



Calvert Cliffs

Loss of Load Technical Specification Function License Amendment Request

NRC Pre-application meeting

December 5, 2025

Agenda

- Introductions
- Meeting Objectives
- Purpose / Background Information
- Proposed Changes
- Timeline

Introductions

- Constellation - Corporate Licensing
- Constellation - Corporate Nuclear Fuels
- Constellation - Calvert Cliffs Regulatory Assurance
- Constellation - Calvert Cliffs Engineering
- Constellation - Calvert Cliffs Operations

Meeting Objectives

- Present information to NRC to enable a clear understanding of the overall project and proposed unit- and cycle-specific License Amendment Request (LAR) submittal
 - Calvert Cliffs movement of Reactor Protective System (RPS) Loss of Load (LL) trip from Technical Specifications (TS) to licensee control.
- Obtain feedback from the NRC on the proposed LAR to ensure high quality submittal and minimize the need for Requests for Additional Information (RAIs)
- Mutual understanding of the proposed schedule and corresponding need date in order to ensure adequate NRC resource availability

Purpose / Background Information

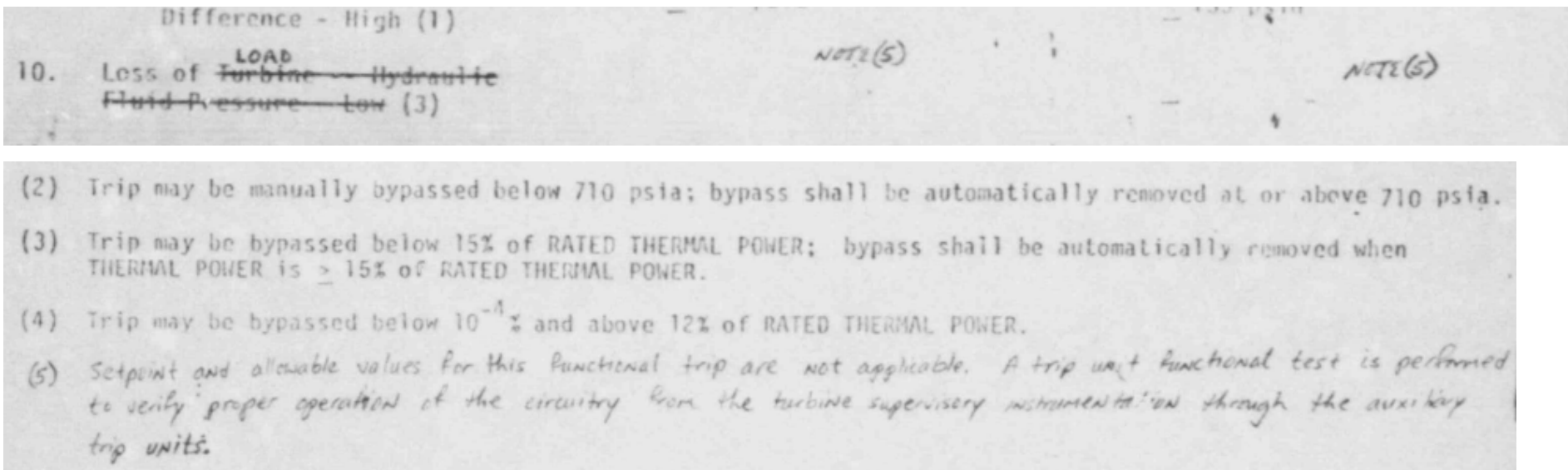
- Calvert Cliffs Nuclear Power Plant (CCNPP) RPS TS 3.3.1 includes a loss of load function that will trip the reactor following a turbine trip when power is $\geq 15\%$ rated thermal power (RTP)
 - Trip is bypassed when power is $< 15\%$ RTP as measured by nuclear instrument power
 - Trip is not credited in any Updated Final Safety Analysis Report (UFSAR) safety analysis
 - Trip is purely equipment protective and is not required for reactor protection
 - Trip provides turbine protection, reduces the severity of the ensuing transient, and helps avoid the lifting of the main steam safety valves during the ensuing transient, thus extending the service life of these valves
 - Trip's functional capability is required to enhance overall plant equipment service life and reliability
 - Small margin (approximately 2% RTP) exists between the reactor power CCNPP achieves and the RPS LL bypass setpoint at time of turbine-generator synchronization

Purpose / Background Information (cont.)

- In 1983, CCNPP requested (letter - [ML20072T820](#), TS markup - [ML20072T828](#)) a change to TS and TSB to delete the setpoint and allowable values for the RPS LL trip (previously called “loss of turbine”)

CHANGE NO. 2 (BG&E FCR 83-02)

- A. Delete setpoint and allowable values from the loss of turbine portion of the Reactor Protective System (RPS) Table 2.2-1 of the Technical Specifications; replace old Table 2.2-1 with new Table 2.2-1 as shown on attached marked-up copies. (Attachments 1a and 1b).
- B. Change the designation of loss of turbine trip to "loss of load" on RPS Table 2.2-1, 3.3-1, 3.3-2, 4.3-1 and page B2-7 of the Technical Specification Bases; replace old tables and page B2-7 with new tables and pages as shown on attached marked-up copies (Attachments 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b, 5a, 5b, 6a, 6b).
- C. Modify last sentence of "loss of turbine" paragraph, page B2-7 of the Technical Specification Bases to more accurately reflect the actual purpose and requirement for functional capability of the trip. Replace old page B2-7 with new page B2-7 as shown on attached marked-up copies (Attachment 5a, 5b).



Purpose / Background Information (cont.)

