

September 17, 2021

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

Southern Nuclear Operating Company  
Joseph M. Farley Nuclear Plant - Units 1 and 2  
Vogtle Electric Generating Plant - Units 1 and 2

Application to Revise Technical Specifications to Adopt  
TSTF 577, "Revised Frequencies for Steam Generator Tube Inspections"

Ladies and Gentlemen:

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) is submitting a request for an amendment to the Technical Specifications (TS) for Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2, and Vogtle Electric Generating Plant (VEGP), Units 1 and 2.

SNC requests adoption of TSTF 577, "Revised Frequencies for Steam Generator Tube Inspections," which is an approved change to the Standard Technical Specifications (STS), into the FNP, Units 1 and 2, and VEGP, Units 1 and 2, TS. The TS related to steam generator (SG) tube inspections and reporting are revised based on operating history.

The enclosure provides a description and assessment of the proposed changes. Attachment 1 provides the existing TS pages marked to show the proposed changes. Attachment 2 provides revised (clean) TS pages.

SNC requests that the amendment be reviewed under the Consolidated Line Item Improvement Process (CLIP). Approval of the proposed amendment is requested within 6 months of completion of the NRC's acceptance review. Once approved, the amendment shall be implemented within 30 days.

There are no regulatory commitments made in this submittal.

In accordance with 10 CFR 50.91, SNC is notifying the State of Alabama and the State of Georgia of this license amendment request by transmitting a copy of this letter and enclosures to the designated State Officials.

If you have any questions, please contact Jamie Coleman at 205.992.6611.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 17th day of September, 2021.

Respectfully submitted,



Cheryl A. Gayheart  
Regulatory Affairs Director  
Southern Nuclear Operating Company

CAG/dsp/cbg

Enclosure: Description and Assessment

Attachments: 1a. FNP Proposed Technical Specification Changes (Mark-Up)  
1b. VEGP Units 1 and 2 Proposed Technical Specification Changes (Mark-Up)  
2a. FNP Revised Technical Specification Pages  
2b. VEGP Units 1 and 2 Revised Technical Specification Pages

cc: NRC Regional Administrator, Region II  
NRC Project Manager – Farley, Vogtle 1 & 2  
NRC Senior Resident Inspector – Farley, Vogtle 1 & 2  
Director, Alabama Office of Radiation Control  
Director, Environmental Protection Division – State of Georgia  
RType: CGA02.001

**Southern Nuclear Operating Company  
Joseph M. Farley Nuclear Plant - Units 1 and 2  
Vogtle Electric Generating Plant - Units 1 and 2**

**Application to Revise Technical Specifications to Adopt  
TSTF 577, "Revised Frequencies for Steam Generator Tube Inspections"**

**Enclosure**

**Description and Assessment**

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ATTACHMENTS:

- 1a. FNP Proposed Technical Specification Changes (Mark-Up)
- 1b. VEGP Units 1 and 2 Proposed Technical Specification Changes (Mark-Up)
- 2a. FNP Revised Technical Specification Pages
- 2b. VEGP Units 1 and 2 Revised Technical Specification Pages

## 1.0 DESCRIPTION

Southern Nuclear Operating Company (SNC) requests adoption of TSTF-577, "Revised Frequencies for Steam Generator Tube Inspections," which is an approved change to the Standard Technical Specifications (STS), into the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2, and Vogtle Electric Generating Plant (VEGP), Units 1 and 2 Technical Specifications (TS). The TS related to steam generator (SG) tube inspections and reporting are revised based on operating history.

## 2.0 ASSESSMENT

### 2.1 Applicability of Safety Evaluation

SNC has reviewed the safety evaluation for TSTF-577 provided to the Technical Specifications Task Force in a letter dated April 14, 2021. This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-577. As described herein, SNC has concluded that the justifications presented in TSTF-577 and the safety evaluation prepared by the NRC staff are applicable to FNP, Units 1 and 2 and VEGP, Units 1 and 2 and justify this amendment for the incorporation of the changes to the FNP and VEGP TS.

The current FNP SG TS requirements are based on TSTF-510, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection." The Units 1 and 2 SG tubes are made from Thermally Treated Alloy 690 (Alloy 690TT).

