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Docket: NRC-2016-0108
Changes to Aging Management Guidance for Various Steam Generator Components

Comment On: NRC-2016-0108-0001
Changes to Aging Management Guidance for Various Steam Generator Components; Request for Comment on Draft License Renewal Interim Staff Guidance

Document: NRC-2016-0108-DRAFT-0002
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Submitter Information

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General Comment

81 FR 36612
6/7/2016

July 7, 2016

1

Ms. Cindy K. Bladey
Office of Administration
Mail Stop: OWFN-12-H08
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Draft License Renewal Interim Staff Guidance 2016-01, "Changes to Aging Management Guidance for Various Steam Generator Components," Docket ID: NRC-2016-0108

Project Number: 689

Dear Ms. Bladey:

The U.S. Nuclear Regulatory Commission (NRC) requested public comment on the Draft License Renewal

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = S. Min (SKM2)
A. Wong (AXW2)

Interim Staff Guidance (ISG), "Changes to Aging Management Guidance for Various Steam Generator Components," (LR-ISG-2016-01). Information contained within the subject Draft ISG as well as comments received will be used to inform changes being made to and incorporated into the final versions of NUREG-2191, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report," Volumes I and II and Draft NUREG-2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants." The purpose of this letter is to provide integrated industry comments on the subject Draft ISG document. Detailed industry comments are presented in the attachment.

We appreciate the opportunity to comment on the Draft ISG document and request that you incorporate industry comments as recommended in the attachment. If you have any questions or require additional information, please contact me.

Sincerely,

Jerud E. Hanson
Senior Project Manager, Plant Life Extension

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Attachments

07-07-16_NRC_ Draft License Renewal Interim Staff Guidance 2016-01

07-07-16_NRC_ Draft License Renewal Interim Staff Guidance 2016-01_Attachment

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NUCLEAR ENERGY INSTITUTE

July 7, 2016

Ms. Cindy K. Bladey
Office of Administration
Mail Stop: OWFN-12-H08
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Draft License Renewal Interim Staff Guidance 2016-01, "Changes to Aging Management Guidance for Various Steam Generator Components," Docket ID: NRC-2016-0108

Project Number: 689

Dear Ms. Bladey:

The U.S. Nuclear Regulatory Commission (NRC) requested public comment on the Draft License Renewal Interim Staff Guidance (ISG), "Changes to Aging Management Guidance for Various Steam Generator Components," (LR-ISG-2016-01). Information contained within the subject Draft ISG as well as comments received will be used to inform changes being made to and incorporated into the final versions of NUREG-2191, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report," Volumes I and II and Draft NUREG-2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants." The purpose of this letter is to provide integrated industry comments on the subject Draft ISG document. Detailed industry comments are presented in the attachment.

We appreciate the opportunity to comment on the Draft ISG document and request that you incorporate industry comments as recommended in the attachment. If you have any questions or require additional information, please contact me.

Sincerely,

Jerud E. Hanson

Attachment

c: Ms. Jane E. Marshall, NRR/DLR, NRC
Mr. Steven D. Bloom, NRR/DLR/RSRG, NRC

CONSOLIDATED INDUSTRY COMMENTS ON DRAFT-LR-ISG-2016-01

"Changes to Aging Management Guidance for Various Steam Generator Components"

Comment No.	Section / Pg.#	Comment	Notes
1	Evaluation of PWSCC in Divider Plate / 2 of 29, 2nd paragraph, 1st Sentence	Revise the sentence to read, "PWSCC can initiate under specific conditions *and chromium content* in high-strength nickel alloys ....."	It is the material properties (i.e., chromium content), environment (temperature and primary coolant) and stress that determine whether PWSCC occurs.
2	Evaluation of PWSCC in Divider Plate, last sentence of the 3rd paragraph, Page 2 of 29	This area implies that the cracks occur in the stub runner. Yet the next paragraph last sentence says, "This new OE indicates that the cracks due to PWSCC in the divider plates remain shallow ....." Suggest: "This new OE indicates that the cracks due to PWSCC in the divider plate *assemblies* remain shallow ....."	
3	Evaluation of PWSCC in Divider Plate, last paragraph, Page 3 of 29	Implies there is a TLAA. This should be clarified.	
4	Top of Page 4	The continuation of the paragraph is from Page 3. The last two sentences changes the topic from cracks in the divider plate assembly to cracks in the tube-to-tube sheet welds. Recommend starting a new paragraph.	

