

Docket Nos. 50-387/388

MAY 15 1985

Mr. Norman W. Curtis  
Vice President  
Engineering and Construction Nuclear  
Pennsylvania Power & Light Company  
2 North Ninth Street  
Allentown, Pennsylvania 18101

Dear Mr. Curtis:

SUBJECT: AMENDMENT NOS. 44 AND 11 TO FACILITY OPERATING LICENSE NOS. NPF-14 AND  
NPF-22, SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 44 and 11 to Facility Operating License Nos. NPF-14 and NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2 respectively. These amendments are in response to your letter dated January 31, 1985. These amendments reflect changes in the Unit 1 and Unit 2 Technical Specifications necessary to support the Automatic Depressurization System (ADS) logic modifications incorporated into both the Unit 1 and Unit 2 plants. Additionally, these amendments address your supplementary letter of May 3, 1985.

A copy of the related safety evaluation supporting Amendment No. 44 and 11 to Facility Operating License NPF-14 and NPF-22 is enclosed.

Sincerely,

Original signed by:

Walter R. Butler, Chief  
Licensing Branch No. 2  
Division of Licensing

Enclosures:

1. Amendment No. 44 to NPF-14
2. Amendment No. 11 to NPF-22
3. Safety Evaluation

cc w/enclosures:  
See next page

Distribution:  
See next page

LB#2/DL/LA  
EHytton  
05/8/85

LB#2/DL/PM  
MCampagnone:lb  
05/11/85

OBLD

J. Goldberg  
05/8/85

LB#2/DL/BC  
WButler  
05/8/85

AD/LZ/DL  
TNovak  
05/14/85

*subject to  
noted changes  
or additions  
to SER*

3. This amendment is effective upon start-up following the first refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

Walter R. Butler, Chief  
Licensing Branch No. 2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: MAY 15 1985

LB#2/DL/LA  
EH/ton  
05/8/85

LB#2/DL/PM  
MCampagnone:lb  
05/8/85

OELO  
J. G. Blaney  
05/8/85

LB#2/DL/BC  
WButler  
05/8/85

AD/DL  
TMNovak  
05/14/85

*why not to  
noted change  
& addition  
to SER*

3. This amendment is effective as of thirty (30) days from the date of issuance except for the amendment to the Technical Specifications listed below. The amendment to the Technical Specifications indicated below is effective upon completion of the modifications and associated performance testing, but no later than September 1, 1985.

<u>Page</u>	<u>Item</u>
3/4 3-29	Trip Function 4.h
3/4 3-32	Trip Function 4.h
3/4 3-33	Trip Function 4.h
3/4 3-35	Trip Function 4.h

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

Walter R. Butler, Chief  
Licensing Branch No. 2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: MAY 15 1985

LB#2/DL/LA  
EH/ston  
05/8/85

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05/11/85

LB#2/DL/BC  
WButler  
05/8/85

DELD  
J. O. L. L. L. L.  
05/8/85

AD/DL  
TMNovak  
05/11/85

subject to  
noted change  
+ additions  
to SER



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

MAY 15 1985

Docket Nos. 50-387/388

Mr. Norman W. Curtis  
Vice President  
Engineering and Construction Nuclear  
Pennsylvania Power & Light Company  
2 North Ninth Street  
Allentown, Pennsylvania 18101

Dear Mr. Curtis:

SUBJECT: AMENDMENT NOS. 44 AND 11 TO FACILITY OPERATING LICENSE NOS. NPF-14 AND  
NPF-22, SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 44 and 11 to Facility Operating License Nos. NPF-14 and NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2 respectively. These amendments are in response to your letter dated January 31, 1985. These amendments reflect changes in the Unit 1 and Unit 2 Technical Specifications necessary to support the Automatic Depressurization System (ADS) logic modifications incorporated into both the Unit 1 and Unit 2 plants. Additionally, these amendments address your supplementary letter of May 3, 1985.

A copy of the related safety evaluation supporting Amendment No. 44 and 11 to Facility Operating License NPF-14 and NPF-22 is enclosed.

Sincerely,

A handwritten signature in cursive script that reads "Walter R. Butler".

Walter R. Butler, Chief  
Licensing Branch No. 2  
Division of Licensing

Enclosures:

1. Amendment No. 44 to NPF-14
2. Amendment No. 11 to NPF-22
3. Safety Evaluation

cc w/enclosure:  
See next page

Mr. Norman W. Curtis  
Pennsylvania Power & Light Company

Susquehanna Steam Electric Station  
Unit 1 & 2

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Commonwealth of Pennsylvania  
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Harrisburg, Pennsylvania 17120

Susquehanna

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Attn: Coordinator, State Clearinghouse  
P O. Box 1323  
Harrisburg, Pennsylvania 17120

Mr. Bruce Thomas, President  
Board of Supervisors  
R. D. #1  
Berwick, Pennsylvania 18603

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Docket File

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WMiller, LFMB

JPartlow

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EJordan

LHarmon

TBarnhart (S) (S)

F Rosa



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

PENNSYLVANIA POWER & LIGHT COMPANY  
ALLEGHENY ELECTRIC COOPERATIVE, INC.  
DOCKET NO. 50-387  
SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 44  
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
  - A. The application for an amendment filed by the Pennsylvania Power & Light Company, dated January 31, 1985 as supplemented on May 3, 1985 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 Facility Operating License No. NPF-14 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 44, 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 amendment is effective upon start-up following the first refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Chief  
Licensing Branch No. 2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: MAY 15 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 44  
FACILITY OPERATING LICENSE NO. NPF-14  
DOCKET NO. 50-387

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.

