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Nuclear Business Unit

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LRN-00-0196

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

**SUPPLEMENT TO LCR S00-07
POSITION INDICATION REQUIREMENTS
SALEM GENERATING STATION
FACILITY OPERATING LICENSE DPR-70
DOCKET NO. 50-272**

The purpose of this letter is to provide supplemental information and revised Technical Specification (TS) pages associated with LCR S00-07. The supplemental information was requested by the NRC during telephone conversations. The requested information is provided below and the revised TS pages are included in the attachment to this letter.

The NRC requested assurance that PSE&G will repair the indication system for Control Rod 1SB2 in a timely manner. PSE&G commits that if Salem Unit 1 enters Mode 5 and the outage is of sufficient duration, the indication system for Control Rod 1SB2 will be repaired during that outage.

The NRC also requested supplemental information regarding the use of the stationary gripper coil traces to verify the fully withdrawn rod position. Salem currently has a procedure that utilizes coil traces as an alternate indication of rod position. The purpose of the procedure is to use the control rod drive mechanism coil currents for verifying the accuracy of the rod position indication relative to the group step demand counters during reactor startup when neutron flux levels are not adequate for flux mapping. The stationary gripper's distinctive current trace changes its signature in a predictable and repeatable manner once the control rod drive shaft reaches the top of its travel. Use of stationary gripper coil traces to verify that individual rods are fully withdrawn is a known industry use. As part of the implementation of this amendment, the applicable procedures will be reviewed and modified as necessary to ensure their adequacy for verifying the fully withdrawn position for rod 1SB2.

The NRC requested that the phrase "or other equivalent means" be eliminated from the proposed TS pages. Revised pages without the phrase are included in the attachment to this letter.

COMMITMENTS

If Salem Unit 1 enters Mode 5 and the outage is of sufficient duration, the indication system for Control Rod 1SB2 will be repaired during that outage.

Should you have any questions regarding this request, please contact Mr. C. E. Manges, Jr. at 856-339-3234.

Sincerely,



M. J. Trum

Vice President - Maintenance

Affidavit

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**SALEM GENERATING STATION
FACILITY OPERATING LICENSE DPR-70
DOCKET NO. 50-272
REVISIONS TO THE TECHNICAL SPECIFICATIONS (TS)**

TECHNICAL SPECIFICATIONS PAGES WITH PROPOSED CHANGES

The following Technical Specifications pages are affected by this change request:

<u>TS SECTION</u>	<u>PAGE</u>
Surveillance Requirement 4.1.3.1.1	3/4 1-18a
3.1.3.2.1 Action a	3/4 1-19
Surveillance Requirement 4.1.3.4	3/4 1-22

REACTIVITY CONTROL SYSTEMS

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

3.1.3.1 All full length (shutdown and control) rods, shall be OPERABLE and positioned within ± 18 steps (indicated position) when reactor power is $\leq 85\%$, RATED THERMAL POWER, or ± 12 steps (indicated position) when reactor power is $> 85\%$ RATED THERMAL POWER, of their group step counter demand position within one hour after rod motion.

APPLICABILITY: MODES 1* and 2*

ACTION:

- a. With one or more full length rods inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in HOT STANDBY within 6 hours.
- b. With more than one full length rod inoperable or mis-aligned from the group step counter demand position by more than ± 18 steps (indicated position) at $\leq 85\%$ RATED THERMAL POWER or ± 12 steps (indicated position) at $> 85\%$ RATED THERMAL POWER, be in HOT STANDBY within 6 hours.
- c. With one full length rod inoperable due to causes other than addressed by ACTION a, above, or mis-aligned from its group step counter demand position by more than ± 18 steps (indicated position) at $\leq 85\%$ RATED THERMAL POWER or ± 12 steps (indicated position) at $> 85\%$ RATED THERMAL POWER, POWER OPERATION may continue provided that within one hour either:
 1. The rod is restored to OPERABLE status within the above alignment requirements, or
 2. The remainder of the rods in the bank with the inoperable rod are aligned to within ± 18 steps (indicated position) at $\leq 85\%$ RATED THERMAL POWER or ± 12 steps (indicated position) at $> 85\%$ RATED THERMAL POWER of the inoperable rod while maintaining the rod sequence and insertion limits in the COLR per specification 3.1.3.5. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.5 during subsequent operation, or
 3. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:

* See Special Test Exceptions 3.10.2 and 3.10.3.

- a) A reevaluation of each accident analysis of table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions.
- b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours.
- c) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ F_{DH}^N are verified to be within their limits within 72 hours.
- d) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within one hour and within the next 4 hours the high neutron flux trip setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER. THERMAL POWER shall be maintained less than or equal to 75% of RATED THERMAL POWER until compliance with ACTIONS 3.1.3.1.c.3.a and 3.1.3.1.c.3.c above are demonstrated.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full length rod shall be determined to be within the limits established in the limiting condition for operation at least once per 12 hours (allowing for one hour thermal soak after rod motion) except during time intervals when the Rod Position Deviation Monitor is inoperable, then verify the group positions at least once per 4 hours.*

4.1.3.1.2 Each full length rod not fully inserted in the core shall be determined to be OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days.

