



10 CFR 50.90

LR-N20-0027
LAR S19-03

May 11, 2020

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

Salem Generating Station
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Subject: **Supplement to License Amendment Request: Revise Minimum Required Channels, Mode Applicability and Actions for the Source Range and Intermediate Range Neutron Flux Reactor Trip System Instrumentation Technical Specifications**

References: 1. PSEG letter to NRC, "License Amendment Request: Revise Minimum Required Channels, Mode Applicability and Actions for the Source Range and Intermediate Range Neutron Flux Reactor Trip System Instrumentation Technical Specifications" dated October 23, 2019 (ADAMS Accession No. ML19296B108)

In the Reference 1 letter, PSEG Nuclear LLC (PSEG) submitted a license amendment request (LAR) to Renewed Facility Operating License Nos. DPR-70 and DPR-75 for Salem Generating Station Units 1 and 2 respectively. The proposed amendment would revise Technical Specification (TS) 3/4.3.1, "Reactor Trip System Instrumentation"; specifically the Limiting Condition for Operation (LCO) and Actions for TS 3.3.1.1, Table 3.3-1 associated with the Intermediate Range (IR) and Source Range (SR) neutron flux channels, Table 3.3-1 Functional Units 5 and 6 respectively.

The subject LAR proposed to revise the modes of applicability for the SR and IR instrumentation to address conditions of SR and IR inoperability that currently require entry into TS 3.0.3. The proposed changes also better align the TS with NUREG-1431 (Westinghouse Standard Improved Technical Specifications) as well as reflect the overall design basis of the SR and IR instrument systems.

The proposed changes to the modes of applicability in TS Table 3.3-1 require similar changes to TS Table 4.3-1, "Reactor Trip System Instrumentation Surveillance Requirements."

The following additional changes to the TS are proposed to align the surveillance requirements for the SR and IR instruments with the proposed modes of applicability:

TS Table 4.3-1: Reactor Trip System Instrumentation Surveillance Requirements

Functional Unit-5 – Intermediate Range, Neutron Flux

- In the MODES IN WHICH SURVEILLANCE REQUIRED column, add note (a) to limit applicability in Mode 1 to below the P-10 (Power Range Neutron Flux) interlocks and add note (b) in Mode 2 to limit applicability to above the P-6 (Intermediate Neutron Flux) interlocks. As described in the referenced submittal, the IR trip function is only applicable for core protection in this range of power.
- Add descriptions for the new mode applicability notes to the bottom of the affected page of TS Table 4.3-1.
- Remove the asterisk applicability for conditions when the reactor trip system breakers are closed and the control rod drive system is capable of rod withdrawal. As discussed in the referenced submittal, this condition of Applicability is unnecessary, based on the proposed changes to the Applicability for the SR and IR neutron flux channels.

Functional Unit-6 – Source Range, Neutron Flux

- Revise Functional Unit 6 to expand it to the following three separate SR functions that reflect the design basis of the SR instruments and correspond with the changes to the SR Functional Units proposed in Table 3.3-1 of the referenced LAR submittal:
 - Functional Unit 6A for SR instruments in Startup Mode. The 'MODE IN WHICH SURVEILLANCE IS REQUIRED' column of TS Table 4.3-1 adds note (7) to Mode 2 that limits the surveillance applicability to below the P-6 (Block of Source Range Reactor Trip) setpoint to align with the range of applicability as described in the LAR. This addition of note (7) to Mode 2 makes the note (7) in the 'CHANNEL CHECK' column of TS Table 4.3-1 unnecessary; therefore the note is removed.
 - Functional Unit 6B for SR instruments in Shutdown Modes 3, 4 and 5 with reactor trip breakers open and the control rod drive system incapable of rod withdrawal. The CHANNEL CHECK and CHANNEL CALIBRATION are required to be performed at the frequencies specified in the Surveillance Frequency Control Program. When in this condition, the SR instruments perform a monitoring function only, as discussed in the referenced submittal. Therefore the CHANNEL FUNCTIONAL TEST is not applicable and is marked 'N.A.'. In addition, there are no instrument channel setpoints associated with Operability for Functional Unit 6B. Therefore, the TS Table 4.3-1 # and ## notes for as-found channel setpoints are not applied to the CHANNEL CALIBRATION.
 - Functional Unit 6C for SR instruments in Shutdown Modes 3, 4 and 5 with reactor trip breakers closed and the control rod drive system capable of rod withdrawal. The CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST are required to be performed at the frequencies specified in the Surveillance Frequency Control Program. Note (16), "At the frequency

specified in the Surveillance Frequency Control Program” is not required for the CHANNEL FUNCTIONAL TEST since Functional Unit 6C only has a single periodic frequency that is already addressed by Note (15), “Frequencies are specified in the Surveillance Frequency Control Program unless otherwise noted in the Table.”