REMOVE

3/4 3-27  
3/4 3-28

3/4 3-29

3/4 3-30

3/4 3-31  
3/4 3-32

3/4 3-33  
3/4 3-34

3/4 3-35  
3/4 3-36

INSERT

3/4 3-27  
3/4 3-28

3/4 3-29  
3/4 3-29a

3/4 3-30

3/4 3-31  
3/4 3-32

3/4 3-33  
3/4 3-34

3/4 3-35  
3/4 3-36

## INSTRUMENTATION

### 3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

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3.3.3 The emergency core cooling system (ECCS) actuation instrumentation channels shown in Table 3.3.3-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.3-2 and with EMERGENCY CORE COOLING SYSTEM RESPONSE TIME as shown in Table 3.3.3-3.

APPLICABILITY: As shown in Table 3.3.3-1.

#### ACTION:

- a. With an ECCS actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.3-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With one or more ECCS actuation instrumentation channels inoperable, take the ACTION required by Table 3.3.3-1.

#### SURVEILLANCE REQUIREMENTS

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4.3.3.1 Each ECCS actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.3.1-1.

4.3.3.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.3.3 The ECCS RESPONSE TIME of each ECCS trip function shown in Table 3.3.3-3 shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific ECCS trip system.

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TRIP FUNCTION	MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. <u>CORE SPRAY SYSTEM</u>			
a. Reactor Vessel Water Level - Low Low Low, Level 1	2(a)	1, 2, 3, 4*, 5*	30
b. Drywell Pressure - High	2(a)	1, 2, 3	30
c. Reactor Vessel Steam Dome Pressure - Low (Permissive)	2(a)	1, 2, 3 4*, 5*	31 32
d. Manual Initiation	1/subsystem	1, 2, 3, 4*, 5*	33
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>			
a. Reactor Vessel Water Level - Low Low Low, Level 1	2(a)	1, 2, 3, 4*, 5*	30
b. Drywell Pressure - High	2(a)	1, 2, 3	30
c. Reactor Vessel Steam Dome Pressure - Low (Permissive)			
1) System Initiation	2(a)	1, 2, 3 4*, 5*	31 32
2) Recirculation Discharge Valve Closure	2(a)	1, 2, 3, 4*, 5*	31 32
d. Manual Initiation	1/subsystem	1, 2, 3, 4*, 5*	33
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM<sup>#</sup></u>			
a. Reactor Vessel Water Level - Low Low, Level 2	2(a)	1, 2, 3	30
b. Drywell Pressure - High	2(a)	1, 2, 3	30
c. Condensate Storage Tank Level - Low	2(a)(b)	1, 2, 3	34
d. Suppression Pool Water Level - High	2(a)	1, 2, 3	34
e. Reactor Vessel Water Level - High, Level 8	2(c)	1, 2, 3	31
f. Manual Initiation	1/system	1, 2, 3	33

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>		<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM</u>		<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>	
4.	<u>AUTOMATIC DEPRESSURIZATION SYSTEM<sup>##</sup></u>					
a.	Reactor Vessel Water Level - Low Low Low, Level 1	2 <sup>(f)</sup>		1, 2, 3	30	
b.	Drywell Pressure - High	2 <sup>(f)</sup>		1, 2, 3	30	
c.	ADS Timer	1 <sup>(f)</sup>		1, 2, 3	31	
d.	Core Spray Pump Discharge Pressure - High (Permissive)	2 <sup>(d)(f)</sup>		1, 2, 3	31	
e.	RHR LPCI Mode Pump Discharge Pressure - High (Permissive)	2 <sup>(d)(e)(f)</sup>		1, 2, 3	31	
f.	Reactor Vessel Water Level - Low, Level 3 (Permissive)	1 <sup>(f)</sup>		1, 2, 3	31	
g.	ADS Drywell Pressure Bypass Timer	2 <sup>(f)</sup>		1, 2, 3	31	
h.	Manual Inhibit	1		1, 2, 3	33	
i.	Manual Initiation	1/valve		1, 2, 3	33	
		<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
5.	<u>LOSS OF POWER</u>					
a.	4.16 kv ESS Bus Under-voltage (Loss of Voltage, <20%)	1/bus	1/bus	1/bus	1, 2, 3, 4**, 5**	35
b.	4.16 kv ESS Bus Under-voltage (Degraded Voltage, <65%)	2/bus	2/bus	2/bus	1, 2, 3, 4**, 5**	36
c.	4.16 kv ESS Bus Under-voltage (Degraded Voltage <84%)	2/bus	2/bus	2/bus	1, 2, 3, 4**, 5**	36