The current VEGP Unit 1 and 2 SG TS requirements are based on TSTF-510, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection." The Units 1 and 2 SG tubes are made from Thermally Treated Alloy 600 (Alloy 600TT).

The Farley Unit 1 initial inspection period described in the SG Program, paragraph d.2, began during the fall 2019 outage (1R29). The Farley Unit 2 initial inspection period described in the SG Program, paragraph d.2, began during the spring 2019 outage (2R26). SNC will submit SG Tube Inspection Reports for Farley Units 1 and 2 that meet the revised TS 5.6.10 requirements within 30 days after implementation of the license amendment.

The Vogtle Unit 1 and 2 initial inspection period described in the SG Program, paragraph d.2, will begin once the 100% SG tube inspection for each unit is performed.

### 2.2 Variations

SNC is proposing the following variations from the TS changes described in TSTF-577 or the applicable parts of the NRC staff's safety evaluation:

- The current FNP Unit 1 and 2 TS 5.6.10 first paragraph references the title of TS 5.5.9, "Steam Generator (SG) Program," without placing the title in quotes. For consistency with TSTF-577 and the STS, the title is placed in quotes.
- The current VEGP Units 1 and 2 TS 5.6.10 first paragraph references the title of TS 5.5.9, "Steam Generator (SG) Program," without placing the title in quotes. For consistency with TSTF-577 and the STS, an editorial change is made to place the title in quotes.

- The VEGP Units 1 and 2 Steam Generator Program TS currently contains a provision for an alternate tube plugging criteria. The description of the alternate tube plugging criteria in the proposed change is equivalent to the description in the current TS.

### 3.0 REGULATORY EVALUATION

#### 3.1 No Significant Hazards Consideration Analysis

Southern Nuclear Operating Company (SNC) requests adoption of TSTF-577, "Revised Frequencies for Steam Generator Tube Inspections," which is an approved change to the Standard Technical Specifications (STS), into the Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2, and Vogtle Electric Generating Plant (VEGP), Units 1 and 2 Technical Specifications (TS). The TS related to steam generator (SG) tube inspections and reporting are revised based on operating history.

SNC has evaluated if a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change revises the inspection frequencies for SG tube inspections and associated reporting requirements. The SG inspections are conducted as part of the SG Program to ensure and demonstrate that performance criteria for tube structural integrity and accident leakage integrity are met. These performance criteria are consistent with the plant design and licensing basis. With the proposed changes to the inspection frequencies, the SG Program must still demonstrate that the performance criteria are met. As a result, the probability of any accident previously evaluated is not significantly increased and the consequences of any accident previously evaluated are not significantly increased.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change revises the inspection frequencies for SG tube inspections and associated reporting requirements. The proposed change does not alter the design function or operation of the SGs or the ability of an SG to perform the design function. The SG tubes continue to be required to meet the SG Program performance criteria. The proposed change does not create the possibility of a new or different kind of accident due to credible new failure mechanisms, malfunctions, or accident initiators that are not considered in the design and licensing bases.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed change revises the inspection frequencies for SG tube inspections and associated reporting requirements. The proposed change does not change any of the controlling values of parameters used to avoid exceeding regulatory or licensing limits. The proposed change does not affect a design basis or safety limit, or any controlling value for a parameter established in the UFSAR or the license.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, SNC concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

### 3.2 Conclusion

In conclusion, based on the considerations above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 4.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

**Southern Nuclear Operating Company  
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**Attachment 1a**

**FNP Proposed Technical Specification Changes (Mark-Up)**

5.5 Programs and Manuals

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5.5.7 Reactor Coolant Pump Flywheel Inspection Program (continued)

- b. A surface examination (magnetic particle and/or liquid penetrant) of exposed surfaces of the disassembled flywheel.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Coolant Pump Flywheel Inspection Program.

5.5.8 Not Used

5.5.9 Steam Generator (SG) Program

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

- a. Provisions for condition monitoring assessments. Condition monitoring

(continued)



No change to this page; included for completeness.

## 5.5 Programs and Manuals

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### 5.5.9 Steam Generator (SG) Program (continued)

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 inservice SG tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby and cooldown), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 (3ΔP) 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. Accident induced leakage is not to exceed 1 gpm total for all three SGs.
  3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, “RCS Operational LEAKAGE.”

