</u></p> <ul style="list-style-type: none"> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the center circumferential weld at ONS Unit 1 (B17.1) and ONS Unit 3 (B17.2), and</u> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the vertical seam weld regions at ONS Unit 2 (B17.3). (Note 1)</u> <p><u>Examination at each unit shall be completed by the completion of two refueling outages at that unit.</u></p> <p><u>B17.1 (Secondary Expansion):</u></p> <p><u>Confirmed evidence of relevant conditions in item B17.1 shall require that the examination be expanded to include:</u></p> <ul style="list-style-type: none"> • <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the vertical seam weld regions at ONS Unit 1 (B17.4). (Note 1)</u> <p><u>Examination shall be completed by the completion of two refueling outages.</u></p>	<p>None</p> <p><u>The specific relevant condition for the visual examination is a detectable crack-like surface indication.</u></p> <p><u>The examination acceptance criteria for the UT and/or ECT examination(s) shall be established as part of the examination technical justification.</u></p>

Primary Component Item	Applicability	Primary Item Examination Criteria	Expansion Link	Expansion Criteria	Expansion Item Examination Acceptance Criteria
				<p><u>B17.2 (Secondary Expansion):</u></p> <p><u>Confirmed evidence of relevant conditions in item B17.2 shall require that the examination be expanded to include:</u></p> <ul style="list-style-type: none"> <u>Essentially 100% of the OD surfaces of the weld and 3/4" of the adjacent base metal to the vertical seam weld regions at ONS Unit 3 (B17.5). (Note 1)</u> <p><u>Examination shall be completed by the completion of two refueling outages.</u></p>	

Note 1: Consistent with ASME Section XI, 2017 Edition, SubArticles S-2300(a) and IWA-2200(c), essentially 100% coverage is achieved during the performance of an inservice examination (surface, visual, or volumetric) when the applicable examination coverage is greater than 90%.

SLRA Appendix B2.1.7, starting at page B-77, enhancements are revised as follows:

Enhancements

The following enhancement(s) will be implemented to the following program element(s): Detection of Aging Effects (Element 4) and Acceptance Criteria (Element 6):

1. The *PWR Vessel Internals* AMP will be updated as necessary to provide guidance for implementing the changes to primary and expansion items in MRP-227, Rev 1-A, Tables 4-1, 4-4 (and Table 5-1 for Element 6 only), as modified by the ONS gap analysis for SLR reported in [Appendix B2.1.7](#) of the ONS SLRA. (Elements 4 and 6).

The specific enhancements to the ONS-specific MRP-227 Revision 1-A program will be as follows:

2. Enhancements to MRP-227, Revision 1-A, Table 4-1, B&W Plants Primary, for the Oconee Units:

- **Remove visual VT-3 examination of high-strength bolt locking devices.**
- **Examination method/frequency for the plenum cover assembly and core support shield assembly (Item B1) will be updated. The initial one-time physical measurement required by the MRP-227 guideline is complete for all Oconee units; no relevant indications have been observed. Subsequent visual (VT-3) examination will be performed during each 10-year ISI interval.**
- **Examination coverage for the plenum cover assembly and core support shield assembly (Item B1) will be updated. Accessible top surfaces of the plenum cover support ring/plenum cover weldment rib pads and CSS top flange when the RV closure head and plenum assembly will be removed as areas for examination.**
- **The expansion link to vent valve bodies for the control rod guide tube assembly, control rod guide tube spacer castings (Item B2) will be removed. It has been determined that the vent valve bodies are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2). There is no expansion link for the control rod guide tube assembly, control rod guide tube spacer castings (Item B2).**
- **New age-related degradation mechanisms will be added for the core support shield assembly, upper core barrel bolts (Item B7). The new age-related degradation mechanisms are irradiation-enhanced stress relaxation and irradiation-enhanced creep, fatigue, and wear.**
- **An expansion link note will be added for the core support shield assembly, upper core barrel bolts (Item B7). The note states that the primary-expansion relationship between the upper core barrel, lower core barrel, and flow-distributor bolts and the upper thermal shield and lower thermal shield bolts/studs is for stress corrosion cracking only.**
- **A new expansion link note will be added for the core barrel assembly, lower core barrel bolts (Item B8). The note states that the primary-expansion relationship**

between the upper core barrel, lower core barrel, and flow distributor bolts and the upper thermal shield and lower thermal shield bolts/studs is for stress corrosion cracking only.