See footnotes on next page.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

- (a) A channel may be placed in an inoperable status for up to 2 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.
- (b) One trip system. Provides signal to HPCI pump suction valves only.
- (c) Two out of two logic.
- (d) Either 4d or 4e must be satisfied. The ACTION is required to be taken only if neither is satisfied. A channel is not OPERABLE unless its associated pump is OPERABLE per Specification 3.5.1.
- (e) Within an ADS Trip System there are two logic subsystems, each of which contains an overall pump permissive. At least one channel associated with each of these overall pump permissives shall be OPERABLE.
- (f) A channel may be placed in an inoperable status for up to 2 hours for required surveillance testing provided that all channels in the other trip system are OPERABLE.
  - \* When the system is required to be OPERABLE per Specification 3.5.2.
  - # Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 150 psig.
  - \*\* Required when ESF equipment is required to be OPERABLE.
  - ## Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE-COOLING SYSTEM ACTUATION INSTRUMENTATION

ACTION STATEMENTS

- ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:
- a. For one trip system, place the inoperable trip system in the tripped condition within 1 hour\* or declare the associated ECCS inoperable.
  - b. For both trip systems, declare the associated ECCS inoperable.
- ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, declare the associated ECCS inoperable.
- ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place the inoperable channel in the tripped condition within 1 hour.
- ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, restore the inoperable channel to OPERABLE status within 8 hours or declare the associated ECCS inoperable.
- ACTION 34 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within 1 hour\* or declare the HPCI system inoperable.
- ACTION 35 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.
- ACTION 36 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour;\* operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.

\*The provisions of Specification 3.0.4 are not applicable.

TABLE 3.3.3-2  
EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
1. <u>CORE SPRAY SYSTEM</u>		
a. Reactor Vessel Water Level - Low Low Low, Level 1	$\geq -129$ inches*	$\geq -136$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. Reactor Vessel Steam Dome Pressure - Low	$\geq 436$ psig, decreasing	$\geq 416$ psig, decreasing
d. Manual Initiation	NA	NA
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>		
a. Reactor Vessel Water Level - Low Low Low, Level 1	$\geq -129$ inches*	$\geq -136$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. Reactor Vessel Steam Dome Pressure - Low		
1) System Initiation	$\geq 436$ psig, decreasing	$\geq 416$ psig, decreasing
2) Recirculation Discharge Valve Closure	$\geq 236$ psig, decreasing	$\geq 216$ psig, decreasing
d. Manual Initiation	NA	NA
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM</u>		
a. Reactor Vessel Water Level - Low Low, Level 2	$\geq -38$ inches*	$\geq -45$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. Condensate Storage Tank Level - Low	$\geq 36.0$ inches above tank bottom	$\geq 36.0$ inches above tank bottom
d. Reactor Vessel Water Level - High, Level 8	$\leq 54$ inches	$\leq 55.5$ inches
e. Suppression Pool Water Level - High	$\leq 23$ feet 9 inches	$\leq 24$ feet
f. Manual Initiation	NA	NA



TABLE 3.3.3-2 (Continued)

## EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
<b>4. AUTOMATIC DEPRESSURIZATION SYSTEM</b>		
a. Reactor Water Level - Low Low Low, Level 1	$\geq -129$ inches*	$\geq -136$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. ADS Timer	$\leq 102$ seconds	$\leq 114$ seconds
d. Core Spray Pump Discharge Pressure - High	$145 \pm 10$ psig	$145 \pm 20$ psig
e. RHR LPCI Mode Pump Discharge Pressure - High	$125 \pm 4$ psig	$125 \pm 10$ psig
f. Reactor Vessel Water Level-Low, Level 3	$\geq 13$ inches	$\geq 11.5$ inches
g. ADS Drywell Pressure Bypass Timer	$\leq 420$ seconds	$\leq 450$ seconds
h. Manual Inhibit	NA	NA
i. Manual Initiation	NA	NA
<b>5. LOSS OF POWER</b>		
a. 4.16 kv ESS Bus Undervoltage (Loss of Voltage, <20%)	a. 4.16 kv Basis - $840 \pm 16.8$ volts b. 120 v Basis - $24 \pm 0.48$ volts c. $0.5 \pm 0.1$ second time delay	$840 \pm 59.6$ volts $24 \pm 1.7$ volts $0.5 \pm 0.1$ second time delay
b. 4.16 kv ESS Bus Undervoltage (Degraded Voltage, <65%)	a. 4.16 kv Basis - $2695 \pm 53.9$ volts b. 120 v Basis - $77 \pm 1.54$ volts c. $3.0 \pm 0.3$ second time delay	$2695 \pm 191.3$ volts $77 \pm 5.5$ volts $3 \pm 0.3$ second time delay
c. 4.16 kv ESS Bus Undervoltage (Degraded Voltage, <84%)	a. 4.16 kv Basis - $3483 \pm 69.7$ volts b. 120 v Basis - $99.5 \pm 1.99$ volts c. 5 minute $\pm 30$ second time delay without LOCA $10 \pm 1.0$ second time delay with LOCA	$3483 \pm 247.3$ , $-69.7$ volts $99.5 \pm 7.1$ volts, $-1.99$ volts 5 minutes $\pm 30$ second time delay without LOCA $10 \pm 1.0$ second time delay with LOCA

\*See Bases Figure B 3/4 3-1.

