BASES

U	=	Maximum number of inoperable safety valves per operating steam line
106.5	=	Power Level-High Trip Setpoint for two loop operation
46.8	=	Power Level-High Trip Setpoint for single loop operation with two reactor coolant pumps operating in the same loop
X	=	Total relieving capacity of all safety valves per steam line in lbs/hour
Y	=	Maximum relieving capacity of any one safety valve in lbs/hour

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 300°F from normal operating conditions in the event of a total loss of offsite power. A capacity of 400 gpm is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 300°F when the shutdown cooling system may be placed into operation.

Flow control valves, installed in each leg supplying the steam generators, maintain a nominal flow setpoint of 160 gpm plus or minus 10 gpm for operator setting band. The nominal flow setpoint of 160 gpm incorporates a total instrument loop error band of plus 47 gpm (217 gpm total flow per leg) and minus 60 gpm (90 gpm total flow per leg).

In the spectrum of events analyzed in which automatic initiation of auxiliary feedwater occurs the nominal setting of 160 gpm allows a minimum of 10 minutes before operator action is required. At 10 minutes after automatic initiation of flow the operator is assumed to be available to increase or decrease auxiliary feedwater flow to that required for existing plant conditions.

ATTACHMENT 2

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8.	CVCS ISOLATION					
	a. Manual (CVCS Isolation Valve Control Switches)	1/Valve	1/Valve	1/Valve	1, 2, 3, 4	6
	b. West Penetration Room/Letdown Heat Exchanger Room Pressure - High	4	2	3	1, 2, 3, 4	7*
9.	AUXILIARY FEEDWATER Actuation System					
	a. Manual (Trip Buttons)	2 sets of 2 per S/G	1 set of 2 per S/G	2 sets of 2 per S/G	1, 2, 3	6
	b. Steam Generator Level - Low	4/SG	2/SG	3/SG	1,2,3	7
	c. Steam Generator ΔP High	4/SG	2/SG	3/SG	1,2,3	7

ATTACHMENT 3

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

	FUNCTIONAL UNIT	TRIP VALUE	ALLOWABLE VALUES
8.	CVCS ISOLATION		
	West Penetration Room/Letdown Heat Exchanger Room Pressure - High	$\leq$ 0.5 psig	$\leq$0.5 psig
9.	AUXILIARY FEEDWATER ACTUATION SYSTEM		
	a. Manual (trip buttons)	Not Applicable	Not Applicable
	b. Steam Generator (A or B) Level - Low	-194" to -149" (inclusive)	-194" to -149" (inclusive)
	c. Steam Generator ΔP-High (SG-A > SG-B)	$\leq$ 130.0 psid	$\leq$ 130.0 psid
	d. Steam Generator ΔP-High (SG-B > SG-A)	$\leq$ 130.0 psid	$\leq$ 130.0 psid

ATTACHMENT 4

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
6. Steam Generator Pressure-Low	
a. Main Steam Isolation	≤ 6.9
b. Feedwater Isolation	≤ 80
7. Refueling Water Tank-Low	
a. Containment Sump Recirculation	≤ 80
8. Reactor Trip	
a. Feedwater Flow Reduction to 5%	≤ 20
9. Loss of Power	
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	≤ 2.2***
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	≤ 8.4***
10. Steam Generator Level - Low	
a. Steam Driven AFW Pump	≤ 54.5
b. Motor Driven AFW Pump	≤ 54.5* / 14.5**
11. Steam Generator ΔP-High	
a. Auxiliary Feedwater Isolation	≤ 20.0

TABLE NOTATION

* Diesel generator starting and sequence loading delays included.
** Diesel generator starting and sequence loading delays not included. Offsite power available.
*** Response time measured from the incidence of the undervoltage condition to the diesel generator start signal.

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
5.	CONTAINMENT SUMP RECIRCULATION (RAS)				
	a. Manual RAS (Trip Buttons)	N.A.	N.A.	R	N.A.
	b. Refueling Water Tank - Low	N.A.	R	M	1, 2, 3
	c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
6.	CONTAINMENT PURGE VALVES ISOLATION##				
	a. Manual (Purge Valve Control Switches	N.A.	N.A.	R	N.A.
	b. Containment Radiation - High Area Monitor	S	R	M	6
7.	LOSS OF POWER				
	a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage	N.A.	R	M	1, 2, 3
	b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage	N.A.	R	M	1, 2, 3
8.	CVCS ISOLATION West Penetration Room/ Letdown Heat Exchange Room Pressure - High	N.A.	R	M	1, 2, 3, 4
9.	AUXILIARY FEEDWATER				
	a. Manual (Trip Buttons)	N.A.	N.A.	R	N.A.
	b. Steam Generator Level-Low	S	R	M	1, 2, 3
	c. Steam Generator ΔP-High	S	R	M	1, 2, 3
	d. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3

Containment purge valve isolation is also initiated by SIAS (functional units 1.a, 1.b and 1.c).

