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KEISER, H. W. Pennsylvania Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION
ADENSAM, E. BWR Project Directorate 3

SUBJECT: Application for Amends 75 & 29 to Licenses NPF-14 & NPF-22, respectiely, changing Tech Specs to provide 7-day outage for corrective maint of inoperable automatic depressurization sys trip functions. Fee paid.

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Harold W. Keiser
Vice President-Nuclear Operations
215/770-7502

DEC 19 1985

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Project Director
BWR Project Directorate No. 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENTS 75 TO NPF-14
AND 29 TO NPF-22
ER 100450 FILE 841-8 Docket Nos. 50-387
PLA-2568 50-388

References: 1. Letter, PLA-2401, "Proposed Amendments 61 to NPF-14 and 15 to NPF-22", N. W. Curtis to A. Schwencer, dated January 31, 1985.
2. Letter, PLA-2462, "Revision to Proposed Amendments 61 and 15", N. W. Curtis to A. Schwencer, dated May 3, 1985.

Dear Ms. Adensam:

Via Reference 1, PP&L submitted several proposed changes to the SSES Technical Specifications with regard to the Automatic Depressurization System (ADS) requirements. Based on subsequent discussions with your staff, we requested (see Reference 2) that the references to our proposed ACTION 37 be removed from further consideration until we could perform further analysis. That analysis has been completed and forms the basis for this request for amendments to the SSES Units 1 and 2 Technical Specifications.

PROBLEM STATEMENT

Currently, ACTIONS 30 and 31, which apply to inoperable ADS trip functions, result in declaring the associated ECCS inoperable. This results in an overly restrictive shutdown ACTION when an operable ADS trip system still exists (the design of the ADS logic is such that either of two divisionalized trip systems will actuate all of the six ADS valves). There is no provision to perform on-line repair of the affected trip system.

PROPOSED RESOLUTION

7 days was chosen as a reasonable amount of time to affect repair of the subject instrumentation; this Allowed Outage Time (AOT) was subsequently evaluated against the FSAR safety analyses and also analyzed on a risk basis to determine the safety impact of the change.

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FSAR SAFETY ANALYSIS

Because the existing technical specifications include an AOT for surveillance testing, it is already recognized that one ADS division may be inoperable for a short period. The failure that causes a division of ADS to be inoperable can be treated as a single failure for safety analysis purposes. The analyses in the FSAR considered single failures which bound the failure of one ADS division. The equipment available during the AOT for maintenance will be the same as that during the AOT for testing. Therefore, the addition of an AOT for corrective maintenance does not affect the safety analyses in the FSAR.

RISK ANALYSIS SUMMARY

The attached Technical Report provides the analysis in detail. The following is a summary of the method and results.

A model was developed to evaluate the unavailability of the reactor depressurization function. This model includes all methods of rapid reactor depressurization. The effect of the proposed change was determined by using time-independent approximations to estimate the change in unavailability. The model was quantified to represent both staggered and simultaneous testing. The results of both are presented herein, but the acceptability of the change was made on the basis of the results for simultaneous testing in order to avoid rigorous staggered testing as a requirement.

The results of the analyses show the proposed change increases the unavailability (given as failure on demand) of depressurization by 17% (from $1.8X10^{-3}$ to $2.1x10^{-3}$). This result is based on simultaneous testing and no consideration for manual ADS initiation or SRV actuation. This is the same as assuming a human error probability of 1.0. If a realistic human error probability is assumed, the change is not more than 2% (from $3.1x10^{-4}$ to $3.2x10^{-4}$). The realistic effect of the change (assuming staggered testing) is 13% (from $8.2x10^{-4}$ to $9.2x10^{-4}$), or 1% (from $1.6x10^{-4}$) if a realistic human error probability is assumed. If the failure of the depressurization function was in every dominant core melt sequence, the change in core melt frequency is no larger than the change in depressurization unavailability. Therefore the effect to core melt is bounded by the percentages given above. The failure of the depressurization function appears in sequences which represent less than 10% of the core melt frequency for Susquehanna. Therefore, this change results in a negligible change to the estimated core melt frequency for either unit of Susquehanna. Therefore this change produces a negligible effect on risk.

