Watts Bar Nuclear Plant (WBN) Unit 1

Pre-Submittal Meeting for License Amendment Request (LAR) Revised Steam Generator (SG) Inspection Intervals and TSTF-510

June 25, 2020

Agenda

- Opening Remarks
- Background
- WBN Unit 1 Replacement Steam Generators (RSGs)
- Current Technical Specification (TS) SG Requirements
- Proposed TS SG Requirements
- RSG Inspection History
- RSG Secondary Side
- Operational Assessments
- LAR Layout
- TSTF-510 Variations
- Proposed TS Changes
- LAR Schedule Milestones
- Closing Remarks

Opening Remarks

- Purpose of the meeting is to discuss a proposed LAR for a revision to the WBN Unit 1 TS for the SG inspection intervals for the life of the plant and to adopt Technical Specification Task Force (TSTF)-510, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection."
- Tennessee Valley Authority (TVA) is scheduled to perform the next WBN Unit 1 SG tube inspection during the WBN Unit 1 Cycle 17 Refueling Outage (U1R17), scheduled to commence in October 2021.
- TVA has been involved in the development of Technical Specification Task Force (TSTF)-577, “Performance Based Frequencies for Steam Generator Tube Inspections,” along with meetings between the industry and the Nuclear Regulatory Commission (NRC).

Opening Remarks

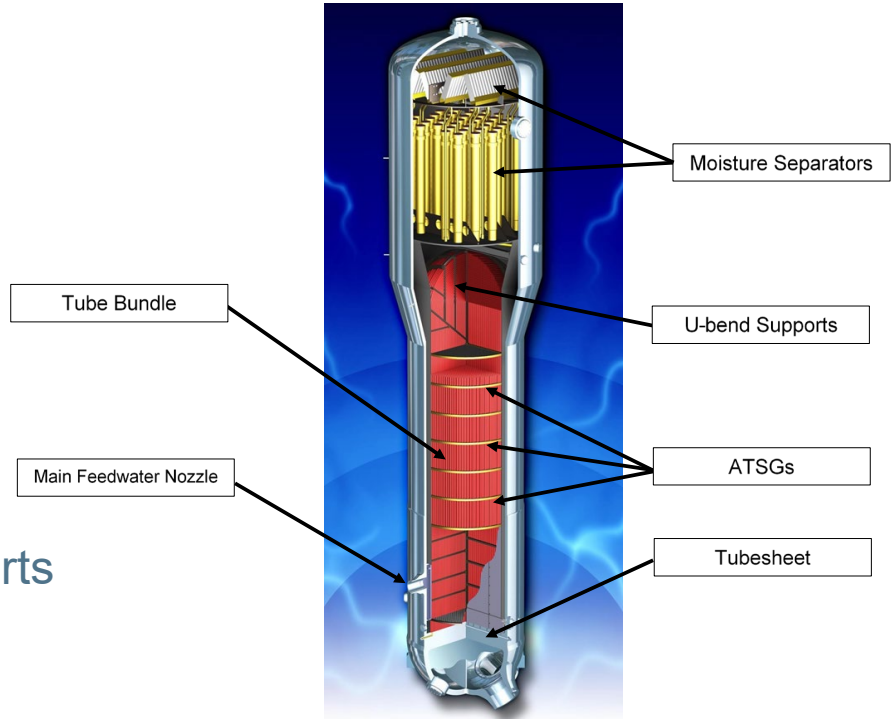
- The operational experience of the WBN RSGs, as described in this presentation, demonstrate that the proposed change to the schedule for the SG inspections is appropriate and will result in a reduction of person-hours, dose to personnel, and risk to the plant.
- TVA plans to follow the guidance in TSTF-577 for future similar LARs.

Background

- SG TS are based on performance of the tube material.
- Current TS inspection intervals developed under TSTF-449 with some uncertainty around Alloy 690TT tubing performance. Proposed TS changes include TS-510.
- Significant experience gained over the course of 15 years of additional Alloy 690TT service.
- TS inspection intervals need to incorporate operating experiences.

