Docket No. 50-388

Mr. Harold W. Keiser Senior Vice President-Nuclear Pennsylvania Power and Light Company 2 North Ninth Street Allentown, Pennsylvania 18101

Dear Mr. Keiser:

DISTRIBUTION: Docket File EJordan NRC PDR BGrines TMeek (4) Local PDR PDI-2 Rda. Wanda Jones SVarga JCalvo BBoger RLicciardo WButler MThadani/JStone ACRS (10) GPAZPA MO'Brien Rita Jaques, ARM/LFMB OGC DHagan **JDver** JLinville

SUBJECT:

TECHNICAL SPECIFICATIONS CHANGES TO DELETE PREVIOUS CHANGES

TO SUPPORT WATERHAMMER MODIFICATIONS (TAC NO. 73609)

RF:

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

The Commission has issued the enclosed Amendment No. 59 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Unit 2. This amendment is in response to your letter dated June 16, 1989.

This amendment changes the Technical Specifications to delete the previously approved changes to the Technical Specifications supporting the residual heat removal (RHR) system waterhammer modifications which have now been cancelled.

You also requested Technical Specification changes related to valves 2F026 A&B and valves FO 11 A&B to reflect removal of motor operators from those valves. Those changes are not approved in this Amendment due to insufficient information provided in your request. They will, however, be reevaluated as a separate action.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

181

Mohan C. Thadani, Project Manager Project Directorate I-2 Division of Reactor Projects I/II Office of Nuclear Reactor Regulation

Enclosures:

Amendment No. 59 to

cc w/enclosures: See next page

[73609 LETTER]

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UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

November 3, 1989

Docket No. 50-388

Mr. Harold W. Keiser Senior Vice President-Nuclear Pennsylvania Power and Light Company 2 North Ninth Street Allentown, Pennsylvania 18101

Dear Mr. Keiser:

SUBJECT: TECHNICAL SPECIFICATIONS CHANGES TO DELETE PREVIOUS CHANGES

TO SUPPORT WATERHAMMER MODIFICATIONS (TAC NO. 73609)

RE: SUSQUEHANNA STEAM ELECTRIC STATION. UNIT 2

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Sincerely.

Mohan C. Thadani, Project Manager

Project Directorate I-2

Division of Reactor Projects I/II Office of Nuclear Reactor Regulation

Enclosures:

Amendment No. 59 to License No. NPF-22

Safety Evaluation

cc w/enclosures: See next page

Mr. Harold W. Keiser Pennsylvania Power & Light Company

cc:

Jay Silberg, Esq. Shaw, Pittman, Potts & Trowbridge 2300 N Street N.W. Washington, D.C. 20037

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Mr. J. M. Kenny Licensing Group Supervisor Pennsylvania Power & Light Company 2 North Ninth Street Allentown, Pennsylvania 18101

Mr. Scott Barber Senior Resident Inspector U. S. Nuclear Regulatory Commission P.O. Box 35 Berwick, Pennsylvania 18603-0035

Mr. Thomas M. Gerusky, Director Bureau of Radiation Protection Resources Commonwealth of Pennsylvania P. O. Box 2063 Harrisburg, Pennsylvania 17120

Mr. Jesse C. Tilton, III Allegheny Elec. Cooperative, Inc. 212 Locust Street P.O. Box 1266 Harrisburg, Pennsylvania 17108-1266 Susquehanna Steam Electric Station Units 1 & 2

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Pleasantville, New Jersey 08232

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Mr. R. G. Byram
Superintendent of Plant
Susquehanna Steam Electric Station
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Mr. Herbert D. Woodeshick Special Office of the President Pennsylvania Power and Light Company 1009 Fowles Avenue Berwick, Pennsylvania 18603



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

PENNSYLVANIA POWER & LIGHT COMPANY ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 59 License No. NPF-22

- 1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated June 16, 1989 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I:
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
- 2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-22 is hereby amended to read as follows:
 - (2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 59 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Mohan C. Thadani for

Walter R. Butler, Director Project Directorate I-2 Division of Reactor Projects I/II

Attachment: Changes to the Technical Specifications

Date of Issuance: November 3, 1989

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FOR THE NUCLEAR REGULATORY COMMISSION

Por

Walter R. Butler, Director Project Directorate I-2 Division of Reactor Projects I/II

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Attachment: Changes to the Technical Specifications

Date of Issuance: November 3, 1989

ATTACHMENT TO LICENSE AMENDMENT NO.59

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following pages of the Appendix A Technical Specifications with enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The overleaf pages are provided to maintain document completeness.*