Salem has implemented TSTF-425, Rev. 3, “Relocate Surveillance Frequencies to Licensee Control” as approved by the NRC through TS Amendments 299 (Unit 1) and 282 (Unit 2) (ADAMS Accession No. ML110410691). The periodic surveillance frequencies for the SR and IR functions will continue to be contained in Salem’s Surveillance Frequency Control Program

Attachment 1 to this letter provides the proposed supplemental TS mark-up pages and Attachment 2 provides the revised camera-ready TS pages. The TS markups provided in the Reference 1 LAR submittal remain unaffected by this supplement.

PSEG has determined that the information provided does not alter the conclusions reached in the 10 CFR 50.92 no significant hazards determination previously submitted. In addition, the information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please contact Mr. Michael Wiwel at 856-339-7907.

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

Executed on 5/11/2020
(Date)

Respectfully,



Charles V. McFeaters
Site Vice President
Salem Generating Station

Attachment 1: Mark-up of Proposed Technical Specification Pages
Attachment 2: Revised Camera-ready Technical Specification Pages

cc: Administrator, Region I, NRC
Mr. J. Kim, Project Manager, NRC
NRC Senior Resident Inspector, Salem
Mr. P. Mulligan, Chief, NJBNE
PSEG Corporate Commitment Tracking Coordinator
Salem Commitment Tracking Coordinator

Attachment 1**Mark-up of Proposed Technical Specification Pages**

The following Technical Specification page for Renewed Facility Operating License DPR-70 is affected by this change request:

Technical Specification**Page**

Table 4.3-1

3/4 3-11

The following Technical Specification page for Renewed Facility Operating License DPR-75 is affected by this change request:

Technical Specification**Page**

Table 4.3-1

3/4 3-11

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK⁽¹⁵⁾</u>	<u>CHANNEL CALIBRATION⁽¹⁵⁾</u>	<u>CHANNEL FUNCTIONAL TEST⁽¹⁵⁾</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. Manual Reactor Trip Switch	N.A.	N.A.	(9)	1, 2, and *
2. Power Range, Neutron Flux		(2), (3) (6) (17)	(18)	1, 2, and 3*
3. Power Range, Neutron Flux, High Positive Rate	N.A.	(6)	(18)	1, 2
4. Deleted				
5. Intermediate Range, Neutron Flux		(6) #, ##	S/U ⁽¹⁾ #, ##	<div style="display: inline-block; vertical-align: middle; text-align: center;"> <div style="border: 1px solid black; padding: 2px;">(a)</div> ↓ </div> <div style="display: inline-block; vertical-align: middle; text-align: center;"> <div style="border: 1px solid black; padding: 2px;">(b)</div> ↓ </div> <div style="display: inline-block; vertical-align: middle;">1, 2 and *</div>
6. Source Range, Neutron Flux	(7) <div style="border: 1px solid black; padding: 2px; display: inline-block;">Replace with Insert</div>	(6) #, ##	(16) and S/U ⁽¹⁾ #, ##	2, 3, 4, 5 and *
7. Overtemperature ΔT				1, 2
8. Overpower ΔT				1, 2
9. Pressurizer Pressure--Low				1, 2
10. Pressurizer Pressure--High				1, 2
11. Pressurizer Water Level-- High				1, 2
12. Loss of Flow - Single Loop				1

If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the nominal Trip Setpoint at the completion of the surveillance; otherwise the channel shall be declared inoperable. Setpoints more conservative than the nominal Trip Setpoint are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and as-left tolerances are specified in the Technical Specification Bases.

(a) Below the P-10 (Power Range Neutron Flux) interlocks
 (b) Above the P-6 (Intermediate Range Neutron Flux) interlocks

TABLE 4.3-1 (Continued)

NO CHANGE
PAGE INCLUDED FOR
INFORMATION ONLY

NOTATION

- * With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- (1) - If not performed in previous 31 days.
 - (2) - Heat balance only, above 15% of RATED THERMAL POWER.
 - (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference \geq 3 percent.
 - (4) - Manual SSPS functional input check in accordance with the Surveillance Frequency Control Program.
 - (5) - Each train or logic channel shall be tested in accordance with the Surveillance Frequency Control Program.
 - (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
 - (7) - Below P-6 (Block of Source Range Reactor Trip) setpoint.
 - (8) - Deleted
 - (9) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the Undervoltage and Shunt Trip mechanism for the Manual Reactor Trip Function.