WBN Unit 1 RSGs

- Four RSGs per unit
- Replaced U1R7 (Fall 2006)
- Westinghouse Model 68AXP
- Recirculating SG design
- 5,128 Alloy 690TT tubes in triangular pitch
- Advanced tube support grid (ATSG) straight leg tube supports
- Ventilated flat bar U-bend tube supports
- Axial flow preheater
- Two stage moisture separators



Current WBN Unit 1 SG TS

- Maximum interval of 72 effective full power months (EFPM) or three refueling outages.
- After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 EFPM. This constitutes the first inspection period.
  - WBN Unit 1 is currently in the 144 EFPM sequential period.
  - Completion scheduled for Fall 2021 just prior to U1R17 outage.
  - Inspection outages were U1R8, U1R11 and U1R14.
- 100% inspection during the next 108 EFPM (second inspection period).
- 100% inspection within the next 72 EFPM (third inspection period) and 60 EFPM thereafter.

Proposed WBN Unit 1 SG TS

- 100% inspection within the next 96 EFPM (second and subsequent inspection periods).
- Revise TS on the Steam Generator Tube Inspection Report to require discussion of trending of tube degradation over the inspection interval and provide comparison of the prior operational assessment degradation projections to the as-found condition.
- Proposed TS changes are consistent with similar LAR for Sequoyah Unit 1, submitted to NRC on February 24, 2020 (ML20056C857).
- TS markups (including those for TSTF-510) are provided later in the presentation.

Current and Proposed
WBN Unit 1 RSG Sequential Periods

SGs Replaced	1R8	1R9	1R10	1R11	1R12	1R13	1R14	1R15	1R16	1R17	1R18	1R19	1R20	1R21	1R22	1R23	1R24	1R25	1R26	
1R7 F-06	S-08	F-09	S-11	F-12	S-14	F-15	S-17	F-18	S-20	F-21	S-23	F-24	S-26	F-27	S-29	F-30	S-32	F-33	S-35	
SG EFPY Cumulative	1.2	2.6	4	5.3	6.6	8	9.3	10.6	12	13.4 est.	14.8 est.	16.2 est.	17.6 est	19.0 est.	20.4 est	21.8 est.	23.2 est.	24.6 est.	26.0 est.	
EFPM Within Sequential Period	0	16.8	33.6	49.2	64.8	81.6	97.2	112.8	129.6	2.4 est.	19.2 est.	36 est.	52.8 est.	69.6 est.	86.4 est.	103.2 est.	12 est.	28.8 est.	45.6 est.	
TS Sequential Period	1st ISI	144 EFPM Sequential Period								108 EFPM Sequential Period							72 EFPM Sequential Period			End of WBN Unit 1 License
Bobbin Base Scope[1]	100% All SGs	No ECT	No ECT	57.8% All SGs	No ECT	No ECT	100% All SGs[3]	No ECT	No ECT	33.3% All SGs[2]	No ECT	No ECT	33.3% All SGs[2]	No ECT	No ECT	33.3% All SGs[2]	No ECT	No ECT	50% All SGs[2]	
EFPM Within Proposed Sequential Period								15.6	32.4	49.2 est	66 est.	82.8 est.	3.6 est.	20.4 est.	37.2 est.	54 est.	70.8 est.	87.6 est.	8.4 est.	
Proposed TS Sequential Period								1st 96 EFPM Sequential Period					2nd 96 EFPM Sequential Period						3rd 96 EFPM	
Bobbin Base Scope Under Proposed Amendment[4] ->								No ECT	No ECT	No ECT	No ECT	100% All SGs[3]	No ECT	No ECT	No ECT	No ECT	100% All SGs[3]	No ECT	No ECT	

Notes

1. The bobbin base scope is accompanied by additional special interest and diagnostic exams using RPC and Array probes.
2. The TS minimum required inspection scope determined by dividing 100% by the number of scheduled inspections within the period.
3. The WBN U1R14 inspection consisted of a 100% combination bobbin and array coil inspection of all tubes full length with the exception of the U-bend sections of tube Rows 1 through 4, which were inspected with a singular bobbin probe due to dimensional constraints. This is the planned scope for all scheduled inspections under the proposed amendment.
4. The schedule under the proposed amendment revises the allowable inspection interval for each SG to at least every 96 EFPM.