* During Cycle 14, the position of Rod 1SB2 will be determined indirectly by the movable incore detectors within 8 hours following its movement until the repair of the indication system for this rod. During reactor startup, the fully withdrawn position of Rod 1SB2 will be determined by current traces and subsequently verified by the movable incore detectors prior to entry into Mode 1.

REACTIVITY CONTROL SYSTEMS

POSITION INDICATION SYSTEMS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.3.2.1 The shutdown and control rod position indication systems shall be OPERABLE and capable of determining the actual and demanded rod positions as follows:

- a. Analog rod position indicators, within one hour after rod motion (allowance for thermal soak);

All Shutdown Banks: ± 18 steps at $\leq 85\%$ reactor power or if reactor power is $> 85\%$ RATED THERMAL POWER ± 12 steps of the group demand counters for withdrawal ranges of 0-30 steps and 200-228 steps.

Control Rank A: ± 18 steps at $\leq 85\%$ reactor power or if reactor power is $> 85\%$ RATED THERMAL POWER ± 12 steps of the group demand counters for withdrawal ranges of 0-30 steps and 200-228 steps.

Control Bank B: ± 18 steps at $\leq 85\%$ reactor power or if reactor power is $> 85\%$ RATED THERMAL POWER ± 12 steps of the group demand counters for withdrawal ranges of 0-30 steps and 160-228 steps.

Control Bank C and D: ± 18 steps at $\leq 85\%$ reactor power or if reactor power is $> 85\%$ RATED THERMAL POWER ± 12 steps of the group demand counters for withdrawal ranges of 0-228 steps.

- b. Group demand counters; ± 2 steps of the pulsed output of the Slave Cyclor Circuit over the withdrawal range of 0-228 steps.

APPLICABILITY: MODES 1 and 2.

ACTION:

- a. With a maximum of one analog rod position indicator per bank inoperable either:
1. Determine the position of the non-indicating rod(s) indirectly by the movable incore detectors at least once per 8 hours* and within one hour after any motion of the non-indicating rod which exceeds 24 steps in one direction since the last determination of the rod's position, or
 2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 8 hours.

* During Cycle 14, the position of Rod 1SB2 will be determined indirectly by the movable incore detectors within 8 hours following its movement until the repair of the indication system for this rod. During reactor startup, the fully withdrawn position will be determined by current traces and subsequently verified by the movable incore detectors prior to entry into Mode 1.

- b. With two or more analog rod position indicators per bank inoperable, within one hour restore the inoperable rod position indicator(s) to OPERABLE status or be in HOT STANDBY within the next 6 hours. A maximum of one rod position indicator per bank may remain inoperable following the hour, with Action (a) above being applicable from the original entry time into the LCO.

UNIT 1

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C. With a maximum of one group demand position indicator per bank inoperable either:

1. Verify that all analog rod position indicators for the affected bank are OPERABLE and that the most withdrawn rod and the least withdrawn rod of the bank are within a maximum of 18 steps when reactor power is \leq 85% RATED THERMAL POWER or if reactor power is $>$ 85% RATED THERMAL POWER, 12 steps of each other at least once per 8 hours, or

2. Reduce THERMAL POWER to less than 50% of RATED POWER within 8 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.2.1.1 Each analog rod position indicator shall be determined to be OPERABLE by verifying that the demand position indication system and the rod position indication system agree within 18 steps when reactor power is \leq 85% RATED THERMAL POWER or if reactor power is $>$ 85% RATED THERMAL POWER, 12 steps (allowing for one hour thermal soak after rod motion) at least once per 12 hours except during time intervals when the Rod Position Deviation Monitor is inoperable, then compare the demand position indication system and the rod position indication system at least once per 4 hours.

4.1.3.2.1.2 Each of the above required rod position indicator(s) shall be determined to be OPERABLE by performance of a CHANNEL calibration at least once per 18 months.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN ROD INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

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3.1.3.4 All shutdown rods shall be FULLY WITHDRAWN.

APPLICABILITY: MODES 1*, and 2*#@

ACTION:

With a maximum of one shutdown rod not FULLY WITHDRAWN, except for surveillance testing pursuant to Specification 4.1.3.1.2, within one hour either:

- a. FULLY WITHDRAW the rod, or,
- b. Declare the rod to be inoperable and apply Specification 3.1.3.1.

SURVEILLANCE REQUIREMENTS

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4.1.3.4 Each shutdown rod shall be determined to be FULLY WITHDRAWN by use of the group demand counters, and verified by the analog rod position indicators**,***:

- a. Within 15 minutes prior to withdrawal of any rods in control banks A, B, C, or D during an approach to reactor criticality, and
- b. At least once per 12 hours thereafter.

* See Special Test Exceptions 3.10.2 and 3.10.3

**For power levels below 50% one hour thermal "soak time" is permitted.

During this soak time, the absolute value of rod motion is limited to six steps.

*** During Cycle 14, the position of Rod 1SB2 will be determined indirectly by the movable incore detectors within 8 hours following its movement until the repair of the indication system for this rod. During reactor startup, the fully withdrawn position of Rod 1SB2 will be determined by current traces and subsequently verified by the movable incore detectors prior to entry into Mode 1.

With Keff greater than or equal to 1.0

@ Surveillance 4.1.3.4.a is applicable prior to withdrawing control banks in preparation for startup (Mode 2).