Comment No.	Section / Pg.#	Comment	Notes
5	3rd full paragraph on Page 4 of 29	Rewrite paragraph to read, "Given the low likelihood of occurrence of cracking in the divider plate assembly and the lack of cracking progression, if it were to occur, analyses indicate that there are no structural integrity concerns. In addition there is no adverse effects on other analyses (e.g., tube repair criteria, tube repair methods, design basis analyses) if cracking were to occur. The staff concludes the following related to the on-going channel head visual inspections:"	
6	Evaluation of PWSCC in Divider Plate Assemblies/ Page 4, Second bullet	For units with divider plate assemblies fabricated with Alloy 600 or Alloy 600 weld materials, if the analyses performed by the industry (Reference 4) are applicable and bounding for the unit, the primary water chemistry program should be supplemented with a general visual inspection of the steam generator channel head (as part of the steam generator program as discussed in this LR-ISG). The purpose of the visual inspection is to identify rust stains or other abnormal conditions which could indicate the presence of cracking (e.g., distortion of divider plates). The visual inspection should be performed every time the channel head is accessed for steam generator tube inspections. Comment: Based on the reports cited, the frequency should not be specified and left to the program. Suggested words are as follows: *The applicant will perform general visual inspections of the divider plate assemblies looking for evidence of cracking (e.g., rust stains) as part of the steam generator program at least once per the period identified in Site Technical Specifications.*	Example: Both plants have alloy 690 tubes. One plant inspects the tubes every 2 years. The other plant can skip and inspects the tubes every 4.2 years. Therefore one plant inspects the cited component twice as often as the other plant.
7	Last paragraph on Page 5 of 29	It seems like there should be a section up front in the ISG that discusses all of the susceptibilities of nickel alloy 600 and 690, including this background and that from the next page.	

Comment No.	Section / Pg.#	Comment	Notes
8	Last paragraph on Page 7 of 29, second sentence	States that primary to secondary leakage values assumed in the accident analysis could be managed. Recommend including guidance for how it is managed (i.e., via primary leak rate determinations).	
9	Evaluation of Steam Generator Head and Tubesheet Degradation / Page 9, third paragraph	As a result, this LR-ISG revises GALL Report AMP XI.M19 to include steam generator primary side internal surfaces and to indicate that visual inspections of these surfaces should be performed <u>each</u> time the steam generator is accessed for tube inspections. <u>Comment</u>: Based on the reports cited, the frequency should not be specified and left to the program. <u>Suggested words are as follows</u>: *The applicant will perform general visual inspections of the primary side internal surfaces looking for evidence of cracking (e.g., rust stains) as part of the steam generator program at least once per the period identified in site Technical Specifications.*	Example: Both plants have alloy 690 tubes. One plant inspects the tubes every 2 years. The other plant can skip and inspects the tubes every 4.2 years. Therefore one plant inspects the cited component twice as often as the other plant.
10	Section 3.1.2.2.11.1, Page 13 of 29	Last sentence of 1st paragraph. Remove "of the divider plate thickness." The crack is in the sub runner not the divider plate. Also in the last line on this page add "assembly" after "divider plate."	
11	Table 3.0-1 Page 19	Revise introductory text at top of the page to correct a typo as follows: "As addressed in LR-ISG-2011-02....GALL Report AMP ~~XI.M16~~XI.M19..."	

Comment No.	Section / Pg.#	Comment	Notes
12	Appendix A, Table 3.0-1 / Page 19	The table states in part "This program also performs visual inspections of steam generator heads (internal areas) when they are accessed for tube inspections, to manage the aging of divider plate assemblies (as applicable), tube to tubesheet welds, heads (interior surfaces) and tubesheets (primary side). Comment: Based on the reports cited, the frequency should not be specified and left to the program. Suggested words are as follows: *The applicant will perform general visual inspections of the steam generator heads looking for evidence of cracking (e.g., rust stains) as part of the steam generator program at least once per the period identified in Site Technical Specifications.*	Example: Both plants have alloy 690 tubes. One plant inspects the tubes every 2 years. The other plant can skip and inspects the tubes every 4.2 years. Therefore one plant inspects the cited component twice as often as the other plant.
13	Changes to SRP-LR Table 3.0-1 (FSAR supplement) / Pg. 19	As addressed in LR-ISG-2011-02, "Aging Management Program for Steam Generators," GALL Report AMP XI.M16 relies on the guidance in Revision 3 of Nuclear Energy Institute (NEI) 97-06, "Steam Generator Program Guidelines," and EPRI Steam Generator Integrity Assessment Guidelines (EPRI 1019038). Comment: The Report number referenced refers to Rev. 3. Rev. 4 is due for issue in June 2016, (EPRI Report # 3002007571). Suggested words are as follows: *As addressed in LR-ISG-2011-02, "Aging Management Program for Steam Generators," GALL Report AMP XI.M16 relies on the guidance in Revision 3 of Nuclear Energy Institute (NEI) 97-06, "Steam Generator Program Guidelines," and EPRI Steam Generator Integrity Assessment Guidelines ~~(EPRI 1019038)~~.*	EPRI SG Guidelines are revised every 5-8 years and typically require mandatory implementation by the PWR utility within 1 year of issue. By LR locking-in obsolete guideline revisions an immediate discrepancy between LR commitments and SG Guidelines occurs. All PWR Sites have committed through NEI 97-06 to work to SGMP EPRI Guidelines (current revisions).