TABLE 3.3.3-3

EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)</u>
<u>1. CORE SPRAY SYSTEM</u>	
a. Reactor Vessel Water Level-Low Low Low, Level 1	<27
b. Drywell Pressure-High	<27
c. Reactor Vessel Steam Dome Pressure-Low	<27
d. Manual Initiation	NA
<u>2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>	
a. Reactor Vessel Water Level-Low Low Low, Level 1	<40
b. Drywell Pressure-High	<40
c. Reactor Vessel Steam Dome Pressure-Low	
1) System Initiation	<40
2) Recirculation Discharge Valve Closure	<40
d. Manual Initiation	NA
<u>3. HIGH PRESSURE COOLANT INJECTION SYSTEM</u>	
a. Reactor Vessel Water Level - Low Low, Level 2	<30
b. Drywell Pressure - High	<30
c. Condensate Storage Tank Level-Low	NA
d. Reactor Vessel Water Level-High, Level 8	NA
e. Suppression Pool Water Level-High	NA
f. Manual Initiation	NA
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM</u>	
a. Reactor Vessel Water Level-Low Low Low, Level 1	NA
b. Drywell Pressure-High	NA
c. ADS Timer	NA
d. Core Spray Pump Discharge Pressure-High	NA
e. RHR LPCI Mode Pump Discharge Pressure-High	NA
f. Reactor Vessel Water Level-Low, Level 3	NA
g. ADS Drywell Pressure Bypass Timer	NA
h. Manual Inhibit	NA
i. Manual Initiation	NA
<u>5. LOSS OF POWER</u>	
a. 4.16 kV ESS Bus Undervoltage (Loss of Voltage <20%)	NA
b. 4.16 kV ESS Bus Undervoltage (Degraded Voltage <65%)	NA
c. 4.16 kV ESS Bus Undervoltage (Degraded Voltage <84%)	NA

TABLE 4.3.3.1-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
1. <u>CORE SPRAY SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Reactor Vessel Steam Dome Pressure - Low	NA	M	Q	1, 2, 3, 4*, 5*
d. Manual Initiation	NA	R	NA	1, 2, 3, 4*, 5*
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Reactor Vessel Steam Dome Pressure - Low				
1) System Initiation	NA	M	Q	1, 2, 3, 4*, 5*
2) Recirculation Discharge Valve Closure	NA	M	Q	1, 2, 3, 4*, 5*
d. Manual Initiation	NA	R	NA	1, 2, 3, 4*, 5*
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM<sup>#</sup></u>				
a. Reactor Vessel Water Level - Low Low, Level 2	S	M	R	1, 2, 3
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level - Low	NA	M	Q	1, 2, 3
d. Suppression Pool Water Level - High	NA	M	Q	1, 2, 3
e. Reactor Vessel Water Level - High, Level 8	NA	M	Q	1, 2, 3
f. Manual Initiation	NA	R	NA	1, 2, 3

TABLE 4.3.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u> ##				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. ADS Timer	NA	M	Q	1, 2, 3
d. Core Spray Pump Discharge Pressure - High	NA	M	Q	1, 2, 3
e. RHR LPCI Mode Pump Discharge Pressure-High	NA	M	Q	1, 2, 3
f. Reactor Vessel Water Level-Low, Level 3	S	M	R	1, 2, 3
g. ADS Drywell Pressure Bypass Timer	NA	M	Q	1, 2, 3
h. Manual Inhibit	NA	R	NA	1, 2, 3
i. Manual Initiation	NA	R	NA	1, 2, 3
5. <u>LOSS OF POWER</u>				
a. 4.16 kv ESS Bus Undervoltage (Loss of Voltage)	NA	NA	R	1, 2, 3, 4**, 5**
b. 4.16 kv ESS Bus Undervoltage (Degraded Voltage)	S	M	R	1, 2, 3, 4**, 5**
c. 4.16 kv ESS Bus Undervoltage (Degraded Voltage)	S	M	R	1, 2, 3, 4**, 5**

\* When the system is required to be OPERABLE, after being manually realigned, as applicable, per Specification 3.5.2.

\*\* Required OPERABLE when ESF equipment is required to be OPERABLE.

# Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 150 psig.

## Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

## INSTRUMENTATION

### 3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

#### ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

##### LIMITING CONDITION FOR OPERATION

---

3.3.4.1 The anticipated transient without scram recirculation pump trip (ATWS-RPT) system instrumentation channels shown in Table 3.3.4.1-1 shall be OPERABLE with their trip setpoints set consistent with values shown in the Trip Setpoint column of Table 3.3.4.1-2.

APPLICABILITY: OPERATIONAL CONDITION 1.

ACTION:

- a. With an ATWS recirculation pump trip system instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.4.1-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE channels per Trip System requirement for one or both trip systems, place the inoperable channel(s) in the tripped condition within one hour.
- c. With the number of OPERABLE channels two or more less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system and:
  1. If the inoperable channels consist of one reactor vessel water level channel and one reactor vessel pressure channel, place both inoperable channels in the tripped condition within one hour.
  2. If the inoperable channels include two reactor vessel water level channels or two reactor vessel pressure channels, declare the trip system inoperable.
- d. With one trip system inoperable, restore the inoperable trip system to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.
- e. With both trip systems inoperable, restore at least one trip system to OPERABLE status within one hour or be in at least STARTUP within the next 6 hours.

##### SURVEILLANCE REQUIREMENTS

---

4.3.4.1.1 Each ATWS recirculation pump instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.1-1.

4.3.4.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.



