Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-16-047

May 4, 2016

10 CFR 50.4
10 CFR 50.90

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

Watts Bar Nuclear Plant, Unit 2
Facility Operating License No. NPF-96
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant Unit 2 - Response to Request for Additional Information Regarding Request to Use F* Steam Generator Alternate Repair Criteria (CAC No. MF7218)**

Reference:

1. TVA Letter to NRC, CNL-15-060, "Technical Specifications Change No. WBN2-TS-15-16 - Revise Technical Specifications for Use of Steam Generator Alternate Repair Criterion F*," dated December 15, 2015 (ML15362A023)

2. NRC Electronic Mail to TVA, "Request for Additional Information Regarding Request to Use F* Steam Generator Alternate Repair Criteria (CAC No. MF7218)," dated February 26, 2016 (ML16062A251)

3. TVA Electronic Mail to NRC, "RE: Request for Additional Information Regarding Request to Use F* Steam Generator Alternate Repair Criteria (CAC No. MF7218)," dated March 2, 2016

4. TVA Electronic Mail to NRC, "Request for Additional Information Regarding Request to Use F* Steam Generator Alternate Repair Criteria (CAC No. MF7218)," dated May 4, 2016

On December 15, 2015, Tennessee Valley Authority (TVA) submitted a request to allow implementation of the F* alternate repair criterion for steam generator tubes for the Watts Bar Nuclear Plant (WBN) Unit 2 (Reference 1). On February 26, 2016, the Nuclear Regulatory Commission (NRC) provided a Request for Additional Information (RAI) regarding TVA's request (Reference 2) and requested a response to the RAIs by March 28, 2016. After discussion with the NRC, TVA provided an electronic mail response confirming receipt of the RAIs and a date of April 12, 2016 to provide the RAI response (Reference 3). Subsequently the due date for this response was extended to May 4, 2016 (Reference 4).

The enclosure to this letter provides TVA's response to the RAIs.

There are no new regulatory commitments associated with this submittal. Please address any questions regarding this response to Mr. Gordon Arent at 423-365-2004.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 4th day of May 2016.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosures:
1. Response to Request for Additional Information Regarding Implementation of the F* Alternate Repair Criterion for Steam Generator Tubes for Watts Bar Nuclear Plant, Unit 2
2. Proposed Technical Specifications (Mark-Ups)
3. Revised Proposed Technical Specifications Changes

cc (Enclosures):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRR Project Manager - Watts Bar Nuclear Plant

Enclosure 1

Response To Request For Additional Information
Regarding Implementation of the F* Alternate Repair Criterion for Steam Generator Tubes
for Watts Bar Nuclear Plant, Unit 2

Tennessee Valley Authority
Watts Bar Nuclear Plant Unit 2
Docket No. 50-391

"By letter dated December 15, 2015 (Agencywide Document and Management System (ADAMS) Accession No. ML15362A023), the Tennessee Valley Authority (the licensee), submitted a license amendment request to revise portions of the Watts Bar Nuclear Plant, Unit 2, technical specifications, to allow implementation of the F alternate repair criterion (ARC) for steam generator tubes. In order to complete its review of the above document, the staff requests the following additional information:"*

Nuclear Regulatory Commission (NRC) Request 1

"The proposed amendment inserts the parenthetical words "(or repair)" in various places in Technical Specifications (TS) 3.4.17 "Steam Generator (SG) Tube Integrity," 5.7.2.12 "Steam Generator (SG) Program," and 5.9.9 "Steam Generator Tube Inspection Report." As noted in the model safety evaluation for plant-specific adoption of Technical Specifications Task Force Traveler (TSTF-510), Revision 2 (ADAMS Accession No. ML112101513), the term "repair criteria" is only used when a specific repair method has been approved for use by the applicable unit. While the title "F Alternate Repair Criterion" uses the word "Repair," the F* Alternate Repair Criterion is, in fact, an alternate plugging criterion. Please discuss your plans to remove the proposed addition of the parenthetical words "(or repair)" in the following places:*