ATTACHMENT 6

TABLE 3.3-9

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

	INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS PERABLE
1.	Reactor Trip Breaker Indication	Cable Spreading Room	OPEN-CLOSE	breaker
2.	Reactor Coolant Cold Leg Temperature	2C43	212-705^{0}F	1
3.	Pressurizer Pressure	2C43	0-4000 psia	1
4.	Pressurizer Level	2C43	0-360 inches	1
5.	Steam Generator Pressure	2C43	0-1200 psig	1/steam generator
6.	Steam Generator Level	2C43	-401 to +63.5 inches	1/steam generator

ATTACHMENT 7

TABLE 4.3-6

REMOTE SHUTDOWN MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	INSTRUMENT	CHANNEL CHECK	CALIBRATION
1.	Reactor Trip Breaker Indication	M	N.A.
2.	Reactor Coolant Cold Leg Temperature	M	R
3.	Pressurizer Pressure	M	R
4.	Pressurizer Level	M	R
5.	Steam Generator Pressure	M	R
6.	Steam Generator Level	M	R

ATTACHMENT 8

TABLE 3.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION

	INSTRUMENT	MINIMUM CHANNELS OPERABLE
1.	Containment Pressure	2
2.	Wide Range Logarithmic Neutron Flux Monitor	2
3.	Reactor Coolant Outlet Temperature	2
4.	Pressurizer Pressure	2
5.	Pressurizer Level	2
6.	Steam Generator Pressure	2/steam generator
7.	Steam Generator Level (Wide Range)	2/steam generator
8.	Auxiliary Feedwater Flow Rate	2/steam generator
9.	RCS Subcooled Margin Monitor	1
10.	PORV/Safety Valve Acoustic Flow Monitoring	1/valve
11.	PORV Solenoid Power Indication	1/valve

ATTACHMENT 9

TABLE 4.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1.	Containment Pressure	M	R
2.	Wide Range Logarithmic Neutron Flux Monitor	M	N.A.
3.	Reactor Coolant Outlet Temperature	M	R
4.	Pressurizer Pressure	M	R
5.	Pressurizer Level	M	R
6.	Steam Generator Pressure	M	R
7.	Steam Generator Level (Wide Range)	M	R
8.	Auxiliary Feedwater Flow Rate	M	R
9.	RCS Subcooled Margin Monitor	M	R
10.	PORV/Safety Valve Acoustic Monitor	N.A.	R
11.	PORV Solenoid Power Indication	N.A.	N.A.

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 Two auxiliary feedwater trains consisting of one steam driven and one motor driven pump and associated flow paths capable of automatically initiating flow shall be OPERABLE. (An OPERABLE Steam driven train shall consist of one pump aligned for automatic flow initiation and one pump aligned in standby[1].)

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one motor driven pump inoperable:

   1. Restore the inoperable motor driven pump to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With one steam driven pump inoperable:

   1. Align the standby steam driven pump to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours, and

   2. Restore the inoperable steam driven pump to standby status (or OPERABLE status if the other steam driven pump is to be placed in standby) within the next 30 days or be in HOT SHUTDOWN within the next 12 hours.

c. Whenever a subsystem (consisting of one pump, piping, valves and controls in the direct flow path) required for operability is inoperable for the performance of periodic testing (e.g. manual discharge valve closed for pump Total Dynamic Head test) a dedicated operator will be stationed at the local station with direct communication to the Control Room. Upon completion of any testing, the subsystem required for operability will be returned to its proper status and verified in its proper status by an independent operator check.

With the requirements of 3.7.1.2.a. or 3.7.1.2.b. met, the provisions of specification 3.0.4 are not applicable.

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[1] A standby pump shall be available for operation but aligned so that automatic flow initiation is defeated upon AFAS actuation.

ATTACHMENT 11

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each auxiliary feedwater flowpath shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Verifying that each steam driven pump develops a Total Dynamic Head of $\geq$ 2800 ft. on recirculation flow. (If verification must be demonstrated during startup, surveillance testing shall be performed upon achieving an RCS temperature $\geq$ 300°F and prior to entering MODE 1).

2. Verifying that the motor driven pump develops a Total Dynamic Head of $\geq$ 3100 ft. on recirculation flow.

3. Cycling each testable, remote operated valve that is not in its operating position through at least one complete cycle.

4. Verifying that each valve (manual, power operated or automatic) in the direct flow path is in its correct position. The AFW flow control valves may be verified by observing a 160 gpm setpoint on the flow indicator controller in Control Room.

b. Before entering MODE 3 after a COLD SHUTDOWN of at least 14 days by completing a flow test that verifies the flow path from the condensate storage tank to the steam generators.

c. At least once per 18 months by verifying that each automatic valve in the flow path actuates to its correct position and each auxiliary feedwater pump automatically starts and delivers a modulated flow of 160 gpm $\pm$ 10 gpm to each flow leg upon receipt of each auxiliary feedwater actuation system (AFAS) test signal.