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. 11  
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
  - A. The application for an amendment filed by the Pennsylvania Power & Light Company, dated January 31, 1985 as supplemented on May 3, 1985 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) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 11, 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 amendment is effective as of thirty (30) days from the date of issuance except for the amendment to the Technical Specifications listed below. The amendment to the Technical Specifications indicated below is effective upon completion of the modifications and associated performance testing, but no later than September 1, 1985.

<u>Page</u>	<u>Item</u>
3/4 3-29	Trip Function 4.h
3/4 3-32	Trip Function 4.h
3/4 3-33	Trip Function 4.h
3/4 3-35	Trip Function 4.h

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Chief  
Licensing Branch No. 2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: MAY 15 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 11  
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.

REMOVE

3/4 3-27

3/4 3-28

3/4 3-29

3/4 3-29a

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## INSTRUMENTATION

### 3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.3.3 The emergency core cooling system (ECCS) actuation instrumentation channels shown in Table 3.3.3-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.3-2 and with EMERGENCY CORE COOLING SYSTEM RESPONSE TIME as shown in Table 3.3.3-3.

APPLICABILITY: As shown in Table 3.3.3-1.

#### ACTION:

- a. With an ECCS actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.3-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With one or more ECCS actuation instrumentation channels inoperable, take the ACTION required by Table 3.3.3-1.

#### SURVEILLANCE REQUIREMENTS

---

4.3.3.1 Each ECCS actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.3.1-1.

4.3.3.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.3.3 The ECCS RESPONSE TIME of each ECCS trip function shown in Table 3.3.3-3 shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific ECCS trip system.

TABLE 3.3.3-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TRIP FUNCTION	MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. <u>CORE SPRAY SYSTEM</u>			
a. Reactor Vessel Water Level - Low Low Low, Level 1	2(a)	1, 2, 3, 4*, 5*	30
b. Drywell Pressure - High	2(a)	1, 2, 3	30
c. Reactor Vessel Steam Dome Pressure - Low (Permissive)	2(a)	1, 2, 3 4*, 5*	31 32
d. Manual Initiation	1/subsystem	1, 2, 3, 4*, 5*	33
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>			
a. Reactor Vessel Water Level - Low Low Low, Level 1	2(a)	1, 2, 3, 4*, 5*	30
b. Drywell Pressure - High	2(a)	1, 2, 3	30
c. Reactor Vessel Steam Dome Pressure - Low (Permissive)			
1) System Initiation	2(a)	1, 2, 3 4*, 5*	31 32
2) Recirculation Discharge Valve Closure	2(a)	1, 2, 3, 4*, 5*	31 32
d. Manual Initiation	1/subsystem	1, 2, 3, 4*, 5*	33
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM<sup>#</sup></u>			
a. Reactor Vessel Water Level - Low Low, Level 2	2(a)	1, 2, 3	30
b. Drywell Pressure - High	2(a)	1, 2, 3	30
c. Condensate Storage Tank Level - Low	2(a)(b)	1, 2, 3	34
d. Suppression Pool Water Level - High	2(a)	1, 2, 3	34
e. Reactor Vessel Water Level - High, Level 8	2(c)	1, 2, 3	31
f. Manual Initiation	1/system	1, 2, 3	33

SUSQUEHANNA - UNIT 2

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Amendment No. 11

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u> <sup>##</sup>			
a. Reactor Vessel Water Level - Low Low Low, Level 1	2 <sup>(f)</sup>	1, 2, 3	30
b. Drywell Pressure - High	2 <sup>(f)</sup>	1, 2, 3	30
c. ADS Timer	1 <sup>(f)</sup>	1, 2, 3	31
d. Core Spray Pump Discharge Pressure - High (Permissive)	2 <sup>(d)(f)</sup>	1, 2, 3	31
e. RHR LPCI Mode Pump Discharge Pressure - High (Permissive)	2 <sup>(d)(e)(f)</sup>	1, 2, 3	31
f. Reactor Vessel Water Level - Low, Level 3 (Permissive)	1 <sup>(f)</sup>	1, 2, 3	31
g. ADS Drywell Pressure Bypass Timer	2 <sup>(f)</sup>	1, 2, 3	31
h. Manual Inhibit	1	1, 2, 3	33
i. Manual Initiation	1/valve	1, 2, 3	33

	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
5. <u>LOSS OF POWER</u>					
a. 4.16 kv ESS Bus Under-voltage (Loss of Voltage, <20%)	1/bus	1/bus	1/bus	1, 2, 3, 4**, 5**	35
b. 4.16 kv ESS Bus Under-voltage (Degraded Voltage, <65%)	2/bus	2/bus	2/bus	1, 2, 3, 4**, 5**	36
c. 4.16 kv ESS Bus Under-voltage (Degraded Voltage <84%)	2/bus	2/bus	2/bus	1, 2, 3, 4**, 5**	36

See footnotes on next page.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

- (a) A channel may be placed in an inoperable status for up to 2 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.
  - (b) One trip system. Provides signal to HPCI pump suction valves only.
  - (c) Two out of two logic.
  - (d) Either 4d or 4e must be satisfied. The ACTION is required to be taken only if neither is satisfied. A channel is not OPERABLE unless its associated pump is OPERABLE per Specification 3.5.1.
  - (e) Within an ADS Trip System there are two logic subsystems, each of which contains an overall pump permissive. At least one channel associated with each of these overall pump permissives shall be OPERABLE.
  - (f) A channel may be placed in an inoperable status for up to 2 hours for required surveillance testing provided that all channels in the other trip system are OPERABLE.
- \* When the system is required to be OPERABLE per Specification 3.5.2.
- # Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 150 psig.
- \*\* Required when ESF equipment is required to be OPERABLE.
- ## Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