- *TS 3.4.17*
- *TS 3.4.17 A*
- *SR 3.4.17.2*
- *5.7.2.12.c*
- *5.7.2.12.d*
- *5.7.2.12.d.2"*

Tennessee Valley Authority (TVA) Response:

TVA has removed the proposed addition of the parenthetical words "(or repair)" in the following places:

- TS 3.4.17
- TS 3.4.17 A
- SR 3.4.17.2
- TS 5.7.2.12.c
- TS 5.7.2.12.d
- TS 5.7.2.12.d.2

A revised Enclosure 2, “Proposed Technical Specifications (Mark-Ups),” and Enclosure 3, “Revised Proposed Technical Specifications Changes,” showing the revision to TS 5.7.2.12.c and TS 5.7.2.12.d are provided with this Request for Additional Information (RAI) response. Because the addition of the words "(or repair)" was the only proposed change to TS 3.4.17, TS 3.4.17 A, SR 3.4.17.2, and TS 5.7.2.12.d.2, these pages are not included in this response. These enclosures replace Enclosures 2 and 3 provided in Reference 1.

NRC Request 2

“While the submittal states that the SG tubes are expanded for the full depth of the tubesheet, some of the analyses/testing in the technical support document (SG-SGMP-13-15-P (Enclosure 6) and SG-SGMP-13-15-NP (Enclosure 8)), appear to only address the situation where the bottom of the roll transition is near the top of the tubesheet. Please confirm that the F ARC will only be applied to tubes that have been expanded for essentially the full depth of the tubesheet (i.e., the roll transition is within 1 inch of the top of the tubesheet). Please confirm that all tubes whose bottom of the roll transition is greater than 1 inch below the top of the tubesheet have been plugged, or provide a basis for why these tubes do not need to be plugged.”*

TVA Response

TVA has reviewed the Watts Bar Nuclear Plant (WBN) Unit 2 eddy current data with regard to location of the bottom of roll transition; all are located within 0.5 inch of the top-of-tubesheet. Therefore, there are no non-plugged tubes whose bottom of the roll transition is greater than one inch below the top of the tubesheet (hot leg or cold leg). In addition, the F* ARC will only be applied to tubes that have been expanded for essentially the full depth of the tubesheet (i.e., the roll transition is within one inch of the top of the tubesheet).

NRC Request 3

“In Tables 1, 2, and 3 of Enclosures 6 and 8, there are entries for hot-leg and cold-leg differential temperatures (ΔT). Please clarify these entries, since it is not clear what two temperatures are used to calculate these ΔTs.”

TVA Response

Enclosures 6 (proprietary) and 8 (non-proprietary) of Reference 1, page 7 of 26, states, “Table 1 identifies the input parameters used in the original analysis.” The purpose of Table 1 is to verify that the current analysis methods for WBN Unit 2 produce results consistent with the original WBN Unit 1 F* analysis, using the same inputs as the original WCAP-13084 analysis. Table 1 shows these results.

Enclosures 6 and 8 of Reference 1, Table 2, presents the expected best estimate operating parameters for WBN Unit 2 that are consistent with the operating history of WBN Unit 1 with the original Model D3 SGs. Table 2 shows that the analysis conditions used in the WBN Unit 2 analysis (Table 3) are conservative.

Enclosures 6 and 8 of Reference 1, Table 3, identifies a hot-leg ΔT of 550 degrees Fahrenheit (^{o}F) and cold-leg ΔT of 487^{o}F. These ΔTs were used in the analysis, along with the identified conservative normal operating pressure differential of 1400 pounds per square inch (psi).

The temperatures used to calculate the △Ts are the thermal design parameter temperatures referenced to 70°F (ambient temperature). For example, in Table 1 the Vessel Outlet Temperature is 620°F and the Hot Leg △T is 550°F (Hot Leg △T = Vessel Outlet Temperature - 70°F = 550°F).