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## 5.5 Programs and Manuals

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### 5.5.9 Steam Generator SG Program (continued)

- 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 **100% of the tubes in** each SG at least every **9672** effective full power months, **which defines the inspection period.** ~~or at least every third refueling outage (whichever results in more frequent inspections). 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, b, c and d 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 plugging 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~~

(continued)

## 5.5 Programs and Manuals

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### 5.5.9 Steam Generator SG Program (continued)

~~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.~~

~~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 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;~~

~~c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and~~

~~d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth 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 **be at the next** ~~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.

### 5.5.10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

- a. Identification of a sampling schedule for the critical variables and control points for these variables;
- b. Identification of the procedures used to measure the values of the critical variables;
- c. Identification of process sampling points, which shall include monitoring the condenser hotwells for evidence of condenser in leakage;

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## 5.6 Reporting Requirements

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### 5.6.7 EDG Failure Report

If an individual emergency diesel generator (EDG) experiences four or more valid failures in the last 25 demands, these failures shall be reported within 30 days. Reports on EDG failures shall include a description of the failures, underlying causes, and corrective actions taken per the Emergency Diesel Generator Reliability Monitoring Program.

### 5.6.8 PAM 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.

### 5.6.9 Deleted

### 5.6.10 Steam Generator (SG) 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 5.5.9, "Steam Generator (SG) Program." The report shall include:

- a. The scope of inspections performed on each SG;
- b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;**
- c. For each degradation mechanism found:**
  - 1. The nondestructive examination techniques utilized;**
  - 2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;**
  - 3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment; and**
  - 4. The number of tubes plugged during the inspection outage;**

- d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;**
- ~~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,~~
- ef. The number and percentage of tubes plugged to date, and the effective plugging percentage in each **SG** steam generator; and**
- f. The results of any SG secondary side inspections.**
- ~~g. The results of condition monitoring, including the results of tube pulls and in-situ testing.~~

5.6.11 Alternate AC (AAC) Source Out of Service Report

The NRC shall be notified if the AAC source is out of service for greater than 10 days.

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**Southern Nuclear Operating Company  
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**Application to Revise Technical Specifications to Adopt  
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**Attachment 1b**

**VEGP Unit 1 and 2 Proposed Technical Specification Changes (Mark-Up)**

## 5.5 Programs and Manuals (continued)

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### 5.5.9 Steam Generator (SG) Program

An ~~SG Steam Generator~~ Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the ~~SG 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 ~~SG steam generator~~ tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), 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.

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## 5.5 Programs and Manuals

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### 5.5.9 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 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 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 plugging criteria shall be applied as an alternative to the 40% depth based criteria:

Tubes with service-induced flaws located greater than 15.2 inches below the top of the tubesheet do not require plugging. Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 15.2 inches below the top of the tubesheet shall be plugged upon detection.

- 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 **except for any portions of the tube that are exempt from inspection by alternate repair criteria**, and that may satisfy the applicable tube plugging criteria. ~~Portions of the tube below 15.2 inches below the top of the tubesheet are excluded from this requirement.~~

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.

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## 5.5 Programs and Manuals

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### 5.5.9 Steam Generator (SG) Program (continued)

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 **100% of the tubes in** each SG at least every **5448** effective full power months, **which defines the inspection period. If none of the SG tubes have ever experienced cracking other than in regions that are exempt from inspection by alternate repair criteria and the SG inspection was performed with enhanced probes, the inspection period may be extended to 72 effective full power months. Enhanced probes have a capability to detect flaws of any type equivalent to or better than array probe technology. The enhanced probes shall be used from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet except any portions of the tube that are exempt from inspection by alternate repair criteria. If there are regions where enhanced probes cannot be used, the tube inspection techniques shall be capable of detecting all forms of existing and potential degradation in that region.** ~~or at least every other refueling outage (whichever results in more frequent inspections). 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, b, and c 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 plugging 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.~~

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- ~~a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 120 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 inspection period; and~~
- ~~c) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the third and subsequent inspection periods.~~

(continued)

## 5.5 Programs and Manuals

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### 5.5.9 Steam Generator (SG) Program (continued)

3. If crack indications are found in portions of the SG tube **excluding any region that is exempt from inspection by alternate repair criteria not excluded above**, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall **be at the next not exceed 24 effective full power months or one refueling outage, but may be deferred to the following refueling outage if the 100% inspection of all SGs was performed with enhanced probes as described in paragraph d.2. (whichever results in more frequent inspections)**. If definitive information, such as from examination of a pulled tube, diagnostic nondestructive 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.