REMOVE	INSERT
3/4 6-21	3/4 6-21
3/4 6-22	3/4 6-22*
3/4 8-31	3/4 8-31*
3/4 8-32	3/4 8-32
3/4 8-33	3/4 8-33
3/4 8-34	3/4 8-34*
B 3/4 6-3	B 3/4 6-3*
B 3/4 6-4	B 3/4 6-4

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	MAXIMUM ISOLATION TIME (Seconds)	ISOLATION SIGNAL(S)(a)
Automatic Isolation Valves (Contin	ued)	
Containment Atmosphere Sample		
SV-25734 A,B SV-25736 A SV-25736 B SV-25740 A,B SV-25742 A,B SV-25750 A,B SV-25752 A,B SV-25774 A,B SV-25776 A SV-25776 B	N/A N/A N/A N/A N/A N/A N/A N/A	B,Y B,Y B,Y B,Y B,Y B,Y B,Y B,Y
SV-25780 A,B SV-25782 A.B	N/A	B,Y
SV-25782 A,B <u>Nitrogen Makeup</u>	N/A	8,Y
SV-25737 SV-25738 SV-25767 SV-25789	N/A N/A N/A N/A	B,Y,R B,Y,R B,Y,R B,Y,R
Reactor Coolant Sample HV-243F019	0	
HV-243F029	2 2	B,C B,C
Liquid Radwaste		0,0
HV-26108 A1,A2 HV-26116 A1.A2	15 15	B,Z
RHR - Suppression Pool Cooling/Spray(C)	13	B,Z
HV-251F028 A,B CS Test (b)(c)	90	X,Z
HV-252F015 A,B HPCI Suction (b)(c)	60	X,Z
HV-255F042	90	L,LB

TABLE 3.6.3-1 (Continued) PRIMARY CONTAINMENT ISOLATION VALVE

PRIMARY CONTAINMENT ISO	LATION VALVES	
VALVE FUNCTION AND NUMBER	MAXIMUM ISOLATION TIME (Seconds)	ISOLATION SIGNALS(S) ^(a)
Automatic Isolation Valves (Continued)		310HHE3(3)
Suppression Pool Cleanup (b)		
HV-25766	35	A,2
HV-25768	30	A,Z
HPCI Vacuum Breaker		7,4
HV-255F075	15	LB,Z
HV-255F079	15	LB , Z
RCIC Vacuum Breaker		, ,
HV-249F062	10	 •
HV-249F084	10	KB,Z KB,Z
TIP Ball Valves (d)		,2
C51-J004 A,B,C,D,E	5	A,2
b. Manual Isolation Valves		
MSIV-LCS Bleed Valve		÷
HV-239F001 8,F,K,P		
Feedwater (e)		
HV-241F032 A.S		
RWCU Return		

HV-24182 A,8

RCIC Injection

HV-249F013 2-49-020

SUSQUEHANNA - UNIT 2

3/4 6-22

Amendment No. 28

T48LE 3.8.4.2.1-1

<u>.AL./ELNUMBER</u>	SYSTEM(3) 4FF80T80
HV-012224	RHRSW
HV+C1222B	RHRSW
HV-01224A1	RHRSW
HV-01224B1	RHRSW
HV-01224A2	
HV-01224 82	RHRSW
HV-21144A	RHRSW
HV-211448	ESW
HV+08693A	ESW
-V-08693B	ESW
HV-01201A1	ESW
HV-01201A2	RHRSW
HV-01201B1	RHRSW
HV-01201B2	RHRSW
HV-21210A	RHRSW
HV-21210B	RHRSW
	RHRSW
HV-21215A	RHRSW
HV-21215B	RHRSW
HV-25766	Cont. Isc'.
HV-25768	Cont. Isil.
HV-22603	Cont. Isol.
	_

SYSTEM(S) AFFECTED	Cont. Isol Cont. Isol Cont. Isol Cont. Isol	RHR RHR RHR RHR RHR	N N N SSS RHR RHR RHR RHR RHR RHR RHR RHR RHR	RHRSW RHR CS CS CS CS CS CS CS CS CS CS CS CS CS
ш)	HV-21345 HV-21313 HV-21346 HV-21314 HV-E11-2F009	.G33-2F001 E11-2F103A E11-2F075A E11-2F048A E11-2F004C E11-2F015A E11-2F024A	HV-E41-2F002 HV-B21-2F016 HV-E11-2F022 HV-E11-2F004A HV-E11-2F005A HV-E11-2F007A HV-E11-2F026A HV-E11-2F026A HV-E11-2F028A	HV-E11-2F073A HV-E11-2F003A HV-E21-2F001A HV-E21-2F001A HV-E21-2F004A HV-E11-2F005A HV-E11-2F005A HV-E51-2F007 HV-E51-2F007 HV-E51-2F084 HV-E11-2F048B HV-E11-2F06B