ACTION STATEMENTS

- ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:
- a. For one trip system, place the inoperable trip system in the tripped condition within 1 hour\* or declare the associated ECCS inoperable.
  - b. For both trip systems, declare the associated ECCS inoperable.
- ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, declare the associated ECCS inoperable.
- ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place the inoperable channel in the tripped condition within 1 hour.
- ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, restore the inoperable channel to OPERABLE status within 8 hours or declare the associated ECCS inoperable.
- ACTION 34 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within 1 hour\* or declare the HPCI system inoperable.
- ACTION 35 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.
- ACTION 36 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour;\* operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.

---

\*The provisions of Specification 3.0.4 are not applicable.

TABLE 3.3.3-2

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
1. <u>CORE SPRAY SYSTEM</u>		
a. Reactor Vessel Water Level - Low Low Low, Level 1	$\geq -129$ inches*	$\geq -136$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. Reactor Vessel Steam Dome Pressure - Low	$\geq 436$ psig, decreasing	$\geq 416$ psig, decreasing
d. Manual Initiation	NA	NA
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>		
a. Reactor Vessel Water Level - Low Low Low, Level 1	$\geq -129$ inches*	$\geq -136$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. Reactor Vessel Steam Dome Pressure - Low		
1) System Initiation	$\geq 436$ psig, decreasing	$\geq 416$ psig, decreasing
2) Recirculation Discharge Valve Closure	$\geq 236$ psig, decreasing	$\geq 216$ psig, decreasing
d. Manual Initiation	NA	NA
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM</u>		
a. Reactor Vessel Water Level - Low Low, Level 2	$\geq -38$ inches*	$\geq -45$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. Condensate Storage Tank Level - Low	$\geq 36.0$ inches above tank bottom	$\geq 36.0$ inches above tank bottom
d. Reactor Vessel Water Level - High, Level 8	$\leq 54$ inches	$\leq 55.5$ inches
e. Suppression Pool Water Level - High	$\leq 23$ feet 9 inches	$\leq 24$ feet
f. Manual Initiation	NA	NA

TABLE 3.3.3-2 (Continued)

## EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u>		
a. Reactor Water Level - Low Low Low, Level 1	$\geq -129$ inches*	$\geq -136$ inches
b. Drywell Pressure - High	$\leq 1.72$ psig	$\leq 1.88$ psig
c. ADS Timer	$\leq 102$ seconds	$\leq 114$ seconds
d. Core Spray Pump Discharge Pressure - High	$145 \pm 10$ psig	$145 \pm 20$ psig
e. RHR LPCI Mode Pump Discharge Pressure - High	$125 \pm 4$ psig	$125 \pm 10$ psig
f. Reactor Vessel Water Level-Low, Level 3	$\geq 13$ inches	$\geq 11.5$ inches
g. ADS Drywell Pressure Bypass Timer	$\leq 420$ seconds	$\leq 450$ seconds
h. Manual Inhibit	NA	NA
i. Manual Initiation	NA	NA
5. <u>LOSS OF POWER</u>		
a. 4.16 kv ESS Bus Undervoltage (Loss of Voltage, <20%)	a. 4.16 kv Basis - $840 \pm 16.8$ volts b. 120 v Basis - $24 \pm 0.48$ volts c. $0.5 \pm 0.1$ second time delay	$840 \pm 59.6$ volts $24 \pm 1.7$ volts $0.5 \pm 0.1$ second time delay
b. 4.16 kv ESS Bus Undervoltage (Degraded Voltage, <65%)	a. 4.16 kv Basis - $2695 \pm 53.9$ volts b. 120 v Basis - $77 \pm 1.54$ volts c. $3.0 \pm 0.3$ second time delay	$2695 \pm 191.3$ volts $77 \pm 5.5$ volts $3 \pm 0.3$ second time delay
c. 4.16 kv ESS Bus Undervoltage (Degraded Voltage, <84%)	a. 4.16 kv Basis - $3483 \pm 69.7$ volts b. 120 v Basis - $99.5 \pm 1.99$ volts c. 5 minute $\pm 30$ second time delay without LOCA $10 \pm 1.0$ second time delay with LOCA	$3483 \pm 247.3, - 69.7$ volts $99.5 \pm 7.1$ volts, $-1.99$ volts 5 minutes $\pm 30$ second time delay without LOCA $10 \pm 1.0$ second time delay with LOCA

\*See Bases Figure B 3/4 3-1.