- A new age-related mechanism will be added for the core barrel assembly, baffle-to-former bolts (Item B9). The new age-related degradation mechanism is void swelling.
- An expansion link note will be added for the core barrel assembly, baffle-to-former bolts (Item B9). The note states that the core barrel-to-former bolts are Category A for void swelling, so expansion does not apply.
- A new age-related degradation mechanism will be added for the core barrel assembly, baffle plates (Item B10). The new age-related degradation mechanism is void swelling.
- Expansion links for the core barrel assembly, baffle plates (Item B10) will be revised. Core barrel cylinder (including vertical and circumferential seam welds) and lower grid rib section will be removed as expansion links. Former plates will be retained as an expansion link.
- An expansion link note will be added for the flow distributor assembly, flow distributor bolts (Item B12). The note states the Primary-Expansion relationship between the upper core barrel, lower core barrel, and flow distributor bolts and the upper thermal shield and lower thermal shield bolts/studs/nuts is for stress corrosion cracking only.
- An age-related degradation mechanism will be removed for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15). Thermal aging embrittlement will be removed as an applicable degradation mechanism for the incore monitoring instrumentation spiders as ferrite screening has determined that these items are not susceptible to thermal aging embrittlement.
- A new expansion link for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15) will be added. The new expansion link is upper grid fuel assembly support pad items: pad, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.2).
- Examination coverage for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15) will be clarified. Clarification of the meaning of adjacent will be provided along with a corresponding note.

- ‡ New Primary Items will be added:
 - Core barrel assembly: core barrel cylinder top flange circumferential weld region (Unit 2) (Item B16)
 - Core barrel assembly: core barrel cylinder center circumferential weld regions (Unit 2) (Item B17)
 - Lower grid rib assembly: lower grid rib section (Item B18)
- ‡ New Expansion and Secondary Expansion Links will be added for the new Primary Items as reported below (i.e., Items B16.1 through B16.5 relative to Item B16, and Items B17.1 through B17.5 relative to Item B17).
- ‡ Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) will be examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.

3. Enhancements to MRP-227, Revision 1-A, Table 4-4, B&W Plants Expansion, for the Oconee Units:

- ‡ Remove visual VT-3 examination of high-strength bolt locking devices.
- ‡ Vent valve assembly, vent valve bodies (Item B2.1) will be removed as an expansion Item as it has been determined that these component items are not susceptible to thermal aging embrittlement (see MRP-189, Revision 3, Section 3.2, Item J.2).
- ‡ A new age-related degradation mechanism for the core barrel assembly, baffle-to-baffle bolts (Item B9.1) will be added. The new age-related degradation mechanism is void swelling.
- ‡ A new age-related degradation mechanism for the core barrel assembly, former plates (Item B10.2) will be added. The new age-related degradation mechanism is void swelling.
- ‡ Lower grid rib section (Item B10.3) will be reclassified as a primary item.
- ‡ Examination method/frequency for the lower grid assembly, lower thermal shield studs (Item B8.1) will be updated. The updated examination method is a new visual (VT-3) examination of the lower thermal shield nuts.
- ‡ New expansion items will be added based on a revision to primary item incore monitoring instrumentation guide tube spiders and spider-to-lower grid rib section welds (Item B15).
- ‡ New expansion items will be added for core barrel cylinder welds: Items B16.1 through B16.5, which are tied to new primary item B16, core barrel cylinder top flange circumferential weld region (Unit 2)