Benefits of the LAR

- The proposed TS changes will result in:
  - Reduced overall outage dose
  - Reduced number of person-hours
  - Improved focus on essential work
  - Eliminate nuclear plant risk

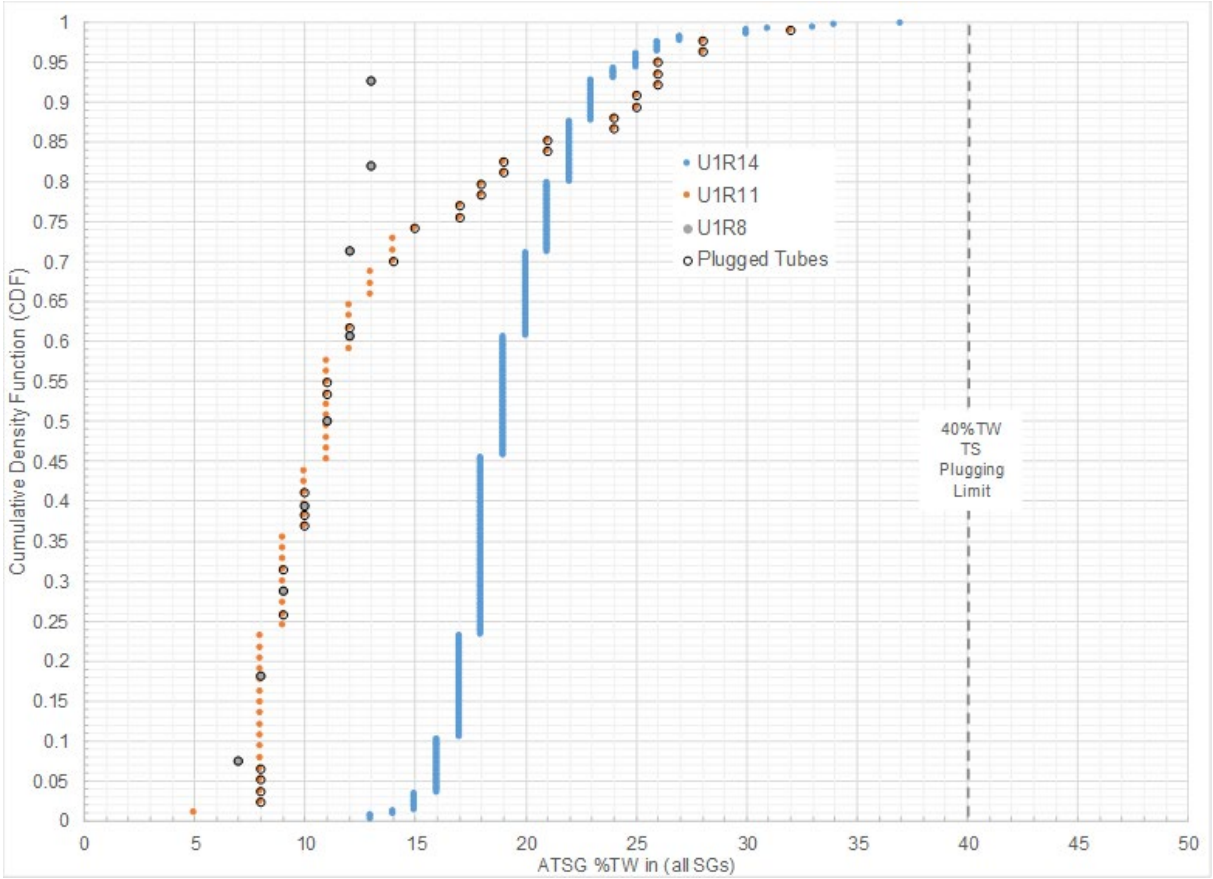
Inspection History

- WBN1 RSGs
  - 100% pre-service inspection
  - Three in-service inspections (1R8, 1R11, and 1R14)
  - Historical inspections applied bobbin and rotating pancake coil (RPC) probe inspection strategies
  - Most recent inspection was 100% full length combination bobbin and array probe
- Every tube in the WBN1 RSGs has been tested in-service at least two times in 14 years of operation.

RSG Degradation Experience

- Two existing tube degradation mechanisms.
  - Mechanical wear at horizontal ATSGs
  - Mechanical wear at U-bend supports
- Tube plugging to date: 0.14% (29 tubes)
  - 2 tubes plugged pre-service
  - 21 tubes plugged for wear at horizontal ATSGs
  - No tubes plugged for wear at U-bend supports
  - 6 tubes preventively plugged to address foreign object
- No indication has exceeded TS plugging limit of 40% through-wall (TW).