SYSTEM(S) AFFECTED	RHR	RHR	S E	X D O	X X	RHR	RHR	RHR	RHR	S HR	3 2	SHS SHS	RHRSW	RHRSW	RHR	RHR	SHR.	ડ ઇ	3 2	AISW	AISW	MSIV	AISW	ATSE STUR	ATOE S	> > \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	AISW W	MSIV	MSIV	MSIV	AISW AISW	ATSE ATSE	MS1V	RCIC	RCIC	RCIC RCIC) • •
																											•										•
·																																					
VALVE NUMBER	HV-E11-2F021B	-F11-2F0	-E11-2F0	-E11-2F1	-E11-2F0	-E11-2F0	-2F0	-E11-2FU -E11-2E0	-F11-2F0	-E21-2F0	-E21-2F0	-E11-2F1	E11-2F0	E11-2F0	11-250	511-2F0	21-2F0	E21-2F0	E21-2F0	E32-2F0	-E32-2F0(E32-2F0(-E32-2FU(-F32-2FU	-E32-2F0(-E32-2F0(-E32-2F0(-E32-2F0(-E32-2F0(E32-2FU(-632-2500	-E32-2FUU -F32-2FUC	-E32-2F00	-E32-2F00	-E51-2F04	-E51-2F01		

AFFECTED RCIC RCIC RCIC RCIC RCIC RCIC RCIC RC
WALVE NUMBER HV-E51-2F046 HV-E51-2F031 HV-E51-2F031 HV-E51-2F019 HV-E51-2F019 HV-E51-2F019 HV-E51-2F019 HV-E51-2F019 HV-E41-2F012 HV-E41-2F004 HV-E41-2F004 HV-E41-2F003 HV-E41-2F004 HV-E41-2F008 HV-E41-2F008 HV-E41-2F008 HV-E41-2F008 HV-E41-2F008 HV-E41-2F008 HV-E41-2F008 HV-E41-2F008 HV-E41-2F019 HV-E41-2F031A HV-B31-2F031B HV-B31-2F031B

3/4.6.2 DEPRESSURIZATION SYSTEMS

The specifications of this section ensure that the primary containment pressure will not exceed the design pressure of 53 psig during primary system blowdown from full operating pressure.

The suppression chamber water provides the heat sink for the reactor coolant system energy release following a postulated rupture of the system. The suppression chamber water volume must absorb the associated decay and structural sensible heat released during reactor coolant system blowdown from 1055 psig. Since all of the gases in the drywell are purged into the suppression chamber air space during a loss of coolant accident, the pressure of the liquid must not exceed 53 psig, the suppression chamber maximum pressure. The design volume of the suppression chamber, water and air, was obtained by considering that the total volume of reactor coolant and to be considered is discharged to the suppression chamber and that the drywell volume is purged to the suppression chamber.

Using the minimum or maximum water volumes given in this specification, containment pressure during the design basis accident is approximately 45.0 psig which is below the design pressure of 53 psig. Maximum water volume of 133,540 ft³ results in a downcomer submergence of 12 feet and the minimum volume of 122,410 ft³ results in a submergence approximately 24 inches less. The majority of the Bodega tests were run with a submerged length of 4 feet and with complete condensation. Thus, with respect to the downcomer submergence, this specification is adequate. The maximum temperature at the end of the blowdown tested during the Humboldt Bay and Bodega Bay tests was 170°F and this is conservatively taken to be the limit for complete condensation of the reactor coolant, although condensation would occur for temperatures above 170°F.

Should it be necessary to make the suppression chamber inoperable, this shall only be done as specified in Specification 3.5.3.

Under full power operating conditions, blowdown from an initial suppression chamber water temperature of 90°F results in a water temperature of approximately 128°F immediately following blowdown which is below the 170°F used for complete condensation via T-quencher devices. At this temperature and atmospheric pressure, the available NPSH exceeds that required by both the RHR and core spray pumps, thus there is no dependency on containment overpressure during the accident injection phase. If both RHR loops are used for containment cooling there is no dependency on containment overpressure for post-LOCA operations.

Experimental data indicate that excessive steam condensing loads can be avoided if the peak local temperature of the suppression pool is maintained below 200°F during any period of relief valve operation. Specifications have been placed on the envelope of reactor operating conditions so that the reactor can be depressurized in a timely manner to avoid the regime of potentially high suppression chamber loadings.

