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SUBJECT: Forwards application for amends to Licenses NPF-14 & NPF-22, revising Tech Specs re reactor protection sys AOT & STI.

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SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENTS 116 TO LICENSE NO.
NPF-14 AND 66 TO LICENSE NO. NPF-22:
REVISION TO RPS AOTs AND STIs
PLA-3102 FILES A17-2 AND R41-2

Docket Nos. 50-387
and 50-388

Reference: Letter, A.C. Thadani to T.A. Pickens, "General Electric Company (GE) Topical Reports NEDC-30844, 'BWR Owners Group Response to NRC Generic Letter 83-28,' and NEDC-30851P, 'Technical Specification Improvement Analysis for BWR RPS'", July 15, 1987.

Dear Dr. Butler:

Via the referenced letter, the NRC found NEDC-30851P to be "an acceptable generic basis for supporting plant-specific Technical Specification changes related to the reactor protection system (RPS) for plants using a relay RPS", subject to certain conditions. The purpose of this proposed license amendment is to request changes to the Susquehanna SES Units 1 and 2 Technical Specifications on the basis that the approved generic study does indeed apply to Susquehanna.

DESCRIPTION OF CHANGES

The following changes, which are illustrated on the attached marked-up pages, are proposed for both Units 1 and 2:

o Specification 3.3.1: Delete existing Action a and footnote * and replace them with the following new Action a:

"a. With the number of OPERABLE channels less than the required by the Minimum OPERABLE Channels per Trip System requirement for one trip system:

1. If placing the inoperable channel(s) in the tripped condition would cause a scram, the inoperable channel(s) shall be restored to OPERABLE status within 6 hours or the ACTION required by Table 3.3.1-1 for the affected Functional Unit shall be taken; or

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2. If placing the inoperable channel(s) in the tripped condition would not cause a scram, place the inoperable channel(s) and/or that trip system in the tripped condition within 12 hours."

Also, change the words "the Trip Function" to "a scram" in footnote **, and redesignate footnote ** to footnote *.

o Replace Table Notation (a) of Table 3.3.1-1 with the following:

"(a) A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE channel in the same trip system is monitoring that parameter. Upon determination that a trip setpoint cannot be restored to within its specified value during the performance of the CHANNEL CALIBRATION, the appropriate ACTION, 3.3.1a or 3.3.1b, shall be followed."

o Table 4.3.1.1-1, under "CHANNEL FUNCTIONAL TEST", make the following frequency changes:

Functional Units 2.b,c and d: change "W" to "Q".

Functional Units 3,4,5,6,7,8a and b,9 and 10: change "M" to "Q".

Functional Unit 12: change "M" to "W".

o Bases 3/4.3.1: Insert the following as a new paragraph after the fourth paragraph:

"CHANNEL FUNCTIONAL TEST frequencies and allowed outage times (AOTs) for repair and surveillance testing are based on General Electric report NEDC-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," dated March, 1988. The conclusion of this report is that fewer challenges to safety-related equipment, due to less frequent testing of the RPS, conservatively results in a decrease in core damage frequency. The 6 hour AOT for testing and the 12 hour AOT for repair of one trip system provide enough margin so as not to create an undue stress on personnel. The more restrictive 6 hour repair AOT (Action 1.a) reflects the potential that both trip systems are degraded."

SAFETY ANALYSIS

As part of the BWR Owner's Group Technical Specification Improvement Program, General Electric (GE) was commissioned to perform reliability analyses to identify improvements to RPS surveillance test intervals (STIs) and allowed outage times (AOTs). This study, NEDC-30851-P-A, was approved by the NRC via the referenced letter. A SSES-specific report, MDE-79-0485 (attached), was also performed by GE to confirm the applicability of the generic study to SSES Units 1 and 2. The SSES-specific report is considered to be proprietary and should be treated as such. The report proposes the following improvements:

1. Extending weekly and monthly channel functional test frequencies to quarterly (except for the Manual function, which was changed from monthly to weekly in order to ensure the reliability of the K-14 scram contacts),

2. Extending AOTs for repair of one trip system from 1 to 12 hours, and

3. Extending AOTs for channel surveillance testing and for repair when both trip systems are potentially degraded from 2 to 6 hours.

PP&L has independently analyzed the changes recommended by GE, and our conclusions are in good agreement with the GE results. This is primarily because the RPS instrumentation failure is an insignificant contributor to the probability of an ATWS event, both with and without the proposed changes. A slight increase in risk does result, but this is more than offset by:

1. reducing plant scrams, which reduces challenges to safe shutdown systems and thereby improves availability;

2. reducing excessive test cycles on equipment, which in turn reduces wearout potential; and

3. reducing the diversion of plant personnel and resources on unnecessary testing.

Based on the above, an overall net decrease occurs in core damage frequency due to the proposed changes.