NRC Request 4

"Tube slippage is not expected to occur for any of the U.S. Nuclear Regulatory Commission (NRC)-approved alternate repair criteria for flaws within the tubesheet (e.g., H, C*, F*). However, should slippage occur, it warrants assessment since it is unexpected and could draw into question assumptions regarding the integrity of other joints. Please discuss your plans to modify your proposal to include monitoring and reporting requirements regarding tube slippage."*

TVA Response

Based on the below information, TVA does not intend to include monitoring and reporting requirements regarding tube slippage.

The requirement to implement monitoring for slippage was imposed upon the H* ARC due to the inherent lack of residual contact condition of hydraulically expanded tube-in-tubesheet joints. The analysis methodology of the H* criteria assumes zero residual contact force due to the expansion process; forces that contribute to the axial pullout resistance are generated from pressure expansion and thermal expansion.

Monitoring for slippage in the F* criteria is a requirement that ultimately will not affect the integrity of the joint due to the inherent contact force provided by the tube expansion process.

In all tubesheet ARCs, except H*, varying levels of residual contact force due to the expansion process are provided. These forces range in their relative magnitude from the least amount (C*) to the greatest amount (F*). Enclosure 6 of Reference 1, Page 13 of 26, provides a summary of F* test data for roll engagement lengths as short as 0.5 inch. This data shows that slippage did not occur at a pressure differential equal to the WBN Unit 2 three times normal operating pressure differential for a roll expanded joint length of < 1/3 of the applied F* inspection distance. A test specimen with a roll expanded joint length of one inch did not experience slippage at a test pressure > 15 times the WBN Unit 2 normal operating pressure differential. As the applied F* distance below the top-of-tubesheet, or bottom of roll transition, whichever is lower, is 1.64 inches, there is no basis to impose a requirement for monitoring of tube slippage. TVA intends to apply an inspection distance of two inches below the top-of-tubesheet or bottom of roll transition, whichever is lower.

NRC Request 5

"The proposed amendment adds the F Alternate Repair Criterion under TS 5.7.2.12.c, which is consistent with TSTF-510. It appears the "Reviewer's Note" contained in the model safety evaluation was inadvertently added to this section of the TS. Please discuss your plans for removing this Reviewer's Note."*

TVA Response

The Reviewer's Note under TS 5.7.2.12.c has been removed. A revised Enclosure 2, "Proposed Technical Specifications (Mark-Ups)," and Enclosure 3, "Revised Proposed

Technical Specifications Changes," showing this revision are provided with this RAI response. These enclosures replace Enclosures 2 and 3 provided in Reference 1. This oversight has been entered into the TVA Corrective Action Program.

NRC Request 6

"In past reviews of alternate repair criterion license amendment requests such as H, NRC identified a concern that cracks could exist in the tube-to-tubesheet welds. It was not clear to the NRC staff how the integrity of the welds would be assured if the licensee did not apply H* to all tubes. The NRC sought clarification from the licensee on their intent of the application of H*, specifically the wording "may be applied" rather than "shall be applied." The NRC had noted that qualified inspection techniques did not exist for the tube-to-tubesheet welds. As a result, adoption of H* resulted in licensees requiring H* to be applied (i.e., it was not an alternative to the depth-based plugging limit).*

Please discuss your plans for requiring F to be applied rather than providing an option for it to be applied, for example:*

5.7.2.12.c Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

The following alternate tube plugging criteria shall be applied as an alternative to the 40% depth based criteria:

1. *Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 1.64 inches below the top of the tubesheet, or from the bottom of the roll transition to 1.64 inches below the bottom of the roll transition, whichever is lower, shall be plugged. Tubes with service-induced flaws located below this elevation do not require plugging.*

Also, discuss your plans for redefining the inspection distance (in TS 5.7.2.12.d) to start from 1.64-inches below the bottom of the roll transition or the top of the tubesheet, whichever is lower, on the hot-leg to 1.64-inches below the bottom of the roll transition or the top of the tubesheet, whichever is lower, on the cold-leg."

TVA Response:

TVA will require F* to be applied rather than providing an option for it to be applied. See revised TS 5.7.2.12.c in Enclosures 2 and 3.