Trending of Existing Degradation Mechanisms



WBN Unit 1 RSG Distribution of ATSG Support Wear Depths

SG Secondary Side

- Tubesheet cleaned every SG inspection since RSG install.
  - Removes secondary deposit buildup and foreign objects
- Foreign object search and retrieval (FOSAR) performed every SG inspection since RSG install.
  - Manual retrieval of identified foreign objects
  - Inspect possible loose part indications from eddy current
- Performed upper internals inspection of two RSGs at U1R11 and U1R14.
  - Preheater water box design traps foreign objects

Operational Assessments

- Following U1R14 100% inspection
  - Largest U-bend support wear left in-service is 27%TW
  - Largest ATSG wear left in-service is 37%TW
  - 95th percentile growth rate of 5.4%TW/EFP Years (EFPY)
- OA supports operation for at least 7.5 EFPY (five cycles) while maintaining tube integrity.
- All WBN as-found inspection results have shown margin compared to three cycle OA worst case projected %TW.

Operational Assessments (cont'd)

Examples of conservatism applied in the WBN Unit 1 OAs:

- Tube wear degradation lengths are assumed to be the full length of the tube support intersections.
- Each WBN Unit 1 operating cycle is assumed to be 1.5 EFPY.
- Structural Integrity Performance Criteria (SIPC) of three times normal operating pressure differential is conservatively determined.
  - The value applied does not include pressure drops within the system between the measurement point and the secondary side of the tubing.

LAR Layout

- Enclosure 1 provides a description and technical evaluation of the proposed change, a regulatory evaluation, and a discussion of environmental considerations for the proposed change to the required SG tube inspection frequency
- Enclosure 2 provides a description and assessment of the proposed changes, the requested confirmation of applicability, and plant-specific verifications associated with TSTF-510.
- Enclosure 3 provides the existing WBN Unit 1 TS pages marked up to show the proposed changes.
- Enclosure 4 provides the existing WBN Unit 1 TS pages retyped to show the proposed changes.
- Enclosure 5 provides the existing WBN Unit 1 TS Bases pages marked-up to show the proposed changes to meet TSTF-510 (no TS Bases changes are required for the SG tube inspection frequency).

TSTF-510 Variations

- The WBN Unit 1 TS utilize different numbering than the Standard Technical Specifications (STSs) on which TSTF-510 was based.
  - STS 5.5.9, "Steam Generator (SG) Program," is numbered as TS 5.7.2.12 in the WBN Unit 1 TS and STS 5.6.7, “Steam Generator Tube Inspection Report,” is numbered as TS 5.9.9 in the WBN Unit 1 TS. These differences are administrative and do not affect the applicability of TSTF-510 to the WBN Unit 1 TS.
- The proposed change to WBN Unit 1 TS 5.7.2.12.b.2 also revises the following verbiage
  - Current verbiage: “For design basis accidents that have a faulted steam generator, accident induced leakage is not to exceed 1.0 gallon per minute (gpm) for the faulted steam generator and 150 gallons per day (gpd) for the non-faulted steam generators. For design basis accidents that do not have a faulted steam generator, accident induced leakage is not to exceed 150 gpd per steam generator.” This verbiage originated in WBN 1 License Amendment 65 (ML062910090), which implemented TSTF-449.
  - Revised verbiage: “Leakage for all degradation mechanisms is not to exceed 150 gpd for each unfaulted SG. Leakage for all degradation mechanisms is not to exceed 1 gpm in the faulted SG.” The proposed verbiage is consistent with the WBN Unit 2 TS per License Amendment 28 (ML19063B721) and WBN dual unit Updated Final Safety Analysis Report (UFSAR) Section 15.5.4.

Proposed TS Changes (Markups)
Yellow – TSTF 510 Blue – SG Inspection Frequency

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 STEAM GENERATOR (SG) TUBE INTEGRITY

LCO 3.4.17 SG tube integrity shall be maintained

AND

All SG tubes satisfying the tube ~~repair~~plugging criteria shall be plugged in accordance with the Steam Generator Program.

		Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube ~~repair~~plugging criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection.