### 5.5.10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

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(continued)

## 5.6 Reporting Requirements

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5.6.9 Deleted.

### 5.6.10 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 5.5.9, "Steam Generator (SG) Program." The report shall include:

- a. The scope of inspections performed on each SG;
- b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;**
- c. For each degradation mechanism found:**
  - 1. The nondestructive examination techniques utilized;**
  - 2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;**
  - 3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment; and**
  - 4. The number of tubes plugged during the inspection outage;**
- d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;**
- ~~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,~~
- ef. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG steam generator;**

## 5.6 Reporting Requirements

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- f. The results of any SG secondary side inspections;**
  - ~~g. The results of condition monitoring, including the results of tube pulls and in-situ testing,~~
  - gh.** The primary to secondary LEAKAGE rate observed in each SG (if it is not practical to assign the LEAKAGE to an individual SG, the entire primary to secondary LEAKAGE should be conservatively assumed to be from one SG) during the cycle preceding the inspection which is the subject of the report; **and**
  - hi.** The calculated accident induced leakage rate from the portion of the tubes below 15.2 inches from the top of the tubesheet for the most limiting accident in the most limiting SG. In addition, if the calculated accident induced leakage rate from the most limiting accident is less than 2.48 times the maximum operational primary to secondary leakage rate, the report should describe how it was determined; **and**
  - ij.** The results of monitoring for tube axial displacement (slippage). If slippage is discovered, the implications of the discovery and corrective action shall be provided.
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**Southern Nuclear Operating Company  
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**Application to Revise Technical Specifications to Adopt  
TSTF 577, "Revised Frequencies for Steam Generator Tube Inspections"**

**Attachment 2a**

**FNP Revised Technical Specification Pages**

5.5 Programs and Manuals

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5.5.7 Reactor Coolant Pump Flywheel Inspection Program (continued)

- b. A surface examination (magnetic particle and/or liquid penetrant) of exposed surfaces of the disassembled flywheel.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Reactor Coolant Pump Flywheel Inspection Program.

5.5.8 Not Used

5.5.9 Steam Generator (SG) Program

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

- a. Provisions for condition monitoring assessments. Condition monitoring

(continued)

5.5 Programs and Manuals

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5.5.9 Steam Generator (SG) Program (continued)

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 inservice SG tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby and cooldown), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 (3ΔP) 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. Accident induced leakage is not to exceed 1 gpm total for all three SGs.
  - 3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, “RCS Operational LEAKAGE.”

(continued)



5.5 Programs and Manuals

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5.5.9 Steam Generator SG Program (continued)

- 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 100% of the tubes in each SG at least every 96 effective full power months, which defines 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 be at the next refueling outage. 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.

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(continued)

5.6 Reporting Requirements

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5.6.7 EDG Failure Report

If an individual emergency diesel generator (EDG) experiences four or more valid failures in the last 25 demands, these failures shall be reported within 30 days. Reports on EDG failures shall include a description of the failures, underlying causes, and corrective actions taken per the Emergency Diesel Generator Reliability Monitoring Program.

5.6.8 PAM 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.

5.6.9 Deleted

5.6.10 Steam Generator (SG) 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 5.5.9, "Steam Generator (SG) Program." The report shall include:

- a. The scope of inspections performed on each SG;
- b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;
- c. For each degradation mechanism found:
  1. The nondestructive examination techniques utilized;
  2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;
  3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment; and
  4. The number of tubes plugged during the inspection outage;

(continued)

5.6 Reporting Requirements

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5.6.10 Steam Generator (SG) Tube Inspection Report (continued)

- d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;
- e. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG; and
- f. The results of any SG secondary side inspections.