TABLE 3.3.3-3

EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES

<u>TRIP FUNCTION</u>	<u>RESPONSE TIME (Seconds)</u>
<u>1. CORE SPRAY SYSTEM</u>	
a. Reactor Vessel Water Level-Low Low Low, Level 1	<27
b. Drywell Pressure-High	<27
c. Reactor Vessel Steam Dome Pressure-Low	<27
d. Manual Initiation	NA
<u>2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>	
a. Reactor Vessel Water Level-Low Low Low, Level 1	<40
b. Drywell Pressure-High	<40
c. Reactor Vessel Steam Dome Pressure-Low	
1) System Initiation	<40
2) Recirculation Discharge Valve Closure	<40
d. Manual Initiation	NA
<u>3. HIGH PRESSURE COOLANT INJECTION SYSTEM</u>	
a. Reactor Vessel Water Level - Low Low, Level 2	<30
b. Drywell Pressure - High	<30
c. Condensate Storage Tank Level-Low	NA
d. Reactor Vessel Water Level-High, Level 8	NA
e. Suppression Pool Water Level-High	NA
f. Manual Initiation	NA
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM</u>	
a. Reactor Vessel Water Level-Low Low Low, Level 1	NA
b. Drywell Pressure-High	NA
c. ADS Timer	NA
d. Core Spray Pump Discharge Pressure-High	NA
e. RHR LPCI Mode Pump Discharge Pressure-High	NA
f. Reactor Vessel Water Level-Low, Level 3	NA
g. ADS Drywell Pressure Bypass Timer	NA
h. Manual Inhibit	NA
i. Manual Initiation	NA
<u>5. LOSS OF POWER</u>	
a. 4.16 kV ESS Bus Undervoltage (Loss of Voltage <20%)	NA
b. 4.16 kV ESS Bus Undervoltage (Degraded Voltage <65%)	NA
c. 4.16 kV ESS Bus Undervoltage (Degraded Voltage <84%)	NA



TABLE 4.3.3.1-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
1. <u>CORE SPRAY SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Reactor Vessel Steam Dome Pressure - Low	NA	M	Q	1, 2, 3, 4*, 5*
d. Manual Initiation	NA	R	NA	1, 2, 3, 4*, 5*
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Reactor Vessel Steam Dome Pressure - Low				
1) System Initiation	NA	M	Q	1, 2, 3, 4*, 5*
2) Recirculation Discharge Valve Closure	NA	M	Q	1, 2, 3, 4*, 5*
d. Manual Initiation	NA	R	NA	1, 2, 3, 4*, 5*
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM<sup>#</sup></u>				
a. Reactor Vessel Water Level - Low Low, Level 2	S	M	R	1, 2, 3
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level - Low	NA	M	Q	1, 2, 3
d. Suppression Pool Water Level - High	NA	M	Q	1, 2, 3
e. Reactor Vessel Water Level - High, Level 8	NA	M	Q	1, 2, 3
f. Manual Initiation	NA	R	NA	1, 2, 3

TABLE 4.3.3.1-1 (Continued)

## EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u> ##				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	M	R	1, 2, 3
b. Drywell Pressure - High	NA	M	Q	1, 2, 3
c. ADS Timer	NA	M	Q	1, 2, 3
d. Core Spray Pump Discharge Pressure - High	NA	M	Q	1, 2, 3
e. RHR LPCI Mode Pump Discharge Pressure-High	NA	M	Q	1, 2, 3
f. Reactor Vessel Water Level-Low, Level 3	S	M	R	1, 2, 3
g. ADS Drywell Pressure Bypass Timer	NA	M	Q	1, 2, 3
h. Manual Inhibit	NA	R	NA	1, 2, 3
i. Manual Initiation	NA	R	NA	1, 2, 3
5. <u>LOSS OF POWER</u>				
a. 4.16 kv ESS Bus Undervoltage (Loss of Voltage)	NA	NA	R	1, 2, 3, 4**, 5**
b. 4.16 kv ESS Bus Undervoltage (Degraded Voltage)	S	M	R	1, 2, 3, 4**, 5**
c. 4.16 kv ESS Bus Undervoltage (Degraded Voltage)	S	M	R	1, 2, 3, 4**, 5**

\* When the system is required to be OPERABLE, after being manually realigned, as applicable, per Specification 3.5.2.

\*\* Required OPERABLE when ESF equipment is required to be OPERABLE.

# Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 150 psig.

## Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

## INSTRUMENTATION

### 3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

#### ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

##### LIMITING CONDITION FOR OPERATION

---

3.3.4.1 The anticipated transient without scram recirculation pump trip (ATWS-RPT) system instrumentation channels shown in Table 3.3.4.1-1 shall be OPERABLE with their trip setpoints set consistent with values shown in the Trip Setpoint column of Table 3.3.4.1-2.

APPLICABILITY: OPERATIONAL CONDITION 1.

##### ACTION:

- a. With an ATWS recirculation pump trip system instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.4.1-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE channels per Trip System requirement for one or both trip systems, place the inoperable channel(s) in the tripped condition within one hour.
- c. With the number of OPERABLE channels two or more less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system and:
  1. If the inoperable channels consist of one reactor vessel water level channel and one reactor vessel pressure channel, place both inoperable channels in the tripped condition within one hour.
  2. If the inoperable channels include two reactor vessel water level channels or two reactor vessel pressure channels, declare the trip system inoperable.
- d. With one trip system inoperable, restore the inoperable trip system to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.
- e. With both trip systems inoperable, restore at least one trip system to OPERABLE status within one hour or be in at least STARTUP within the next 6 hours.

##### SURVEILLANCE REQUIREMENTS

---

4.3.4.1.1 Each ATWS recirculation pump instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.1-1.

4.3.4.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.