- Core barrel cylinder top flange circumferential weld region (Unit 1) (Item B16.1)
- Core barrel cylinder top flange circumferential weld region (Unit 3) (Item B16.2)
- Core barrel cylinder bottom flange circumferential weld region (Unit 2) (Item B16.3)
- Core barrel cylinder bottom flange circumferential weld region (Unit 1) (Item B16.4) (Secondary Expansion of Item B16.1)
- Core barrel cylinder bottom flange circumferential weld region (Unit 3) (Item B16.5) (Secondary Expansion of Item B16.2)
- Core barrel cylinder center circumferential weld region (Unit 1) (Item B17.1)
- Core barrel cylinder center circumferential weld region (Unit 3) (Item B17.2)
- Core barrel cylinder vertical seam weld region (Unit 2) (Item B17.3)
- Core barrel cylinder vertical seam weld region (Unit 1) (Item B17.4) (Secondary Expansion of Item B17.1)
- Core barrel cylinder vertical seam weld region (Unit 3) (Item B17.5) (Secondary Expansion of Item B17.2)

4. Enhancements to MRP-227, Revision 1-A, Table 5-1, B&W Plants Acceptance and Expansion Criteria, for the Oconee Units:

- Remove references to visual VT-3 examination of high-strength bolt locking devices.
- The expansion link to vent valve bodies for the control rod guide tube assembly spacer castings (Item B2) will be removed.
- Expansion criteria wording for the core barrel assembly, upper core barrel bolts (Item B7) will be updated to include expansion to 100% of the lower thermal shield nuts.
- Expansion criteria for the core barrel assembly, lower core barrel bolts (Item B8) will be updated to include expansion to 100% of the lower thermal shield nuts.
- Expansion links to the core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) and lower grid rib section (Item B10.3) for the core barrel assembly, baffle plates (Item B10) will be removed.
- Expansion criteria for the core barrel assembly, baffle plates (Item B10) will be updated. The expansion criteria will be updated to remove the expansion links to the core barrel cylinder (including vertical and center circumferential seam welds) (Item B10.1) and lower grid rib section (Item B10.3) from the wording.
- Expansion criteria wording for the flow distributor assembly, flow distributor bolts (Item B12) will be updated to include expansion to 100% of the lower thermal shield nuts.
- An expansion link for the incore monitoring instrumentation guide tube assembly, incore monitoring instrumentation guide tube spiders, and incore monitoring instrumentation guide tube spider-to-lower grid rib section welds (Item B15), will be

added. The expansion link will be added to the upper grid fuel assembly support pad items: pad, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.2). This item expands from the existing expansion item lower grid assembly, lower grid fuel assembly support pad component items: pad, pad-to-rib section welds, Alloy X-750 dowel, cap screws, and their locking welds (Item B15.1) as a secondary expansion.

▪ New primary items will be added:

- Core barrel assembly, core barrel cylinder top flange circumferential weld region (Unit 2) (Item B16)
- Core barrel assembly, core barrel cylinder center circumferential weld region (Unit 2) (Item B17)
- Lower grid rib assembly, lower grid rib section (Item B18)

▪ New Expansion Links, Expansion Criteria, and Acceptance Criteria will be added:

- For the core barrel cylinder top flange circumferential weld region (Item B16), Expansion Links will include Items B16.1 through B16.5 with expansion criteria as discussed above. Acceptance criteria will be as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examinations(s) shall be established as part of the examination technical justification.
- For the core barrel cylinder center circumferential weld region (Item B17), Expansion Links will include Items B17.1 through B17.5 with expansion criteria as discussed above. Acceptance criteria will be as follows: The specific relevant condition for the EVT-1 examination is a detectable crack-like surface indication. The examination acceptance criteria for the UT and/or ECT examinations(s) shall be established as part of the examination technical justification.

▪ Essentially 100% of the Primary category core barrel cylinder top flange circumferential weld region (B16, Unit 2 only) and the Primary category core barrel cylinder center circumferential weld region (Item B17, Unit 2 only) will be examined prior to entering the subsequent period of extended operation. Alternately, in lieu of examination, these items can be addressed by evaluation that is submitted for NRC staff approval at least four years prior to Unit 2 entering the subsequent period of extended operation.

