TABLE 3. 3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
12.	Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any operating loop	2/loop in each operating loop	1	6
13.	Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loops	2/loop in each operating loop	1	6
14.	Main Steam Generator Water Level--Low-Low					
	A. Steam Generator Water Level--Low-Low (Adverse)	3/Stm. Gen.	2/Stm. Gen. in any operating Stm. Gen	2/Stm. Gen. in each Operating Stm. Gen.	1,2	9
	B. Steam Generator Water Level--Low-Low (EAM)	3/Stm. Gen.	2/Stm. Gen. in any operating Stm. Gen.	2/Stm. Gen. in each operating Stm. Gen.	1,2	9
	C. RCS Loop ΔT	4 (1/loop)	2	3	1,2	10
	D. Containment Pressure (EAM)	4	2	3	1,2	11
15.	Deleted					
16.	Undervoltage-Reactor Coolant Pumps	4-1/bus	2	3	1	6
17.	Underfrequency-Reactor Coolant Pumps	4-1/bus	2	3	1	6
18.	Turbine Trip					
	A. Low Fluid Oil Pressure	3	2	2	1**	6
	B. Turbine Stop Valve Closure	4	4	4	1**	7

TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the reactor trip system breakers in the closed position, the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.

** Above the P-9 (Power Range Neutron Flux) interlock.

Source Range outputs may be disabled above the P-6 (Block of Source Range Reactor Trip) setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

c. The QUADRANT POWER TILT RATIO is monitored in accordance with Technical Specification 3.2.4.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

d. Above 10% of RATED THERMAL POWER, the provisions of Specification 3.0.3 are not applicable.

ACTION 4 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, operation may continue.

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or THERMAL POWER is reduced to less than P-9 within 10 hours.

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE IS REQUIRED
15.	Deleted				
16.	Undervoltage - Reactor Coolant Pumps	N.A.	R	Q	1
17.	Underfrequency - Reactor Coolant Pumps	N.A.	R	Q	1
18.	Turbine Trip				
	A. Low Fluid Oil Pressure	N.A.	N.A.	S/U(1)	1**
	B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1**
19.	Safety Injection Input from ESF	N.A.	N.A.	R	1, 2
20.	Reactor Trip Breaker	N.A.	N.A.	M(5) and S/U(1)	1, 2, and *
21.	Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2, and *
22.	Reactor Trip System Interlocks				
	A. Intermediate Range Neutron Flux, P-6	N.A.	R	N.A.	2, and *
	B. Power Range Neutron Flux, P-7	N.A.	N.A.	N.A.	1
	C. Power Range Neutron Flux, P-8	N.A.	R	N.A.	1
	D. Power Range Neutron Flux, P-10	N.A.	R	N.A.	1, 2
	E. Turbine Impulse Chamber Pressure, P-13	N.A.	R	N.A.	1
	F. Power Range Neutron Flux, P-9	N.A.	R	N.A.	1
	G. Reactor Trip, P-4	N.A.	N.A.	R	1, 2, and *
23.	Reactor Trip Bypass Breaker	N.A.	N.A.	M(10)R(11)	1, 2, and *

TABLE 4.3-1 (Continued)

NOTATION

* - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

** - Above the P-9 (Power Range Neutron Flux) interlock.

(1) - If not performed in previous 31 days.

(2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.

(3) - Compare incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference greater than or equal to 3 percent. The frequency of this surveillance is every 31 EFPD. This surveillance is not required to be performed until 96 hours after thermal power is $\geq$ 15% RTP.

(4) - Deleted.

(5) - Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS. The test shall independently verify the OPERABILITY of the undervoltage and automatic shunt trip circuits.

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(7) - Below P-6 (Block of Source Range Reactor Trip) setpoint.

(8) - Deleted.

(9) - The CHANNEL FUNCTIONAL TEST shall independently verify the operability of the undervoltage and shunt trip circuits for the manual reactor trip function.