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

SAFETY EVALUATION

AMENDMENT NOS. 44 AND 11 TO NPF-14 AND NPF-22

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1&2

DOCKET NO. 50-387/388

Introduction

By letter dated January 31, 1985, from N. W. Curtis to A. Schwencer, as supplemented by letter dated May 3, 1985, the Pennsylvania Power and Light Company (the licensee) requested changes to the Technical Specifications for Susquehanna Steam Electric Station, Units 1 and 2. The proposed changes are made in conjunction with a modification to the actuation logic for the Automatic Depressurization System (ADS). The change to the ADS logic adds a timer which bypasses the high drywell pressure permissive after a sustained low water level indication, and adds a manually operated inhibit switch. These design changes were generically approved by the staff in memorandum from R. W. Houston to G. Lainas, "Evaluation of BWR Owner's Group Generic Response to Item II.K.3.18 of NUREG-0737 'Modification of Automatic Depressurization System Logic,' "dated April 1, 1983.

Evaluation

The Automatic Depressurization System (ADS) has been modified in accordance with TMI Action Plan II.K.3.18 to automatically initiate in the absence of a high drywell pressure initiation signal. The ADS functions as a backup to the High Pressure Core Injection System (HPCI) by depressurizing the reactor vessel so that low pressure systems may inject water for core cooling. The ADS is currently actuated upon coincident signals of reactor vessel low water level, high drywell pressure, a low pressure ECCS pump running, and a 105 second time delay which allows ADS to be bypassed if the operator believes the actuation signal is erroneous or if vessel water level can be restored. However, for transient and accident events which do not produce high drywell pressure, and are further degraded by a loss of HPCI, manual actuation of the ADS would be required to ensure adequate core cooling.

To reduce the dependence for manual ADS actuation in order to ensure adequate core cooling, the applicant has installed bypass timers which will automatically bypass the drywell high pressure inputs required for ADS actuation if reactor vessel water level remains below the ADS initiation setpoint (level 1) for a sustained period (8 minutes). After the 8 minute time delay and the 105 second time delay, ADS will be automatically actuated in the absence of a drywell high pressure signal if a reactor vessel low water level condition still exists and a low pressure ECCS pump is running.

Four 8 minute time delays have been added, one for each ADS drywell high pressure initiation channel. There are two ADS actuation channels (Division 1 and Division 2), either of which can perform the required ADS function. There are two bypass timers associated with each ADS division. Both the 8 minute bypass timer and the 105 second actuation timer will reset if reactor water level recovers above the trip elevation before it times out.

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Another modification made to the Susquehanna Steam Electric Station, Units 1 and 2 ADS consists of the addition of two ADS manual inhibit switches (one per ADS division) that permit the operator to override the ADS automatic blowdown logic if necessary. These manual inhibit switches are located on a control room panel near the controls for the safety relief valves. A keylocked switch is used for the manual inhibit function to provide a means of limiting the potential for inadvertent actuation of the manual inhibit. Alarms alert the operator of time-out of the bypass timer and activation of the manual inhibit switches.

We have reviewed the licensee's proposed technical specification changes and conclude that the Technical Specification Changes are acceptable since they conform to the BWR Owner's Group generic response to Item II.K.3.18 of NUREG-0737 which was approved by the staff on April 1, 1983.

The licensee in their original submittal proposed, an Action Statement 37, to allow a division of ADS to be out-of-service for up to 14 days if the requirement for minimum operable channels per trip system is not satisfied. This was in lieu of the typical operating plant and standard technical specification action statement for ADS which places the inoperable channel in a tripped condition within one hour or declares the associated ECCS inoperable. Without a detailed engineering assessment from the licensee regarding the origination and validity of the 14 day out-of-service time, the staff is unable to evaluate this particular action statement. As a result on May 3, 1985 the licensee withdrew their request to implement Action 37 but plans to resubmit another request in the near future. The staff recognizes that the previously approved action statement 30 (for which Action 37 was proposed to replace) which places the trip system in a tripped condition if the requirement for minimum operable channels per trip system is not satisfied, is too restrictive. The staff encourages the licensee to resubmit a proposed technical specification change pertaining to Action Statement 30 and to provide at that time a clear technical basis for its support. Therefore, the licensee is still required to utilize the previously approved action statements for the ADS actuation instrumentation. In view of the withdrawal of proposed Action Statement 37, Action Statements 31 and 33 are applicable for the recently added trip functions, ADS drywell pressure bypass timer and manual inhibit, respectively.

In addition, the staff concludes that the Susquehanna ADS design meets the requirements of TMI Action Plan Item II.K.3.18 regarding ADS automatic actuation to ensure adequate core cooling, and, therefore, is acceptable.

Finally, this amendment corrects errors contained in Table 3.5.3-1 Emergency Core Cooling System (ECCS) Actuation Logic Instrumentation (page 3/4 3-28) of the Unit 1 and 2 Technical Specifications. Footnote (a), where originally located on this page, applied to every entry. Footnote (a) states:

"A Channel may be placed in an operable status for up to 2 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."

This footnote was erroneously applied to the manual initiation functions, which can be performed without placing the required system in an inoperable status, and the Level 8 high pressure coolant injection trip function which would become unavailable if one channel were placed in an inoperable status. The proposed amendment removes this footnote from these functions since it was incorrectly applied originally. The staff concludes, therefore, that this change is acceptable.

#### Environmental Consideration

These amendments involve changes in 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 amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

#### Conclusion

We have 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 or to the health and safety of the public.

Dated: **MAY 15 1985**