Comment No.	Section / Pg.#	Comment	Notes
14	Appendix B: Changes to the Guidance in NUREG-1801 (GALL Report), Revision 2 / Pg. 20	In this appendix, the strikeout indicates where deletions are made and the underscore indicates where additions are made. The changes to GALL Report AMP XI.M19 and AMR tables are provided below. As discussed in Appendix A of this LR-ISG, the changes addressed in LR-ISG-2011-02 (i.e., updated reference to Revision 3 of NEI 97-06 and correction in referencing the EPRI integrity assessment guidelines, EPRI 1019038) are also reflected in this appendix. Comment: the Report number referenced refers to Rev. 3. Rev. 4 is due for issue in June 2016, (EPRI Report # 3002007571). Suggested words are as follows: *In this appendix, the strikeout indicates where deletions are made and the underscore indicates where additions are made. The changes to GALL Report AMP XI.M19 and AMR tables are provided below. As discussed in Appendix A of this LR-ISG, the changes addressed in LR-ISG-2011-02 (i.e., updated reference to Revision 3 of NEI 97-06 and correction in referencing the EPRI integrity assessment guidelines, ~~EPRI 1019038~~) are also reflected in this appendix.*	EPRI SG Guidelines are revised every 5-8 years and typically require mandatory implementation by the PWR utility within 1 year of issue. By LR locking-in obsolete guideline revisions an immediate discrepancy between LR commitments and SG Guidelines occurs. All PWR Sites have committed through NEI 97-06 to work to SGMP EPRI Guidelines (current revisions).
15	XI.M19 (Intro) Page 20, also References Page 25	Revision 3 of NEI 97-06 is a guideline document that is updated periodically. Reference to a specific revision results in an inconsistency that could be eliminated by referring to the "latest issued revision" or not calling out a revision at all.	

Comment No.	Section / Pg.#	Comment	Notes
16	Element 3 Page 22	It is recommended that GALL text eliminate reference to specific EPRI Report numbers. Instead, consider one of the following text change options: 1. "The EPRI PWR Steam Generator Primary-to-Secondary Leakage Guidelines ~~(EPRI 1008219)~~ are periodically updated based on industry operating experience and provide~~s~~ guidance on monitoring primary-to-secondary leakage. The EPRI Steam Generator Integrity Assessment Guidelines ~~(EPRI 1012987 1019038)~~ are periodically updated based on industry operating experience and provide guidance on secondary side activities." OR 2. "The EPRI PWR Steam Generator Primary-to-Secondary Leakage Guidelines ~~(EPRI 1008219) provides guidance on monitoring primary-to-secondary leakage. The~~ and EPRI Steam Generator Integrity Assessment Guidelines ~~(EPRI 1012987 1019038)~~ are periodically updated based on industry operating experience and provide guidance on monitoring primary to secondary leakage and secondary side activities, respectively."	Statements on operating experience being recommended, are intended to align with the new text added to Element 10: "The program is informed and enhanced when necessary through the systematic and ongoing review of both plant-specific and industry operating experience."

Comment No.	Section / Pg.#	Comment	Notes
17	Evaluation and Technical Basis 3. Parameters Monitored/Inspected: 5th paragraph / Pg. 22	Water chemistry parameters are also monitored and controlled, as discussed in AMP XI.M2. The EPRI PWR Steam Generator Primary-to-Secondary Leakage Guidelines (EPRI 1008219) provides guidance on monitoring primary-to-secondary leakage. The EPRI Steam Generator Integrity Assessment Guidelines (EPRI ~~1012987~~ 1019038) provide guidance on secondary side activities. Comments: EPRI PWR Steam Generator Primary-to-Secondary Leakage Guidelines (EPRI 1008219). Report number referenced refers to Rev. 3. Rev. 4 was issued Sept, 2011, (EPRI Report #1022832). EPRI Steam Generator Integrity Assessment Guidelines (EPRI ~~1012987~~ 1019038) provide guidance on secondary side activities. Report number referenced refers to Rev. 3. Rev. 4 will be issued June, 2016, (EPRI Report # 3002007571). Suggested words are as follows: Water chemistry parameters are also monitored and controlled, as discussed in AMP XI.M2. The EPRI PWR Steam Generator Primary-to-Secondary Leakage Guidelines ~~(EPRI 1008219)~~ provides guidance on monitoring primary-to-secondary leakage. The EPRI Steam Generator Integrity Assessment Guidelines ~~(EPRI 1012987 1019038)~~ provide guidance on secondary side activities.	EPRI SG Guidelines are revised every 5-8 years and typically require mandatory implementation by the PWR utility within 1 year of issue. By LR locking-in obsolete guideline revisions an immediate discrepancy between LR commitments and SG Guidelines occurs. All PWR Sites have committed through NEI 97-06 to work to SGMP EPRI Guidelines (current revisions).