- The NRC approval ([ML010430247](#)) concluded that:
 - Unlike other RPS trip functions, the LL trip is generated in a non-safety grade system
 - The RPS LL trip is not credited in accident analyses
 - Deletion of the RPS LL limiting system safety setting (LSSS) is acceptable since it will not affect the consequence of any accident considered in the safety analyses

The March 22, 1983 amendment to the February 24, 1983 application also requested that the LSSS for the Loss of Load RPS trip be deleted from TS Table 2.2-1, "Reactor Protective Instrumentation Trip Setpoint Limits". Title 10, CFR Part 50, Section 50.36(c)(1)(i)(A) provides the following definition for LSSS:

"Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions."

The Bases for the LSSS states that, "No credit was taken in the accident analyses for operation of the Loss of Load trip." Moreover, unlike other RPS trip functions, the Loss of Load trip is generated in a non-safety grade system; in this case, the turbine control system. Although the setpoints* for the Loss of Load trip function should be deleted from TS Table 2.2-1, both limiting Conditions for Operation and Surveillance Requirements in the TS will continue to assure that the Loss of Load RPS function will continue to operate in a reliable manner. Accordingly, since the Loss of Load RPS function was not credited in the accident analyses, deletion of the Loss of Load LSSS from Table 2.2-1 will not affect the consequence of any accident considered in the Safety Analyses; therefore, deletion of this TS is acceptable.

*The Unit 1 Loss of Load trip function actually lacks a true "setpoint" in that the trip is generated by the "master trip solenoid" and does not involve comparison of a measured process variable against a preset value.

Purpose / Background Information (cont.)

- In 1996, CCNPP submitted a request ([ML20149M090](#)) to transition to improved standard TS (ISTS)
 - RPS section maintained in TS since most RPS functions were credited in accident analyses.
 - The four criteria under 10 CFR 50.36(c)(2)(ii) were used, in part, to evaluate changes and potential removal from TS
 - RPS (as a whole) was identified as meeting 10 CFR 50.36(c)(2)(ii) Criterion 3

| Calvert Cliffs Nuclear Power Plant Selection Criteria Report | | | | Meets 10 CFR 50.36(c)(2)(ii) Criteria: | | | |
|---|------------------------------------|----------------------------------|--|--|-----|-----|----|
| Current Technical Specification | | Improved Technical Specification | | 1? | 2? | 3? | 4? |
| 3.2.5 | DNB Parameters | 3.2.5 | Axial Shape Index (ASI) | No | Yes | No | No |
| <u>JUSTIFICATION OF CRITERIA APPLICATION:</u> The LCOs governing LHR, ASI, and the Reactor Coolant System ensure that these criteria are met as long as the core is operated within ASI, FxyT, FrT, and Tq limits. | | | | | | | |
| 3.3.1.1 | Reactor Protective Instrumentation | 3.3.1 | Reactor Protective System (RPS) Instrumentation-Operating | No | No | Yes | No |
| <u>JUSTIFICATION OF CRITERIA APPLICATION:</u> Most of the analyzed accidents and transients can be detected by one or more RPS Functions. The accident analysis takes credit for most RPS trip Functions. | | | | | | | |

Purpose / Background Information (cont.)

- In 1998, the NRC approved ([ML20217Q797](#)) the ISTS transition

| DISCUSSION OF CHANGE | SUMMARY OF CHANGE | ITS SECTION | CTS SECTION |
|----------------------|---|--|--|
| 3.3.1 A16 | CTS Table 2.2-1 Footnote (3) and Table 3.3-1 Footnote (c) indicate that the APD High trip may be bypassed when RTP is $< 15\%$ and must be automatically reinstated $\geq 15\%$ RTP. CTS Table 3.3-1 Footnote (c) also applies to the loss of load trip function. This note is retained in ITS Table 3.3.1-1 as footnote (d) for the axial power distribution high and loss of load trip functions. | 3.3.1 Table 3.3.1-1 Footnote (d) | 2.2.1 Table 2.2-1 Footnote 3 3.3.1.1 Table 3.3-1 Footnote (c) |

Purpose / Background Information (cont.)

- Precedent
 - Removal of RPS/RTS functions
 - Sequoyah removal of “Power Range Neutron Flux Rate - High Negative Rate” RTS function (Request - [ML21302A238](#), Approval - [ML22165A105](#))
 - Change of RPS/RTS loss of load/turbine trip bypass setpoint
 - Robinson change from P-7 to P-8 (Request - [ML091770309](#), Approval - [ML100120068](#))

Proposed changes

- Remove RPS LL trip function from TS
- Retain RPS LL trip function and bypass setpoint as important equipment protective function
- Test and control RPS LL trip function and bypass setpoint via CEG processes
- Engineering analyses in-progress to determine new (higher) RPS LL bypass setpoint
 - Preliminary results indicate approximately 25% RTP may be acceptable
 - Reduces likelihood of an unplanned reactor trip at low powers due to a turbine trip following turbine-generator synchronization during startups
 - Increases power level needed for downpowers that require removal of turbine-generator from service

Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

| FUNCTION | MODES | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|--|----------------------------|--|-----------------|
| 9b. Asymmetric Steam Generator Transient (ASGT) ^(b) | 1, 2 | SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.9 | ≤ 135 psid |
| 10. Loss of Load^(d) | 1^(e) | SR 3.3.1.6 SR 3.3.1.7 | NA |

Timeline

- Constellation submittal of LAR – 12/22/2025
- Requested NRC LAR approval – 03/08/2026
- LAR implementation – 03/15/2026
 - Requested timing will allow power to be raised to higher value during startup following the Unit 1 refueling outage in Spring 2026