TVA has redefined the inspection distance as described in TS 5.7.2.12.d as follows:

> "The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from 1.64 inches below the bottom of the roll transition or 1.64 inches below the top of the tubesheet, whichever is lower at the tube inlet, to 1.64 inches below the bottom of the roll transition or 1.64 inches below the top of the tubesheet, whichever is lower at the tube outlet, and that may satisfy the applicable tube plugging criteria."

A revised Enclosure 2, "Proposed Technical Specifications (Mark-Ups)," and Enclosure 3, "Revised Proposed Technical Specifications Changes," showing these revisions are provided with this RAI response. These enclosures replace Enclosures 2 and 3 provided in Reference 1.

NRC Request 7

"In Section 4.1 of Enclosures 6 and 8, you indicate that a Loss of AC Power (LOAP) to the Plant Auxiliaries and a postulated Steam Line Break (SLB) are the only events in the current licensing basis that evaluate the effects of the release of steam from the secondary system. You further state that only the SLB condition needs to be considered in the development of F, since it is the only design basis event. You indicated that the LOAP is a Category II event. The facility must be operated in accordance with its current design and licensing basis. Please justify why it is not necessary for the licensee to ensure that any primary-to-secondary leakage that may occur during a LOAP remains less than or equal to what was assumed in the design and licensing basis. Please demonstrate that use of the F* alternate repair criterion will not create the potential for an increase in the primary-to-secondary leakage that may occur during a LOAP."*

TVA Response:

Section 15.2.9 of the WBN Unit 2 Updated Final Safety Analysis Report (UFSAR) describes the LOAP event, which is coincident with other events, such as loss of electrical load or loss of normal feedwater flow.

The WBN Unit 2 UFSAR transient responses for events involving LOAP demonstrates that reactor coolant system (RCS) pressure can initially increase to the pressurizer relief valve setting within the first 10 seconds of the event, but the RCS pressure then decreases quickly and is maintained at approximately 2000 pounds per square inch gage (psig). The SG pressure does not decrease and eventually increases to the main steam relief valve setting. The pressure differential across the SG tubes closely approximates the pressure differential during normal operation for the early stages of a LOAP and slightly decreases long term. Therefore, the LOAP does not challenge the SG like an SLB event and does not involve the large pressure differential across the SG tubes that could occur during long term recovery from an SLB. As the original F* test data does not show a leakage potential at SLB conditions, inherently there is no leakage potential at normal operating conditions. Thus, the SLB remains the limiting event for evaluation of release of steam from the secondary system.

During the SLB event, the faulted steam generator secondary side pressure approaches zero while the RCS pressure could go to the pressurizer relief valve setting. Therefore, the SLB pressure differential across the steam generator tubes is approximately equal to the pressurizer relief valve setting and is considered the limiting event for F*. Because, as previously stated, the pressure differential across the steam generator tubes during an LOAP event closely approximates the pressure differential during normal operation and slightly decreases long term, the primary to secondary leakage during LOAP will be similar to operational primary-to-secondary leakage. Therefore, a LOAP does not create the potential for an increase in the primary-to-secondary leakage assumed in the design and licensing basis and use of the F* alternate repair criterion will not create the potential for an increase in the primary-to-secondary leakage that may occur during a LOAP.

Reference:

1. TVA Letter to NRC, CNL-15-060, “Technical Specifications Change No. WBN2-TS-15-16 - Revise Technical Specifications for Use of Steam Generator Alternate Repair Criterion F*,” dated December 15, 2015 (ML15362A023)

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATIONS (MARK-UPS)

5.7 Procedures, Programs, and Manuals

5.7.2.12 Steam Generator (SG) Program (continued)

2. Accident induced leakage performance criterion: The primary-to-secondary accident induced leakage rate for any design basis accident, other than an SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 1 gpm per SG.

3. The operational leakage performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

c. Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

Insert A

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, ~~from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube plugging criteria. The tube-to-tubesheet weld is not part of the tube.~~ In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.

