

TABLE 2.2.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

SUSQUEHANNA - UNIT 1

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Amendment No. 17

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Intermediate Range Monitor, Neutron Flux-High	< 120/125 divisions of full scale	< .122/125 divisions of full scale
2. Average Power Range Monitor:		
a. Neutron Flux-Upscale, Setdown	< 15% of RATED THERMAL POWER	< 20% of RATED THERMAL POWER
b. Flow Biased Simulated Thermal Power-Upscale		
1) Flow Biased	< 0.58 W+59%, with a maximum of	< 0.58 W+62%, with a maximum of
2) High Flow Clamped	< 113.5% of RATED THERMAL POWER	< 115.5% of RATED THERMAL POWER
c. Neutron Flux-Upscale	< 118% of RATED THERMAL POWER	< 120% of RATED THERMAL POWER
d. Inoperative	NA	NA
3. Reactor Vessel Steam Dome Pressure - High	< 1037 psig	< 1057 psig
4. Reactor Vessel Water Level - Low, Level 3	> 13.0 inches above instrument zero*	> 11.5 inches above instrument zero
5. Main Steam Line Isolation Valve - Closure	< 10% closed	< 11% closed
6. Main Steam Line Radiation - High	< 3.0 x full power background	< 3.6 x full power background
7. Drywell Pressure - High	< 1.72 psig	< 1.88 psig
8. Scram Discharge Volume Water Level - High	< 88 gallons	< 88 gallons
9. Turbine Stop Valve - Closure	< 5.5% closed	< 7% closed
10. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	> 500 psig	> 460 psig
11. Reactor Mode Switch Shutdown Position	NA	NA
12. Manual Scram	NA	NA

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

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8. Scram Discharge Volume Water Level - High

a. Level Transmitter

≤ 88 gallons

≤ 88 gallons

b. Float Switch

≤ 88 gallons

≤ 88 gallons



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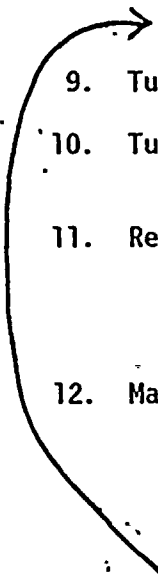
SUSQUEHANNA - UNIT 1

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TABLE 3.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (a)</u>	<u>ACTION</u>
7. Drywell Pressure - High	1, 2 ^(h)	2	1
8. Scram Discharge Volume Water Level - High	1, 2 5 ⁽ⁱ⁾	2 2	1 3
9. Turbine Stop Valve - Closure	1 ^(j)	4 ^(k)	6
10. Turbine Control Valve Fast Closure, Valve Trip System Oil Pressure - Low	1 ^(j)	2 ^(k)	6
11. Reactor Mode Switch Shutdown Position	1, 2 3, 4 5	1 1 1	1 7 3
12. Manual Scram	1, 2 3, 4 5	2 2 2	1 8 9
a. Level Transmitter	1, 2 5 ⁽ⁱ⁾	2 2	1 3
b. Float Switch	1, 2 5 ⁽ⁱ⁾	2 2	1 3





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TABLE 3.3.1-2

REACTOR PROTECTION SYSTEM RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME (Seconds)</u>
1. Intermediate Range Monitors:	
a. Neutron Flux - High	NA
b. Inoperative	NA
2. Average Power Range Monitor*:	
a. Neutron Flux - Upscale, Setdown	NA
b. Flow Biased Simulated Thermal Power - Upscale	< 0.09**
c. Fixed Neutron Flux - Upscale	< 0.09
d. Inoperative	NA
3. Reactor Vessel Steam Dome Pressure - High	< 0.55
4. Reactor Vessel Water Level - Low, Level 3	< 1.05
5. Main Steam Line Isolation Valve - Closure	< 0.06
6. Main Steam Line Radiation - High	NA
7. Drywell Pressure - High	NA
8. Scram Discharge Volume Water Level - High	NA
9. Turbine Stop Valve - Closure	< 0.06
10. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	< 0.08#
11. Reactor Mode Switch Shutdown Position	NA
12. Manual Scram	NA

*Neutron detectors are exempt from response time testing. Response time shall be measured from the detector output or from the input of the first electronic component in the channel.