The Test shall also verify OPERABILITY of the Bypass Breaker Trip circuits.
 - (10) - DELETED
 - (11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the Reactor Trip Breaker Undervoltage and Shunt Trip mechanisms.
 - (12) - DELETED
 - (13) - Verify operation of Bypass Breakers Shunt Trip function from local pushbutton while breaker is in the test position prior to placing breaker in service.
 - (14) - Perform a functional test of the Bypass Breakers U.V. Attachment via the SSPS.
 - (15) - Frequencies are specified in the Surveillance Frequency Control Program unless otherwise noted in the table.
 - (16) - At the frequency specified in the Surveillance Frequency Control Program.
 - (17) - In MODES 1, and 2, the SSPS input relays are excluded from this Surveillance when the installed bypass test capability is used to perform this Surveillance.
 - (18) - The SSPS input relays are excluded from this Surveillance when the installed bypass test capability is used to perform this Surveillance.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK⁽¹⁵⁾</u>	<u>CHANNEL CALIBRATION⁽¹⁵⁾</u>	<u>CHANNEL FUNCTIONAL TEST⁽¹⁵⁾</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. Manual Reactor Trip Switch	N.A.	N.A.	(9)	1, 2, and *
2. Power Range, Neutron Flux		(2), (3) (6) (17)	(18)	1, 2, and 3*
3. Power Range, Neutron Flux, High Positive Rate	N.A.	(6)	(18)	1, 2
4. Deleted				(a) (b) ↓ ↙
5. Intermediate Range, Neutron Flux		(6) #, ##	S/U ⁽¹⁾ #, ##	1, 2 and *
6. Source Range, Neutron Flux Replace with Insert	(7)	(6) #, ##	(16) and S/U ⁽¹⁾ #, ##	2, 3, 4, 5 and *
7. Overtemperature ΔT				1, 2
8. Overpower ΔT				1, 2
9. Pressurizer Pressure--Low				1, 2
10. Pressurizer Pressure--High				1, 2
11. Pressurizer Water Level-- High				1, 2
12. Loss of Flow - Single Loop				1

If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the nominal Trip Setpoint at the completion of the surveillance; otherwise the channel shall be declared inoperable. Setpoints more conservative than the nominal Trip Setpoint are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and as-left tolerances are specified in the Technical Specification Bases.

(a) Below the P-10 (Power Range Neutron Flux) interlocks
(b) Above the P-6 (Intermediate Range Neutron Flux) interlocks

TABLE 4.3-1 (Continued)

NO CHANGE
PAGE INCLUDED FOR
INFORMATION ONLY

NOTATION

- * With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
- (1) - If not performed in previous 31 days.
- (2) - Heat balance only, above 15% of RATED THERMAL POWER.
- (3) - Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference ≥ 3 percent.
- (4) - Manual SSPS functional input check in accordance with the Surveillance Frequency Control Program.
- (5) - Each train or logic channel shall be tested in accordance with the Surveillance Frequency Control Program.
- (6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (7) - Below P-6 (Block of Source Range Reactor Trip) setpoint.
- (8) - Deleted
- (9) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the Undervoltage and Shunt Trip mechanism for the Manual Reactor Trip Function.

The Test shall also verify OPERABILITY of the Bypass Breaker Trip circuits.
- (10) - DELETED
- (11) - The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the Reactor Trip Breaker Undervoltage and Shunt Trip mechanisms.
- (12) - DELETED
- (13) - Verify operation of Bypass Breakers Shunt Trip function from local pushbutton while breaker is in the test position prior to placing breaker in service.
- (14) - Perform a functional test of the Bypass Breakers U.V. Attachment via the SSPS.
- (15) - Frequencies are specified in the Surveillance Frequency Control Program unless otherwise noted in the table.
- (16) - At the frequency specified in the Surveillance Frequency Control Program.
- (17) - In MODES 1 and 2, the SSPS input relays are excluded from this Surveillance when the installed bypass test capability is used to perform this Surveillance.
- (18) - The SSPS input relays are excluded from this Surveillance when the installed bypass test capability is used to perform this Surveillance.