Proposed TS Changes (Markups)
Yellow – TSTF 510 Blue – SG Inspection Frequency

5.7.2.12 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following ~~provisions~~:

b.2. Accident induced leakage performance criterion: The primary-to-secondary accident induced leakage rate for any design basis accident, other than a 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 for all degradation mechanisms is not to exceed 150 gpd for each unfaulted SG. Leakage for all degradation mechanisms is not to exceed 1 gpm in the faulted SG~~For design basis accidents that have a faulted steam generator, accident induced leakage is not to exceed 1.0 gallon per minute (gpm) for the faulted steam generator and 150 gallons per day (gpd) for the non-faulted steam generators. For design basis accidents that do not have a faulted steam generator, accident induced leakage is not to exceed 150 gpd per steam generator~~.

Proposed TS Changes (Markups)
Yellow – TSTF 510 Blue – SG Inspection Frequency

5.7.2.12 Steam Generator (SG) Program (continued)

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

c. Provisions for SG tube plugging~~repair~~ 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.

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~~repair~~ 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~~n assessment of~~ 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 ~~replacemen~~installation~~t~~.

Proposed TS Changes (Markups)
Yellow – TSTF 510 Blue – SG Inspection Frequency

WBN Unit 1 – TS 5.7.2.12

d.2 After the first refueling outage following SG installation, inspect each SG at least every 96 effective full power months. In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a and b below. 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 repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. 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. Each inspection period defined below 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.

Proposed TS Changes (Markups)
Yellow – TSTF 510 Blue – SG Inspection Frequency

5.7.2.12 Steam Generator (SG) Program (continued)

a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period.

b) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the second and subsequent inspection periods. ~~Inspect 100% of the tubes at sequential periods of 144, 108, 72, and thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SGs shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.~~

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 ~~is less~~). 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.

Proposed TS Changes (Markups)
Yellow – TSTF 510 Blue – SG Inspection Frequency

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. ~~Active d~~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 active degradation mechanism,

f. The number and percentage of tubes plugged to date, and effective plugging percentage in each steam generator~~Total number and percentage of tubes plugged to date,~~

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

h. Discuss trending of tube degradation over the inspection interval and provide comparison of the prior operational assessment degradation projections to the as-found condition.~~The effective plugging percentage for all plugging in each SG~~.

Proposed TS Changes (Clean)

LCO 3.4.17 SG tube integrity shall be maintained

AND

All SG tubes satisfying the tube plugging criteria shall be plugged in accordance with the Steam Generator Program.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SG tubes satisfying the tube plugging criteria and not plugged in accordance with the Steam Generator Program	A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection. AND A.2 Plug the affected tube(s) in accordance with the Steam Generator Program.	7 days Prior to entering MODE 4 following the next refueling outage or SG tube inspection

Proposed TS Change (Clean)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.17.1	Verify steam generator tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection.

Proposed TS Change (Clean)

5.7.2.12 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged, to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, cooldown), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary-to-secondary accident induced leakage rate for any design basis accident, other than a 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 for all degradation mechanisms is not to exceed 150 gpd for each unfaulted SG. Leakage for all degradation mechanisms is not to exceed 1 gpm in the faulted SG.

Proposed TS Change (Clean)

5.7.2.12 Steam Generator (SG) Program (continued)

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.

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.

2. After the first refueling outage following SG installation, inspect each SG at least every 96 effective full power months. In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a and b below. 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 repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. 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. Each inspection period defined below 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.

(continued)

Proposed TS Change (Clean)

5.7.2.12 Steam Generator (SG) Program (continued)

a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period.

b) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the second and subsequent inspection periods.

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.

Proposed TS Change (Clean)

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 active degradation mechanism,

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

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

h. Discuss trending of tube degradation over the inspection interval and provide comparison of the prior operational assessment degradation projections to the as-found condition. .

LAR Schedule Milestones

- June 25, 2020 – LAR pre-submittal meeting with NRC
- August 30, 2020 – LAR submittal – Request NRC approval within 12 months of submittal (this is a no later than date)
- NRC approval of LAR within one year from the date of the submittal (Requested). 30-day implementation period
- October 2021 – Scheduled start of WBN U1R17 outage

Summary

- Positive WBN operational performance of Alloy 690TT.
- WBN performs comprehensive RSG inspections.
- Existing WBN1 RSG degradation mechanisms are understood and exhibit predictable behavior.
- Operational assessments accurate and appropriately conservative.
- Proposed TS changes are consistent with performance of Alloy 690TT tube material.
- Degradation trending will be provided to NRC through enhanced reporting.
- Proposed TS changes are intended to be consistent with the proposed TSTF-577.


TVA