Comment No.	Section / Pg.#	Comment	Notes
18	Evaluation and Technical Basis 4. Detection of Aging Effects: 5th paragraph / Pg. 23	The inspections and monitoring are performed by qualified personnel using qualified techniques in accordance with approved licensee procedures. The EPRI PWR Steam Generator Examination Guidelines (EPRI 1013706) contains guidance on the qualification of steam generator tube inspection techniques. Comment: EPRI PWR Steam Generator Examination Guidelines (EPRI 1013706). Report number referenced refers to Rev. 7. Rev. 8 will be issued June, 2016, (EPRI Report # 3002007572). Suggested words are as follows: The inspections and monitoring are performed by qualified personnel using qualified techniques in accordance with approved licensee procedures. The EPRI PWR Steam Generator Examination Guidelines ~~(EPRI 1013706)~~ contains guidance on the qualification of steam generator tube inspection techniques.	EPRI SG Guidelines are revised every 5-8 years and typically require mandatory implementation by the PWR utility within 1 year of issue. By LR locking-in obsolete guideline revisions an immediate discrepancy between LR commitments and SG Guidelines occurs. All PWR Sites have committed through NEI 97-06 to work to SGMP EPRI Guidelines (current revisions).
19	References Page 25	Add references to EPRI 1013706 (currently mentioned in Element 4) and to EPRI 1025132, *EPRI Steam Generator In-Situ Pressure Testing Guidelines,* Revision 4, as mentioned at the top of page 24 under Element 6.	
20	References 4th Reference / Pg. 25	EPRI 1008219, PWR Primary-to-Secondary Leak Guidelines: Revision 3, Electric Power Research Institute, Palo Alto, CA, December 2004. Comment: Report number referenced refers to Rev. 3. Rev. 4 was issued Sept, 2011 (EPRI Report #1022832). Suggested words are as follows: EPRI ~~1008219,~~ PWR Primary-to-Secondary Leak Guidelines~~: Revision 3~~, Electric Power Research Institute, Palo Alto, CA, ~~December 2004~~(current revision).	EPRI SG Guidelines are revised every 5-8 years and typically require mandatory implementation by the PWR utility within 1 year of issue. By LR locking-in obsolete guideline revisions an immediate discrepancy between LR commitments and SG Guidelines occurs. All PWR Sites have committed through NEI 97-06 to work to SGMP EPRI Guidelines (current revisions).

Comment No.	Section / Pg.#	Comment	Notes
21	References 5th Reference / Pg. 25	EPRI ~~1012987~~ 1019038, Steam Generator Integrity Assessment Guidelines: Revision ~~2~~ 3, Electric Power Research Institute, Palo Alto, CA, ~~July 2006~~ November 2009. Comment: Report number referenced refers to Rev. 3. Rev. 4 will be issued June, 2016, (EPRI Report #3002007571). Suggested words are as follows: EPRI ~~1012987 1019038,~~ Steam Generator Integrity Assessment Guidelines~~: Revision 2 3~~, Electric Power Research Institute, Palo Alto, CA, ~~July 2006 November 2009~~ (current revision).	EPRI SG Guidelines are revised every 5-8 years and typically require mandatory implementation by the PWR utility within 1 year of issue. By LR locking-in obsolete guideline revisions an immediate discrepancy between LR commitments and SG Guidelines occurs. All PWR Sites have committed through NEI 97-06 to work to SGMP EPRI Guidelines (current revisions).
22	Changes to GALL Table IV.D1/Pg 27	For item IV.D1.RP-367, since a plant specific program is specified, the description of the AMP should be, "A plant-specific program is to be evaluated ~~F~~for nickel alloy divider plate assemblies and associated welds made of Alloy 600; ~~if the conditions at the unit are not bounded by the industry analyses,~~ the effectiveness of the existing aging management programs should be verified to ensure that cracking due to PWSCC is not occurring if the conditions at the unit are not bounded by the industry analyses."	