The investigation included an assessment of the sensitivity of results to changes in key input data. Once the values of input data which maximized the depressurization unavailability were found, all such inputs were simultaneously adjusted to determine an upper bound result. The upper bound calculation results in an increase of 24% (from $1.4x10^{-3}$ to $1.7x10^{-3}$) assuming simultaneous testing and no manual ADS initiation or SRV actuation. If a realistic human error probability is assumed, the unavailability increases

only 9% (from 4.3×10^{-5} to 4.6×10^{-5}). Therefore, even with significant changes in input data, the effect of the proposed change is small.

CONCLUSIONS

In conclusion, the results of the analyses show that a 7 day outage for corrective maintenance of one ADS division does not produce a significant safety hazard. There is no impact on safety analyses in the FSAR. The effect on core melt frequency is negligible. Therefore the proposed action statement which allows a 7 day AOT is acceptable.

NO SIGNIFICANT HAZARDS CONSIDERATIONS

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

As discussed under "FSAR Safety Analysis" above, the FSAR depressurization analysis considered single failures which bound the failure of one division of ADS. Based on this provision, an AOT is provided for surveillance testing of one division. Since the proposed change allows an AOT for maintenance on one division, the FSAR safety analysis is not affected.

No previous analysis of the current shutdown ACTION time was performed by PP&L. This requirement was provided by NRC via the Technical Specifications. Therefore, the risk assessment of the 7 day AOT is PP&L's initial attempt at justifying an AOT for the ADS trip systems. This assessment indicates a negligible affect on core melt frequency from that provided previously, based on the attached analysis.

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

As stated in I above, an AOT was provided previously for testing purposes. Providing one for maintenance does not create new concerns since the FSAR analysis considered the single failure of one division of ADS.

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

Safety margin is unaffected by the allowance of an AOT since the existing safety analysis considered single failures of one division. The increase in the AOT was evaluated on a risk basis and found to be of negligible consequence.

IMPLEMENTATION

Since entry into the subject ACTIONs would result in an unjustified shutdown of the affected unit, PP&L requests that this amendment be processed on a

priority basis. Should such an ACTION be entered, PP&L will upgrade this request to one of an emergency.

PP&L is prepared to attend a working meeting on this issue if requested by the staff. Any questions on this proposal should be directed to Mr. R. Sgarro at (215) 770-7855. Appropriate application fees are enclosed.

Very truly yours,

H. W. Keiser
Vice President-Nuclear Operations

cc: M. J. Campagnone USNRC
R. H. Jacobs USNRC

T. M. Gerusky, Director
Bureau of Radiation Protection
Pa. Dept. of Environmental Resources
P.O. Box 2063
Harrisburg, PA 17120

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PENNSYLVANIA POWER & LIGHT COMPANY : Docket No. 50-387

PROPOSED AMENDMENT NO. 75

FACILITY OPERATING LICENSE NO. NPF-14

SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 1

Licensee, Pennsylvania Power & Light Company, hereby files proposed Amendment No. 75 to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

PENNSYLVANIA POWER & LIGHT COMPANY
BY:

H. W. Keiser
Vice President - Nuclear Operations

Sworn to and subscribed before me
this 19th day of December, 1985.

Notary Public

MARTHA C. BARTO, Notary Public
Allentown, Lehigh County, Pa.
My Commission Expires Jan. 13, 1986

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PENNSYLVANIA POWER & LIGHT COMPANY : Docket No. 50-388

PROPOSED AMENDMENT NO. 29

FACILITY OPERATING LICENSE NO. NPF-22

SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 2

Licensee, Pennsylvania Power & Light Company, hereby files proposed Amendment No. 29 to its Facility Operating License No. NPF-22 dated March 23, 1984.

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PENNSYLVANIA POWER & LIGHT COMPANY
BY:

H. W. Keiser
Vice President - Nuclear Operations

Sworn to and subscribed before me
this 19th of December, 1985.

Notary Public
MARTHA C. BARTO, Notary Public
Allentown, Lehigh County, Pa.
My Commission Expires Jan. 13, 1986