Insert: "from 1.64 inches below the bottom of the roll transition or 1.64 inches below the top of the tubesheet, whichever is lower at the tube inlet, to 1.64 inches below the bottom of the roll transition or 1.64 inches below the top of the tubesheet, whichever is lower at the tube outlet, and that may satisfy the applicable tube plugging criteria."

(continued)

Insert A:

The following alternate tube repair criteria shall be applied as an alternative to the 40% depth based criteria:

1. Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 1.64 inches below the top of the tubesheet, or from the bottom of the roll transition to 1.64 inches below the bottom of the roll transition, whichever is lower, shall be plugged. Tubes with service-induced flaws located below this elevation do not require plugging.

5.9 Reporting Requirements (continued)

5.9.7 DG Failures Report

If an individual diesel generator (DG) experiences four or more valid failures in the last 25 demands, these failures and any nonvalid failures experienced by that DG in that time period shall be reported within 30 days. Reports on DG failures shall include the information recommended in Regulatory Guide 1.9, Revision 3, Regulatory Position C.4, or existing Regulatory Guide 1.108 reporting requirement.

5.9.8 PAMS Report

When a Report is required by Condition B or F of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.9.9 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.7.2.12, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG,

b. Degradation mechanisms found,

c. Nondestructive examination techniques utilized for each degradation mechanism,

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

e. Number of tubes plugged during the inspection outage for each degradation mechanism,

f. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG,

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

Insert: ", and"

Insert: "h. Repair method utilized and the number of tubes repaired by each repair method."

ENCLOSURE 3

REVISED PROPOSED TECHNICAL SPECIFICATIONS CHANGES

5.7.2.12 Steam Generator (SG) Program (continued)

2. Accident induced leakage performance criterion: The primary-to-secondary accident induced leakage rate for any design basis accident, other than an SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 1 gpm per SG.

3. The operational leakage performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

c. Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

The following alternate tube repair criteria shall be applied as an alternative to the 40% depth based criteria:

1. Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 1.64 inches below the top of the tubesheet, or from the bottom of the roll transition to 1.64 inches below the bottom of the roll transition, whichever is lower, shall be plugged. Tubes with service-induced flaws located below this elevation do not require plugging.

(continued)

5.7.2.12 Steam Generator (SG) Program (continued)

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from 1.64 inches below the bottom of the roll transition or 1.64 inches below the top of the tubesheet, whichever is lower at the tube inlet, to 1.64 inches below the bottom of the roll transition or 1.64 inches below the top of the tubesheet, whichever is lower at the tube outlet, and that may satisfy the applicable tube plugging criteria. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.

2. After the first refueling outage following SG installation, inspect each SG at least every 24 effective full power months or at least every refueling outage (whichever results in more frequent inspections). In addition, inspect 100% of the tubes at sequential periods of 60 effective full power months beginning after the first refueling outage inspection following SG installation. Each 60 effective full power month inspection period may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube plugging criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated.

(continued)

5.7.2.12 Steam Generator (SG) Program (continued)

The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period.

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever results in more frequent inspections). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary-to-secondary LEAKAGE.

(continued)

5.9 Reporting Requirements (continued)

5.9.7 DG Failures Report

If an individual diesel generator (DG) experiences four or more valid failures in the last 25 demands, these failures and any nonvalid failures experienced by that DG in that time period shall be reported within 30 days. Reports on DG failures shall include the information recommended in Regulatory Guide 1.9, Revision 3, Regulatory Position C.4, or existing Regulatory Guide 1.108 reporting requirement.

5.9.8 PAMS Report

When a Report is required by Condition B or F of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.9.9 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.7.2.12, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG,

b. Degradation mechanisms found,

c. Nondestructive examination techniques utilized for each degradation mechanism,

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

e. Number of tubes plugged during the inspection outage for each degradation mechanism,

f. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG,

g. The results of condition monitoring, including the results of tube pulls and in-situ testing, and

h. Repair method utilized and the number of tubes repaired by each repair method.