(10) - Local manual shunt trip prior to placing breaker in service. Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(11) - Automatic and manual undervoltage trip.

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
16.	Undervoltage-Reactor Coolant Pumps	4-1/bus	2	3	1	6
17.	Underfrequency-Reactor Coolant Pumps	4-1/bus	2	3	1	6
18.	Turbine Trip					
	A. Low Fluid Oil Pressure	3	2	2	1**	6
	B. Turbine Stop Valve Closure	4	4	4	1**	7
19.	Safety Injection Input from ESF	2	1	2	1, 2	12
20.	Reactor Trip Breakers					
	A. Startup and Power Operation	2	1	2	1, 2	12, 15
	. Shutdown	2	1	2	3*,4* and 5*	16
21.	Automatic Trip Logic					
	A. Startup and Power Operation	2	1	2	1, 2	12
	B. Shutdown	2	1	2	3*,4* and 5*	16
22.	Reactor Trip System Interlocks					
	A. Intermediate Range Neutron Flux, P-6	2	1	2	2, and*	8a
	B. Power Range Neutron Flux, P-7	4	2	3	1	8b

TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the reactor trip system breakers in the closed position, the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.

** Above the P-9 (Power Range Neutron Flux) interlock.

\#\# Source Range outputs may be disabled above the P-6 (Block of Source Range Reactor Trip) setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

c. The QUADRANT POWER TILT RATIO is monitored in accordance with Technical Specification 3.2.4.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

d. Above 10% of RATED THERMAL POWER, the provisions of Specification 3.0.3 are not applicable.

ACTION 4 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, operation may continue.

ACTION 5 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or THERMAL POWER is reduced to less than P-9 within 10 hours.

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
15.	Deleted				
16.	Undervoltage - Reactor Coolant Pumps	N.A.	R	Q	1
17.	Underfrequency - Reactor Coolant Pumps	N.A.	R	Q	1
18.	Turbine Trip				
	A. Low Fluid Oil Pressure	N.A.	N.A.	S/U(1)	1**
	B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1**
19.	Safety Injection Input from ESF	N.A.	N.A.	R	1, 2
20.	Reactor Trip Breaker	N.A.	N.A.	M(5) and S/U(1)	1, 2, and *
21.	Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2, and *
22.	Reactor Trip System Interlocks				
	A. Intermediate Range Neutron Flux, P-6	N.A.	R	N.A.	2, and *
	B. Power Range Neutron Flux, P-7	N.A.	N.A.	N.A.	1
	C. Power Range Neutron Flux, P-8	N.A.	R	N.A.	1
	D. Power Range Neutron Flux, P-10	N.A.	R	N.A.	1, 2
	E. Turbine Impulse Chamber Pressure, P-13	N.A.	R	N.A.	1
	F. Power Range Neutron Flux, P-9	N.A.	R	N.A.	1
	G. Reactor Trip, P-4	N.A.	N.A.	R	1, 2, and *
23.	Reactor Trip Bypass Breaker	N.A.	N.A.	M(10)R(11)	1, 2, and *

Table 4.3-1 (Continued)

NOTATION

* - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

** - Above the P-9 (Power Range Neutron Flux) interlock.

(1) - If not performed in previous 31 days.

(2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.

(3) - Compare incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference greater than or equal to 3 percent. The frequency of this surveillance is every 31 EFPD. This surveillance is not required to be performed until 96 hours after thermal power is $\geq$ 15% RTP.

(4) - Deleted.

(5) - Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS. The test shall independently verify the OPERABILITY of the undervoltage and automatic shunt trip circuits.

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(7) - Below P-6 (Block of Source Range Reactor Trip) setpoint.

(8) - Deleted.

(9) - The CHANNEL FUNCTIONAL TEST shall independently verify the operability of the undervoltage and shunt trip circuits for the manual reactor trip function.

(10) - Local manual shunt trip prior to placing breaker in service. Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(11) - Automatic and manual undervoltage trip.