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SUBJECT: Provides requested clarification to no significant hazards consideration determination for rev of proposed amend 207 to license NPF-14 & 165 to license NPF-22 re changes to rod block monitor setpoints & channel calibr frequency.

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SUSQUEHANNA STEAM ELECTRIC STATION
REVISION TO PROPOSED AMENDMENT NO. 207 TO LICENSE NPF-14 AND NO. 165 TO LICENSE NPF-22:
CHANGES TO ROD BLOCK MONITOR (RBM) SETPOINTS AND CHANNEL CALIBRATION FREQUENCY

PLA-4561 **FILES R41-2/A17-2**

Docket Nos. 50-387 and 50-388

Reference: PLA-4528, R. G. Byram to U.S. NRC, "Proposed Amendment No. 207 to License NPF-14 and No. 165 to License NPF-22: Changes to Rod Block Monitor (RBM) Setpoints and Channel Calibration Frequency," dated 11/27/96.

The purpose of this letter is to provide a requested clarification to the No Significant Hazards Considerations determination for the above referenced amendment request. The request proposed to increase the High (Upscale) Rod Block setpoints associated with the Rod Block Monitor (RBM) system for both two loop and single loop operation. In addition, the channel calibration frequency requirements and the Allowed Out-of-Service Times (AOT) for the RBM were also proposed to be changed. The attached No Significant Hazards Considerations determination supersedes the one previously provided in its entirety.

Any questions regarding this proposed amendment should be directed to Mr. A. K. Maron at (610) 774-7727.

Very truly yours,

180126

R. G. Byram

Attachment

A001

copy: NRC Region I
Mr. C. Poslusny, Jr., NRC Sr. Project Manager - OWFN
Mr. K. M. Jenison, NRC Sr. Resident Inspector - SSES
Mr. W.P. Dornsife, Pa. DEP

NO SIGNIFICANT HAZARDS CONSIDERATIONS

Pennsylvania Power & Light Company has evaluated the proposed Technical Specification change in accordance with the criteria specified by 10 CFR 50.92 and has determined that the proposed change does not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

1. **The proposed change does not involve a significant increase in the probability or consequences of an accident as previously evaluated.**

   The RBM was originally designed to prevent fuel damage during a Rod Withdrawal Error (RWE) event while operating in the power range in a normal mode of operation. FSAR section 15.4.2 (Rod Withdrawal Error - At Power) originally took credit for the RBM automatically actuating to stop control rod motion and preventing fuel damage during an RWE event at power. However, current reload analyses do not take credit for the RBM system.

   Standard Review Plan (NUREG-0800) section 15.4.2 (Uncontrolled Control Rod Assembly Withdrawal at Power) states that General Design Criteria (GDC) 10, 20, and 25 apply to an RWE event. The Susquehanna SES Safety Evaluation Report (NUREG-0776) section 15.4.2 (Rod Withdrawal Error at Power) states that "the staff concludes that the requirements of General Design Criteria 10, 20, and 25 have been met". These two documents indicate that the acceptance criteria for the RWE analyses is compliance with the GDCs.

   A review of the GDCs and the reload analyses results was performed, and concluded that continued compliance to GDCs 10, 20, and 25 is maintained for the increase in RBM setpoints. The proposed change also provides several operational benefits by increasing the available core "flow window". The increased flow window compensates for reactivity changes, leading to fewer control rod pattern adjustments, and a reduction of nuisance alarms. In addition to this, the proposed change would reduce operator interaction with the system (reducing possible man to machine interface problems) with no change to the restricted or operating regions of the power-flow map.

   The RBM channel calibration frequency, as given in Technical Specification Table 4.3.6-1, is being changed from Quarterly for Unit 1 and Semi-Annually for Unit 2 to Refueling for both units. This is justified since the new setpoints have been determined using a calculated 30 month drift (24 months plus 25% grace). This ensures the new setpoints account for any additional drift which occurs as a result of the calibration frequency change and that the Allowable Values for the affected functions will not be exceeded. Therefore, extending the calibration frequency to Refueling is acceptable.

The reload analyses no longer take credit for the RBM and their results clearly show that the RBM is not required to prevent fuel damage. Therefore, the Allowed Out-of Service Times (AOTs) given in Actions 3.1.4.3 a and b are considered overly restrictive based on the RBM system's lack of safety impact. To provide plant personnel additional time to adequately address any problems with the RBM system, the AOTs are proposed to be changed from 24 hours to 7 days and from one hour to 48 hours.

The slope of the new RBM setpoint lines is being changed to be equal to that of the APRM setpoint lines (0.58). The new slope will provide a consistent delta between lines (RBM and APRM) at all flows.

Technical Specifications Bases section 3/4.4.1 states that the High (Upscale) Rod Block setpoint for single loop operation is to be "adjusted by an 8.5% decrease in recirculation drive flow to account for the active loop drive flow that bypasses the core and goes up through the inactive loop jet pumps". The proposed High (Upscale) Rod Block single loop operation setpoint has a 5% margin [(8.5%)(0.58)] from the two loop setpoint, which accounts for the flow decrease as stated in the Technical Specification Bases.

Technical Specifications Bases section 3/4.1.4 (Control Rod Program Controls) discusses the RBM and its design function of preventing fuel damage. This section is proposed to be changed to reflect that, based on the RWE analyses, the RBM function is not necessary to prevent fuel damage.

Based on the above discussion, the proposed action does not involve a significant increase in the probability or consequences of an accident as previously evaluated.

2. **The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

Chapters 7 and 15 of the FSAR were reviewed to determine if the proposed action has the potential of creating a postulated initiating event which is different than the analyzed anticipated operational transients or postulated design basis accidents addressed. It does not create the possibility of a new or different kind of accident previously evaluated.