INSERT

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK⁽¹⁵⁾</u>	<u>CHANNEL CALIBRATION⁽¹⁵⁾</u>	<u>CHANNEL FUNCTIONAL TEST⁽¹⁵⁾</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
6. Source Range, Neutron Flux				
A. Startup		(6), #, ##	(16), and S/U ⁽¹⁾ , #, ##	2 ⁽⁷⁾
B. Shutdown		(6)	N.A.	3, 4, 5
C. Shutdown		(6), #, ##	#, ##	3 [*] , 4 [*] , 5 [*]

Attachment 2

Revised Camera-ready Technical Specification Page

The following Technical Specification page for Renewed Facility Operating License DPR-70 is affected by this change request:

<u>Technical Specification</u>	<u>Page</u>
Table 4.3-1	3/4 3-11

The following Technical Specification page for Renewed Facility Operating License DPR-75 is affected by this change request:

<u>Technical Specification</u>	<u>Page</u>
Table 4.3-1	3/4 3-11

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK⁽¹⁵⁾</u>	<u>CHANNEL CALIBRATION⁽¹⁵⁾</u>	<u>CHANNEL FUNCTIONAL TEST⁽¹⁵⁾</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. Manual Reactor Trip Switch	N.A.	N.A.	(9)	1, 2, and *
2. Power Range, Neutron Flux		(2), (3) (6) (17)	(18)	1, 2, and 3*
3. Power Range, Neutron Flux, High Positive Rate	N.A.	(6)	(18)	1, 2
4. <u>Deleted</u>				
5. Intermediate Range, Neutron Flux		(6) #, ##	S/U ⁽¹⁾ #, ##	1 ^(a) , 2 ^(b)
6. Source Range, Neutron Flux				
A. Startup		(6) #, ##	(16) and S/U ⁽¹⁾ #, ##	2 ⁽⁷⁾
B. Shutdown		(6)	N.A.	3, 4, 5
C. Shutdown		(6) #, ##	#, ##	3*, 4*, 5*
7. Overtemperature ΔT				1, 2
8. Overpower ΔT				1, 2
9. Pressurizer Pressure--Low				1, 2
10. Pressurizer Pressure--High				1, 2
11. Pressurizer Water Level--High				1, 2
12. Loss of Flow - Single Loop				1

If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the nominal Trip Setpoint at the completion of the surveillance; otherwise the channel shall be declared inoperable. Setpoints more conservative than the nominal Trip Setpoint are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and as-left tolerances are specified in the Technical Specification Bases.

(a) Below the P-10 (Power Range Neutron Flux) interlocks

(b) Above the P-6 (Intermediate Range Neutron Flux) interlocks

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK⁽¹⁵⁾</u>	<u>CHANNEL CALIBRATION⁽¹⁵⁾</u>	<u>CHANNEL FUNCTIONAL TEST⁽¹⁵⁾</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. Manual Reactor Trip Switch	N.A.	N.A.	(9)	1, 2, and *
2. Power Range, Neutron Flux		(2), (3) (6) (17)	(18)	1, 2, and 3*
3. Power Range, Neutron Flux, High Positive Rate	N.A.	(6)	(18)	1, 2
4. Deleted				
5. Intermediate Range, Neutron Flux		(6) #, ##	S/U ⁽¹⁾ #, ##	1 ^(a) , 2 ^(b)
6. Source Range, Neutron Flux				
A. Startup		(6) #, ##	(16) and S/U ⁽¹⁾ #, ##	2 ⁽⁷⁾
B. Shutdown		(6)	N.A.	3, 4, 5
C. Shutdown		(6) #, ##	#, ##	3*, 4*, 5*
7. Overtemperature ΔT				1, 2
8. Overpower ΔT				1, 2
9. Pressurizer Pressure--Low				1, 2
10. Pressurizer Pressure--High				1, 2
11. Pressurizer Water Level--High				1, 2
12. Loss of Flow - Single Loop				1

If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the nominal Trip Setpoint at the completion of the surveillance; otherwise the channel shall be declared inoperable. Setpoints more conservative than the nominal Trip Setpoint are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and as-left tolerances are specified in the Technical Specification Bases.

(a) Below the P-10 (Power Range Neutron Flux) interlocks

(b) Above the P-6 (Intermediate Range Neutron Flux) interlocks