DEPRESSURIZATION SYSTEMS (Continued)

Because of the large volume and thermal capacity of the suppression pool, the volume and temperature normally changes very slowly and monitoring these parameters daily is sufficient to establish any temperature trends. By requiring the suppression pool temperature to be frequently recorded during periods of significant heat addition, the temperature trends will be closely followed so that appropriate action can be taken. The requirement for an external visual examination following any event where potentially high loadings could occur provides assurance that no significant damage was encountered. Particular attention should be focused on structural discontinuities in the vicinity of the relief valve discharge since these are expected to be the points of highest stress.

In addition to the limits on temperature of the suppression chamber pool water, operating procedures define the action to be taken in the event a safety-relief valve inadvertently opens or sticks open. As a minimum this action shall include: (1) use of all available means to close the valve, (2) initiate suppression pool water cooling, (3) initiate reactor shutdown, and (4) if other safety-relief valves are used to depressurize the reactor, their discharge shall be separated from that of the stuck-open safety relief valve to assure mixing and uniformity of energy insertion to the pool.

3/4.6.3 PRIMARY CONTAINMENT ISOLATION VALVES

The OPERABILITY of the primary containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through 57 of Appendix A to 10 CFR 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

3/4.6.4 VACUUM RELIEF

Vacuum relief breakers are provided to equalize the pressure between the suppression chamber and drywell. This system will maintain the structural integrity of the primary containment under conditions of large differential pressures.

The vacuum breakers between the suppression chamber and the drywell must not be inoperable in the open position since this would allow bypassing of the suppression pool in case of an accident. There are five pairs of valves to provide redundancy so that operation may continue for up to 72 hours with no more than one pair of vacuum breakers inoperable in the closed position.



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING AMENDMENT NO. 59 TO FACILITY OPERATING LICENSE NO. NPF-22

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

1.0 INTRODUCTION

By letter dated June 16, 1989, Pennsylvania Power & Light Company requested an amendment to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Unit 2. The proposed amendment would revise the Technical Specifications to cancel Technical Specification changes approved in Amendment No. 49, dated May 24, 1988. The changes were originally approved to support modifications which were intended to protect against the potential of an RHR waterhammer due to frequent and extended use of the RHR system in the suppression pool cooling mode. The licensee states that since the Amendment No. 49 was approved, the Safety Relief Valve (SRV) leakage has reduced and suppression pool temperature measuring methods have improved. As a result of those improvements, the licensee has reduced the frequency and duration of RHR operation in the suppression pool cooling mode to the design basis stated in the FSAR. Therefore, modifications of the RHR system are no longer required and the Amendment No. 49 Technical Specification changes are no longer needed. Additionally, in connection with the elimination of the steam condensing mode of the RHR operation, the licensee had previously moved the containment isolation valves (HV-251F011 A&B) to Section B (Manual Isolation Valves) of Table 3.6.3-1. The licensee states that these valves should have been moved to Section C (other valves) because they are locked closed valves with electrical connections, controls and position indication lights removed. The licensee has, therefore, proposed to move valves HV-251F011 A&B to Section C of Table 3.6.3-1 of the Technical Specifications (TSs). The licensee has also requested that valves FO 11 A&B be removed from Table 3.8.4.2.1-1 related to thermal overload protection.

2.0 EVALUATION

The licensee states that as a result of reduction in SRV leakage and improved methods of measuring suppression pool temperature, the frequency and duration of the RHR operation in the suppression pool cooling mode have been significantly reduced and are now within the design basis stated in the FSAR. Therefore, the potential of waterhammer has also been reduced to the previously acceptable level, and previously proposed modifications of RHR to address

waterhammer potential are no longer needed and will not be performed. Since the modifications have been cancelled, the Technical Specification changes supporting those modifications, approved in Amendment No. 49, are no longer applicable and should be cancelled. The staff agrees with the licensee, and finds the cancellation of the changes supporting waterhammer modifications of the RHR system acceptable.

The removal of valves FO 11 A&B from Technical Specification Table 3.8.4.2.1-1 is acceptable based on the conclusions reached in the SE in Amendment No. 49 stating that those valves were converted to locked closed manual valves with electrical connections, controls and position indicating lights removed.

In Amendment No. 49, the licensee also requested and the staff approved Technical Specification changes supporting the elimination of the steam condensing mode of RHR operation. In Amendment No. 49, the containment isolation valves (HV-251F011 A&B) were moved to Section B of the TS. The staff does not agree that these valves should have been moved to Section C instead of Section B and finds the proposed changes unacceptable due to insufficient information provided in the licensee's request.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (54 FR 31112) on July 26, 1989 and consulted with the State of Pennsylvania. No public comments were received, and the State of Pennsylvania did not have any comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: Mohan Thadani and R. Licciardo

Dated: November 3, 1989