The RWE analyses assumptions which have been approved by the NRC are documented in PP&L's approved methodology (PL-NF-90-001-A, Supplements 1-A and 2-A), and a conservative RBM response is assumed for the RWE analyses. The current RWE analyses assume that the RBM does not actuate to provide a control rod block. The proposed change in the RBM setpoints is conservative with respect to this assumption. Therefore, the proposed RBM setpoints do not change the assumptions used in the RWE analyses.

The new RBM setpoints have been chosen with sufficient margin to account for instrument accuracy, calibration accuracy, and drift. This will ensure that the new RBM values do not exceed the APRM scram setpoint . In addition to this, the RBM permissive setpoints will continue to provide their alarm function, alerting operators to the approach to the APRM rod block and scram setpoint values.

The RBM channel calibration frequency, as given in Technical Specification Table 4.3.6-1, is being changed from Quarterly for Unit 1 and Semi-Annually for Unit 2 to Refueling for both units. This is justified since the new setpoints have been determined using a calculated 30 month drift (24 months plus 25% grace). This ensures the new setpoints account for any additional drift which occurs as a result of the calibration frequency change and that the Allowable Values for the affected functions will not be exceeded. Therefore, extending the calibration frequency to Refueling is acceptable.

The reload analyses no longer take credit for the RBM and their results clearly show that the RBM is not required to prevent fuel damage. Therefore, the Allowed Out-of Service Times (AOTs) given in Actions 3.1.4.3 a and b are considered overly restrictive based on the RBM system's lack of safety impact. To provide plant personnel additional time to adequately address any problems with the RBM system, the AOTs are proposed to be changed from 24 hours to 7 days and from one hour to 48 hours.

The proposed change will not affect the operating region of the power-flow map (Unit 1 or Unit 2), since this region is defined by the APRM rod block line, stability regions, and not exceeding rated thermal power. The proposed change will not affect or change the APRM rod block and scram lines.

Finally, Technical Specifications Bases section 3/4.1.4 (Control Rod Program Controls) discusses the RBM and its design function of preventing fuel damage. This section is proposed to be changed to reflect that, based on the RWE analyses, the RBM function is not necessary to prevent fuel damage.

Based on the above discussion, changing the RBM setpoints, channel calibration frequency, and AOTs as proposed does not create a possibility of a new or different kind of accident from any accident previously evaluated.

3. **The proposed change does not involve a significant reduction in a margin of safety.**

The RWE analyses, without taking credit for the RBM, determine fuel operating limits which prevent the fuel from exceeding the applicable specified acceptable fuel design limits (SAFDLs), which are (for an RWE):

a) The MCPR Safety Limit as specified in Technical Specification 3.2.3 is not violated, and

b) Uniform cladding strain, as specified by the Linear Heat Generation Rate in Technical Specification 3.2.2, does not exceed 1%.

Increasing the RBM setpoints provides several operational benefits by increasing the available core "flow window". This compensates for reactivity changes, leading to fewer control rod pattern adjustments, and a reduction in nuisance alarms. In addition to this, the proposed change would reduce operator interaction with the system, reducing possible man to machine interface problems.

The proposed change does not change any of the hardware or the function of the RBM. The new RBM setpoints have been chosen with sufficient margin to account for instrument accuracy, calibration accuracy, and drift. This will ensure that the new RBM values do not exceed the APRM scram setpoint.

The APRM rod block lines, stability regions, and rated core thermal power, which define the operating region of the power-flow map, remain at their current values. Therefore, the stability and operating regions of the power-flow map will remain unaffected.

In addition to this, the RBM permissive setpoints will continue to provide their alarm function, alerting operators of the approach to the APRM rod block and scram setpoint values. Therefore, increasing the RBM setpoints does not decrease the margin of safety as defined in the Technical Specifications.

The slope of the new RBM setpoint lines is being changed to be equal to that of the APRM setpoint lines (0.58). The new slope will provide a consistent delta between lines (RBM and APRM) at all flows.

Extension of the calibration frequency given in Technical Specification Table 4.3.6-1 (Quarterly for Unit 1 and Semi-Annually for Unit 2) to Refueling for both units has no adverse effect on the current margin of safety. The new setpoints have been determined using a calculated 30 month drift (24 months plus 25% grace) which accounts for any additional instrument drift resulting from the calibration interval extension. This provides assurance that the Allowable Values for the affected functions will not be exceeded. Therefore, extending its calibration frequency to Refueling is acceptable.

Extending the AOTs in Actions 3.1.4.3 a and b does not impact the safety margin. The reload analyses no longer take credit for the RBM and their results clearly show that the RBM is not required to prevent fuel damage. Therefore, the current AOTs are overly restrictive based on the RBM system's lack of safety impact and it is acceptable to increase them to the proposed values.

Technical Specifications Bases section 3/4.4.1 states that the High (Upscale) Rod Block setpoint for single loop operation is to be "adjusted by an 8.5% decrease in recirculation drive flow to account for the active loop drive flow that bypasses the core and goes up through the inactive loop jet pumps". The proposed High (Upscale) Rod Block single loop operation setpoint has a 5% margin [(8.5%)(0.58)] from the two loop setpoint, which accounts for the flow decrease as stated in the Technical Specification Bases.

Technical Specifications Bases section 3/4.1.4 (Control Rod Program Controls) discusses the RBM and its design function of preventing fuel damage. This section is proposed to be changed to reflect that, based on the RWE analyses, the RBM function is not necessary to prevent fuel damage. However, as previously discussed, the change will not reduce the margin of safety as defined in this Bases section.

Based on the above discussion, changing the RBM setpoints, channel calibration frequency, and AOTs as proposed does not involve a significant reduction in a margin of safety.