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SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards application for Amend 27 to License NPF-14, requesting relief from Tech Spec Tables 2.2.1-1 & 3.3.2-2 to increase main steam line radiation high trip setpoint of 3 times normal background.

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Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
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July 22, 1983

Director of Nuclear Reactor Regulation
ATTN: Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket No. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENT NO. 27 TO
LICENSE NO. NPF-14
ER 100450 FILE 841
PLA-1757

Dear Mr. Schwencer:

The purpose of this letter is to request temporary relief from Technical Specification Tables 2.2.1-1 and 3.3.2-2, which establishes a Main Steam Line Radiation - High setpoint of three times normal background.

Susquehanna SES Unit 1 has tripped three times recently on Main Steam Line Radiation - High. We have performed testing at low power levels which indicates that evolutions in the condensate demineralizer system and rapid increases in feedwater flow through a demineralizer are introducing resin fines or some other substance into the reactor pressure vessel resulting in production and additional release of N-16. We have seen a large number of these transients to date.

The plant is currently operating at reduced load to avoid additional trips during evolutions of the condensate demineralizer system and to allow system testing while precluding further trips of a similar nature. We are planning to conduct evolutions on the condensate demineralizer system at higher power levels in order to gain additional information. To conduct these tests and avoid a trip the Main Steam Line Radiation setpoints have to be raised. We are also aggressively pursuing the cause of the problem.

The current trip setpoint value of three times background is not high enough to preclude the occurrence of trips during certain normal plant evolutions such as placing condensate demineralizers into service. These operations frequently result in momentary increases in N-16 levels in the steam lines high enough to trip the MSIV's and cause reactor scrams. The increased number of occurrences of these isolation events not only reduces the reliability of the plant, but

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also results in an increased number of challenges to the reactor and associated safety systems, which in each instance and over the long term could be adverse to plant safety.

We propose to increase the Main Steam Line Radiation - High setpoint from three times normal background to seven times normal background. This change is requested for a one month period to allow replacing the resins in the condensate demineralizer system and performing a series of evolutions to demonstrate the effectiveness of the new resins. The following provides the justification for our proposed change.

As stated in the Technical Specification bases, no credit is taken for operation of the Main Steam Line Radiation - High trip in the FSAR accident analysis. Section 7.3.1 of the FSAR states that the objective of the main steam line radiation monitor system is to monitor for gross release of fission products from the fuel and, upon indication of such releases, to initiate appropriate action to limit fuel damage (i.e., scram) and contain the released fission products (i.e., MSIV closure). Section 7.2.1 of the FSAR states that gross fission product release would only occur after an accident in which the primary variables for trip initiation would be reactor vessel low level, reactor vessel high pressure, or high neutron flux. Diversity is achieved through the use of these variables in conjunction with main steam high radiation. An increase in the main steam high radiation trip setpoint and allowable value will still provide diversity in the scram and isolation logic.

The main steam line high radiation scram and MSIV closure are used to mitigate the effects of a postulated accident that is not considered in the design basis analysis in the FSAR. NEDO-10174, Consequences of a Postulated Flow Blockage Incident in a Boiling Water Reactor, presents an analysis of a partial or complete blockage of a fuel bundle inlet. The report shows that for a complete blockage of a bundle inlet a main steam line high radiation trip will occur if the instrumentation trip is set at seven times background. This report also addresses the offsite doses due to a flow blockage event <u>without</u> any credit for the isolation or scram. These doses are calculated to be small fractions of 10CFR100 guidelines. Specifically for Susquehanna, the results of the control rod drop accident (FSAR Table 15.4-15) are similar to the calculated releases for the flow blockage event (see Table 1). Adjusting for Susquehanna specific meteorology results in further reductions of potential doses due to flow blockage events. In all cases, the results are bounded by the calculated Design Basis radiological doses for the Loss of Coolant Accident (FSAR Table 15.6-18). Credit for MSL high radiation isolation and scram with a Trip Setpoint of seven times background will result in additional reductions in offsite doses for postulated flow blockage events. Therefore, an Allowable Value of 8.4 times background and Trip Setpoint of 7 times background are acceptable.

Increasing the Main Steam Line Radiation - High Trip Setpoint and Allowable Value will avoid reactor scrams and main steam line isolations during normal plant evolutions, such as placing a condensate

demineralizer into service, which frequently result in increased amounts of N-16 in the main steam lines.

N-16 decays with a seven second half-life producing a high energy gamma. If enough N-16 is released, the Main Steam Line Radiation - High Trip will cause a scram and main steam line isolation. This plant transient results in severe thermal stress on the reactor pressure vessel and internals and unnecessary challenges to the high pressure emergency core cooling system. Therefore, increasing the Main Steam Line Radiation - High Trip Setpoint and Allowable Value will reduce the probability of unnecessary plant transients which is an improvement to plant safety.

10 CFR 50.92 allows that for exigent circumstances, the current 30-day public notice period on license amendment applications can be waived when no significant hazards exist. This proposed amendment does not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated;

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; nor

3. Involve a significant reduction in margin of safety.

The timing of this request is based on cautious and thorough testing since the last trip on July 5, 1983, which recently confirmed that with clean demineralizer beds, transients which previously resulted in trips were mitigated. It was therefore safe to pursue operation and testing at higher power levels with the margin provided by a higher setpoint.

In summary, we believe that less than full power operation when no safety hazard exists, as we have shown above, is an unwarranted economic burden on both PP&L and its customers. The requested time period would provide sufficient time to continue testing of the evolutions of the condensate demineralizer system and together additional information on the cause of these events. Therefore, we would appreciate your efforts to expedite this change.

We are also considering applying for a permanent change to the Main Steam Line Radiation - High setpoint.

Very truly yours,

N. W. Curtis
Vice President-Engineering
& Construction-Nuclear

NC:rla

cc: R. L. Perch, NRC