**Not including simulated thermal power time constant.

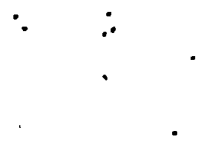
#Measured from actuation of fast-acting solenoid.

a. Level Transmitter

NA

b. Float Switch

NA



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a. Level Transmitter NA M R 1, 2, 5(j)

b. Float Switch NA Q R 1, 2, 5(j)

TABLE 4.3.1.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
8. Scram Discharge Volume Water Level - High	NA	M	R	1, 2, 5(j)
9. Turbine Stop Valve - Closure	NA	M	R	1
10. Turbine Control Valve Fast Closure Valve Trip System Oil Pressure - Low	NA	M	R	1
11. Reactor Mode Switch Shutdown Position	NA	R	NA	1, 2, 3, 4, 5
12. Manual Scram	NA	M	NA	1, 2, 3, 4, 5

(a) Neutron detectors may be excluded from CHANNEL CALIBRATION.

(b) The IRM and SRM channels shall be determined to overlap for at least 0.5 decades during each startup after entering OPERATIONAL CONDITION 2 and the IRM and APRM channels shall be determined to overlap for at least 0.5 decades during each controlled shutdown, if not performed within the previous 7 days.

(c) Within 24 hours prior to startup, if not performed within the previous 7 days.

(d) This calibration shall consist of the adjustment of the APRM channel to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER > 25% of RATED THERMAL POWER. Adjust the APRM channel if the absolute difference is greater than 2% of RATED THERMAL POWER. Any APRM channel gain adjustment made in compliance with Specification 3.2.2 shall not be included in determining the absolute difference.

(e) This calibration shall consist of the adjustment of the APRM flow biased channel to conform to a calibrated flow signal.

(f) The LPRMs shall be calibrated at least once per 1000 effective full power hours (EFPH) using the TIP system.

(g) Verify measured core flow to be greater than or equal to established core flow at the existing pump speed.

(h) This calibration shall consist of verifying the 6 ± 1 second simulated thermal power time constant.

(i) This function is not required to be OPERABLE when the reactor pressure vessel head is unbolted or removed per Specification 3.10.1.

(j) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.