5.6.11 Alternate AC (AAC) Source Out of Service Report

The NRC shall be notified if the AAC source is out of service for greater than 10 days.

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**Southern Nuclear Operating Company  
Joseph M. Farley Nuclear Plant - Units 1 and 2  
Vogtle Electric Generating Plant - Units 1 and 2**

**Application to Revise Technical Specifications to Adopt  
TSTF 577, "Revised Frequencies for Steam Generator Tube Inspections"**

**Attachment 2b**

**VEGP Units 1 and 2 Revised Technical Specification Pages**

5.5 Programs and Manuals (continued)

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5.5.9 Steam Generator (SG) Program

An SG Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the SG 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 SG tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), 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.

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## 5.5 Programs and Manuals

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### 5.5.9 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 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 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 plugging criteria shall be applied as an alternative to the 40% depth based criteria:

Tubes with service-induced flaws located greater than 15.2 inches below the top of the tubesheet do not require plugging. Tubes with service-induced flaws located in the portion of the tube from the top of the tubesheet to 15.2 inches below the top of the tubesheet shall be plugged upon detection.

- 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 except for any portions of the tube that are exempt from inspection by alternate repair criteria, 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.

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5.5 Programs and Manuals

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5.5.9 Steam Generator (SG) Program (continued)

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 100% of the tubes in each SG at least every 54 effective full power months, which defines the inspection period. If none of the SG tubes have ever experienced cracking other than in regions that are exempt from inspection by alternate repair criteria and the SG inspection was performed with enhanced probes, the inspection period may be extended to 72 effective full power months. Enhanced probes have a capability to detect flaws of any type equivalent to or better than array probe technology. The enhanced probes shall be used from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet except any portions of the tube that are exempt from inspection by alternate repair criteria. If there are regions where enhanced probes cannot be used, the tube inspection techniques shall be capable of detecting all forms of existing and potential degradation in that region.
  3. If crack indications are found in portions of the SG tube excluding any region that is exempt from inspection by alternate repair criteria, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall be at the next refueling outage, but may be deferred to the following refueling outage if the 100% inspection of all SGs was performed with enhanced probes as described in paragraph d.2. If definitive information, such as from examination of a pulled tube, diagnostic nondestructive 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.

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## 5.6 Reporting Requirements

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5.6.9 Deleted.

### 5.6.10 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 5.5.9, "Steam Generator (SG) Program." The report shall include:

- a. The scope of inspections performed on each SG;
- b. The nondestructive examination techniques utilized for tubes with increased degradation susceptibility;
- c. For each degradation mechanism found:
  1. The nondestructive examination techniques utilized;
  2. The location, orientation (if linear), measured size (if available), and voltage response for each indication. For tube wear at support structures less than 20 percent through-wall, only the total number of indications needs to be reported;
  3. A description of the condition monitoring assessment and results, including the margin to the tube integrity performance criteria and comparison with the margin predicted to exist at the inspection by the previous forward-looking tube integrity assessment; and
  4. The number of tubes plugged during the inspection outage;
- d. An analysis summary of the tube integrity conditions predicted to exist at the next scheduled inspection (the forward-looking tube integrity assessment) relative to the applicable performance criteria, including the analysis methodology, inputs, and results;
- e. The number and percentage of tubes plugged to date, and the effective plugging percentage in each SG;
- f. The results of any SG secondary side inspections;
- g. The primary to secondary LEAKAGE rate observed in each SG (if it is not practical to assign the LEAKAGE to an individual SG, the entire primary to secondary LEAKAGE should be conservatively assumed to be from one SG) during the cycle preceding the inspection which is the subject of the report;

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5.6 Reporting Requirements

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5.6.10 Steam Generator Tube Inspection Report (continued)

- h. The calculated accident induced leakage rate from the portion of the tubes below 15.2 inches from the top of the tubesheet for the most limiting accident in the most limiting SG. In addition, if the calculated accident induced leakage rate from the most limiting accident is less than 2.48 times the maximum operational primary to secondary leakage rate, the report should describe how it was determined; and
  - i. The results of monitoring for tube axial displacement (slippage). If slippage is discovered, the implications of the discovery and corrective action shall be provided.
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