ENCLOSURE 2

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
SUBSEQUENT LICENSE RENEWAL APPLICATION
RESPONSE TO ONS SLRA 2ND ROUND RAI B2.1.7-4a

FRAMATOME AFFIDAVIT

A F F I D A V I T

1. My name is Gayle Elliott. I am Deputy Director, Licensing and Regulatory Affairs, for Framatome Inc. (Framatome) and as such I am authorized to execute this Affidavit.

2. I am familiar with the criteria applied by Framatome to determine whether certain Framatome information is proprietary. I am familiar with the policies established by Framatome to ensure the proper application of these criteria.

3. I am familiar with the Framatome information contained in an attachment to Letter Number RA-22-0192 from Mr. Steven N. Snider (Oconee Nuclear Station) to Document Control Desk (U.S. Nuclear Regulatory Commission), with Subject: Oconee Nuclear Station, Units 1, 2, and 3, Subsequent License Renewal Application, Response to ONS SLRA 2ND Round RAI B2.1.7-4a, dated September 2, 2022 and referred to herein as "Document." Information contained in this Document has been classified by Framatome as proprietary in accordance with the policies established by Framatome for the control and protection of proprietary and confidential information.

4. This Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by Framatome and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in this Document as proprietary and confidential.

5. This Document has been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in this Document be withheld from public disclosure. The request for withholding of proprietary information is made in accordance with 10 CFR 2.390. The information for which withholding from disclosure is

requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information."

6. The following criteria are customarily applied by Framatome to determine whether information should be classified as proprietary:

- (a) The information reveals details of Framatome's research and development plans and programs or their results.
- (b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.
- (c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for Framatome.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for Framatome in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by Framatome, would be helpful to competitors to Framatome, and would likely cause substantial harm to the competitive position of Framatome.

The information in this Document is considered proprietary for the reasons set forth in paragraphs 6(d) and 6(e) above.

7. In accordance with Framatome's policies governing the protection and control of information, proprietary information contained in this Document has been made available, on a limited basis, to others outside Framatome only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. Framatome policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: August 30, 2022.

ELLIOTT Gayle

Gayle Elliott

Digitally signed by ELLIOTT
Gayle
Date: 2022.08.30 16:27:09
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ENCLOSURE 3

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
SUBSEQUENT LICENSE RENEWAL APPLICATION
RESPONSE TO ONS SLRA 2ND ROUND RAI B2.1.7-4a

EDITORIAL CORRECTION FOR SLRA TABLE 3.3.2-13

Enclosure 3
 Editorial Correction for SLRA Table 3.3.2-13

SLRA Revisions:

The typographical error associated with the NUREG-2192 Table for Treated Borated Water > 60°C (>140°F) (Internal) for the Coolant Storage System Expansion Joint is revised from 3.2.1-028 to 3.3.1-028. Both table references should be the same.

SLRA Table 3.3.2-13 (page 3-598) for the Coolant Storage System is revised as follows:

Table 3.3.2-13 Auxiliary Systems – Coolant Storage System – Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect	Aging Management Program	NUREG-2191 Item	NUREG-2192 Table	Notes
Expansion Joint	Pressure Boundary	Stainless Steel	Air – Indoor Uncontrolled (External)	Cracking	One-Time Inspection (B2.1.20)	VII.C1.AP-209a	3.3.1- 004	A
				Loss of Material	One-Time Inspection (B2.1.20)	VII.C1.AP-221a	3.3.1- 006	A
			Air with Borated Water Leakage (External)	None	None	VII.J.AP-18	3.3.1- 120	A
			Treated Borated Water (Internal)	Loss of Material	One-Time Inspection (B2.1.20)	VII.A2.AP-79	3.3.1- 125	A
					Water Chemistry (B2.1.2)	VII.A2.AP-79	3.3.1- 125	A
			Treated Borated Water >60°C (>140°F) (Internal)	Cracking	One-Time Inspection (B2.1.20)	VII.E1.AP-82	3.3.1- 028	A
					Water Chemistry (B2.1.2)	VII.E1.AP-82	3.3.1- 028	A