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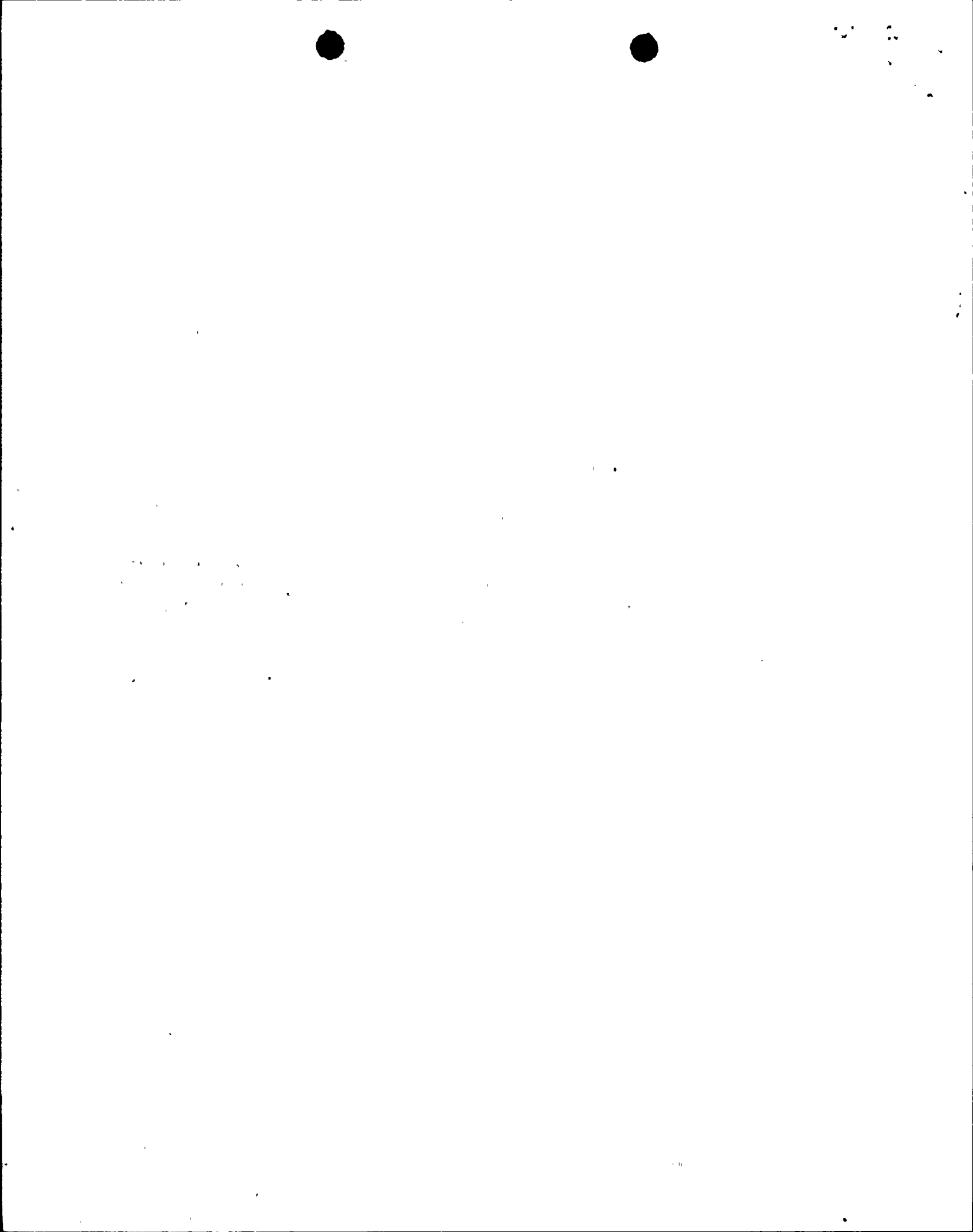
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TABLE 3.3.6-1
CONTROL ROD BLOCK INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP FUNCTION</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
1. <u>ROD BLOCK MONITOR</u> ^(a)			
a. Upscale	2	1*	60
b. Inoperative	2	1*	60
c. Downscale	2	1*	60
2. <u>APRM</u>			
a. Flow Biased Neutron Flux - Upscale	4	1	61
b. Inoperative	4	1, 2, 5	61
c. Downscale	4	1	61
d. Neutron Flux - Upscale, Startup	4	2, 5	61
3. <u>SOURCE RANGE MONITORS</u>			
a. Detector not full in ^(b)	3	2	61
	2	5	61
b. Upscale ^(c)	3	2	61
	2	5	61
c. Inoperative ^(c)	3	2	61
	2	5	61
d. Downscale ^(d)	3	2	61
	2	5	61
4. <u>INTERMEDIATE RANGE MONITORS</u>			
a. Detector not full in	6	2, 5	61
b. Upscale	6	2, 5	61
c. Inoperative	6	2, 5	61
d. Downscale ^(e)	6	2, 5	61
5. <u>SCRAM DISCHARGE VOLUME</u>			
a. Water Level-High	2	1, 2, 5**	62
6. <u>REACTOR COOLANT SYSTEM RECIRCULATION FLOW</u>			
a. Upscale	2	1	62
b. Inoperative	2	1	62
c. Comparator	2	1	62

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ELECTRICAL POWER SYSTEMS

REACTOR PROTECTION SYSTEM ELECTRIC POWER MONITORING

LIMITING CONDITION FOR OPERATION

3.8.4.3 Two RPS electric power monitoring assemblies for each inservice RPS MG set or alternate power supply shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one RPS electric power monitoring assembly for an inservice RPS MG set or alternate power supply inoperable, restore the inoperable power monitoring assembly to OPERABLE status within 72 hours or remove the associated RPS MG set or alternate power supply from service.
- b. With both RPS electric power monitoring assemblies for an inservice RPS MG set or alternate power supply inoperable, restore at least one electric power monitoring assembly to OPERABLE status within 30 minutes or remove the associated RPS MG set or alternate power supply from service.

SURVEILLANCE REQUIREMENTS

4.8.4.3 The above specified RPS electric power monitoring assemblies shall be determined OPERABLE:

- *a. By performance of a CHANNEL FUNCTIONAL TEST when in COLD SHUTDOWN if not performed within the previous 6 months.
- b. At least once per 18 months by demonstrating the OPERABILITY of over-voltage, under-voltage and under-frequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic and output circuit breakers and verifying the following setpoints:

	<u>RPS Division A</u>	<u>RPS Division B</u>
1. Over-voltage	< 128.3 VAC	< 129.5 VAC
2. Under-voltage	≥ 110.7 VAC**	≥ 111.9 VAC**
3. Under-frequency	≥ 57 Hz	≥ 57 Hz

*Prior to startup after the first refueling shutdown, this Surveillance Requirement is deleted and replaced as follows:

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- a. At least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST:

INSERT B, page 3/4 8-33 :

** Initial setpoint. Final setpoint to be determined during startup testing following the first refueling outage. Any required change to this setpoint shall be submitted to the Commission within 90 days of test completion.