The referenced NRC evaluation requires utilities making a licensing submittal based on NEDC-30851P-A to confirm that the GE study applies to their plant and that the drift characteristics for instrumentation used in RPS channels in the plant are bounded by the assumptions in the GE report when the functional test interval is extended. The former is assured by the SSES-specific GE study and PP&L's independent confirmation of their results. With regard to the latter, drift is monitored during channel calibration tests when setpoints are required to be reset. Although this is a concern for some plants that have analog trip units (which are typically calibrated more frequently), it is not a concern for SSES. The only analog trip units in the RPS at SSES are the Scram Discharge Volume High Level channels, and the change in channel functional test frequency from monthly to quarterly will not affect the 18 month calibration frequency required for these components.

PP&L is also proposing some editorial changes in this submittal to clarify certain actions and provisions due to the lengthened test and repair AOTs. First, a new Action a has replaced the former Action a and footnote * in Specification 3.3.1. None of the technical requirements have changed except for the AOTs. The purpose of combining this information was to ensure that the requirements of the footnote would not be missed. The footnote currently allows twice as much time as the action; the proposal makes the action twice as long as the footnote. This could result in reaching hour 7 of the Action a AOT before realizing that the 6-hour clock in the footnote had been surpassed.

The only other change to Specification 3.3.1 was to replace the words "the Trip Function" with "a scram" in the footnotes. This wording is much clearer, and "Trip Function" is not used in the associated tables.

Table Notation (a) of Table 3.3.1-1 is proposed to be revised also to insure correct interpretation. The second sentence was added to ensure that the 6

hour provision was not considered to be running in parallel to the 12 hour clock in Action a, and also to ensure that Action a was entered at the point where other than normal calibration procedures had to be used to restore operability. I.e., if repair work had to be performed, it would be done under the 12 hour action, not under whatever was left of the 6 hour provision PLUS the 12 hour action.

Finally, Bases changes have been proposed to provide a clear tie to the GE study as the basis for the new AOTs and STIs.

NO SIGNIFICANT HAZARDS CONSIDERATIONS

The following three questions are addressed below for each of the proposed changes:

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

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

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

o Changes to STIs and AOTs

1. No. The new AOTs and STIs have been justified generically in GE study NEDC-30851P-A, which is NRC-approved, and plant specifically in the attached study MDE-79-0485. These changes can only affect the probability, not the consequences, of previous analyses. In that regard, the studies indicate, and PP&L has confirmed, that the probability of an ATWS event is almost insensitive to an RPS instrumentation failure. Therefore, given the resulting reductions in scrams and test-induced wearout of equipment, the net affect of these changes is to decrease core damage frequency.

2. No. The proposed changes do not result in any physical or functional changes to the RPS; therefore, they cannot create the possibility of any new event.

3. No. In this case, the only margin of safety affected by the proposed changes is related to their impact on their potential to increase the probability of previously analyzed events. This was analyzed in response to 1. above, and based on that answer, the net affect of the proposed changes is to increase the margin of safety.

o Editorial Changes to Specification 3.3.1 and Table 3.3.1-1

1. No. Editorial changes are proposed in several places in order to ensure proper interpretation of the Technical Specification requirements. Current footnote * and Action a have been combined in order to delete the need for the footnote and thereby ensure that its provisions are complied with. The words "the Trip Function" have been changed to "a scram" because they are not used in the associated table

and could therefore be considered to reflect a half-scram, which is obviously not the intent (a half-scram will ALWAYS occur from placing an RPS channel in the tripped condition).

Finally, a table notation was enhanced to ensure proper compliance with the new AOTs. None of these changes have any relationship to the probability or consequences of an existing accident evaluation; they simply clarify existing requirements to ensure compliance with their intent.

2. No. See 1. above; editorial changes have no physical or functional impact on the RPS system.

3. No. Given the improvement in understanding the requirements of the subject Technical Specifications, margin of safety as measured by compliance with the requirements of Specification 3.3.1 is improved. No margin of safety that plays a role in any accident evaluation is impacted by these editorial improvements.

IMPLEMENTATION

The proposed changes, which have been technically approved by the NRC on a generic basis, provide reductions in the follow areas:

- o potential for scram,
- o test-induced equipment wearout, and
- o diversion of plant personnel and resources.

For these reasons, PP&L feels that these changes represent a significant enhancement to the safe operation of Susquehanna Units 1 and 2, and we therefore request NRC staff approval by January 13, 1989.

Any questions on this proposal should be directed to Mr. R. Sgarro at (215) 770-7916. Pursuant to 10CFR170, the appropriate fee is enclosed.

Very truly yours,

H.W. Keiser

Attachments

cc: NRC Document Control Desk (original)
NRC Region I
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Mr. M.C. Thadani, NRC Project Manager-Rockville
Mr. T.M. Gerusky, Pennsylvania DER