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ATTENTION: "REPLACE" directions do not affect the Table of Contents, Therefore no DC will be issued with the updated material.

TRM1 - TECHNICAL REQUIREMENTS MANUAL UNIT 1

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A001
NRR

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CATEGORY: DOCUMENTS TYPE: TRM1
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SSSES MANUAL

Manual Name: TRM1

Manual Title: TECHNICAL REQUIREMENTS MANUAL UNIT 1

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2.2	Instrument Trip Setpoint Table	01/21/2014
3.0	APPLICABILITY	
3.0	Technical Requirement for Operation (TRO) Applicability	02/19/2015
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3.1.1	Anticipated Transient Without Scram Alternate Rod Injection (ATWS-ARI) Instrumentation	10/31/2007
3.1.2	Control Rod Drive (CRD) Housing Support	08/31/1998
3.1.3	Control Rod Block Instrumentation	12/15/2017
3.1.4	Control Rod Scram Accumulators Instrumentation and Check Valve	02/18/1999
3.2	CORE OPERATING LIMITS REPORT	
3.2.1	Core Operating Limits Report	03/24/2016
3.3	INSTRUMENTATION	
3.3.1	Radiation Monitoring Instrumentation	07/16/1999
3.3.2	Seismic Monitoring Instrumentation	03/10/2011
3.3.3	Meteorological Monitoring Instrumentation	10/31/2007
3.3.4	TRM Post-Accident Monitoring Instrumentation	06/20/2017
3.3.5	Section Not Used	
3.3.6	TRM Isolation Actuation Instrumentation	04/11/2014
3.3.7	Main Turbine Overspeed Protection System	11/04/2015
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3.3.9	OPRM Instrumentation Configuration	03/27/2008
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3.5.2	ECCS and RCIC System Monitoring Instrumentation	10/31/2007
3.5.3	Long Term Nitrogen Supply to ADS	08/31/1998
3.6	CONTAINMENT	
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3.6.2	Suppression Chamber-to-Drywell Vacuum Breaker Position	04/16/2014
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3.7.3.1	Fire Suppression Water Supply System	01/26/2017
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3.7.3.8	Fire Detection Instrumentation	12/15/2017
3.7.4	Solid Radwaste System	03/31/2006
3.7.5	Explosive Gas and Storage Tank Radioactivity Monitoring Program	
3.7.5.1	Main Condenser Offgas Hydrogen Monitor	02/19/2015
3.7.5.2	Main Condenser Offgas Explosive Gas Mixture	08/31/1998
3.7.5.3	Liquid Holdup Tanks	03/31/2006
3.7.6	ESSW Pumphouse Ventilation	05/24/2012
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3.7.8	Snubbers	02/19/2015
3.7.9	Control Structure HVAC	08/16/2006
3.7.10	Spent Fuel Storage Pools (SFSPs)	12/03/2004
3.7.11	Structural Integrity	04/01/2009

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3.8.3	Diesel Generator (DG) Maintenance Activities	02/19/2015
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3.8.5	Degraded Voltage Protection	11/07/2013
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3.8.7	Battery Monitoring and Maintenance program	05/28/2009
3.9	REFUELING OPERATIONS	
3.9.1	Decay Time	08/31/1998
3.9.2	Communications	08/31/1998
3.9.3	Refueling Platform	08/31/1998
3.10	MISCELLANEOUS	
3.10.1	Sealed Source Contamination	03/31/2006
3.10.2	Shutdown Margin Test RPS Instrumentation	08/01/2006
3.10.3	Independent Spent Fuel Storage Installation (ISFSI)	06/10/2010
3.10.4	Section not used	03/27/2008

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3.11.1.2	Liquid Effluents Dose	03/31/2006
3.11.1.3	Liquid Waste Treatment System	03/31/2006
3.11.1.4	Liquid Radwaste Effluent Monitoring Instrumentation	10/09/2012
3.11.1.5	Radioactive Liquid Process Monitoring Instrumentation	02/19/2015
3.11.2.1	Radioactive Effluents Dose Rate	03/31/2006
3.11.2.2	Dose – Noble Gases	03/31/2006
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3.11.3	Total Dose	03/31/2006
3.11.4.1	Monitoring Program	02/19/2015
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3.12	LOADS CONTROL PROGRAM	
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3.12.2	Heavy Loads Requirements	03/14/2008
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4.0	ADMINISTRATIVE CONTROLS	
4.1	Organization Controls	08/31/1998
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B 3.1.2	Control Rod Drive (CRD) Housing Support	08/31/1998
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3.1 Reactivity Control Systems

3.1.3 Control Rod Block Instrumentation

The control rod block instrumentation for each function in Table 3.1.3-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.1.3-1

ACTIONS

NOTE

Separate condition entry is allowed for each channel

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.1.3-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table 3.1.3-1.	B.1 Place at least one inoperable channel in the tripped condition.	1 hour from discovery of loss of trip capability
	<u>AND</u> B.2 Place the inoperable channel in the tripped condition.	7 days
C. As required by Required Action A.1 and referenced in Table 3.1.3-1.	C.1 Place the inoperable channel in the tripped condition.	12 hours
D. Required Actions and Completion Time of Conditions B or C not met.	D.1 Suspend Control Rod withdrawal.	Immediately

TECHNICAL REQUIREMENT SURVEILLANCE

NOTES

1. Refer to Table 3.1.3-1 to determine which TRSs apply for each Control Rod Block Function.
2. Neutron detectors may be excluded from CHANNEL CALIBRATION.
3. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided at least one other OPERABLE channel in the same trip system is monitoring that parameter.

SURVEILLANCE	FREQUENCY
TRS 3.1.3.1 Perform CHANNEL CHECK	12 hours
TRS 3.1.3.2 ----- NOTE ----- For Function 1.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ----- Perform CHANNEL FUNCTIONAL TEST	184 days
TRS 3.1.3.3 Perform CHANNEL FUNCTIONAL TEST	31 days
TRS 3.1.3.4 Perform CHANNEL FUNCTIONAL TEST	92 days
TRS 3.1.3.5 Perform CHANNEL CALIBRATION	184 days
----- NOTE ----- Neutron detectors are excluded. -----	
TRS 3.1.3.6 Perform CHANNEL CALIBRATION	24 months
TRS 3.1.3.7 Perform LOGIC SYSTEM FUNCTIONAL TEST	24 months

TABLE 3.1.3-1 (Page 1 of 2)
CONTROL ROD BLOCK INSTRUMENTATION

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. APRM					
a. Neutron Flux - High (Setdown)	2, 5 ^(a)	3	B	TRS 3.1.3.2 TRS 3.1.3.6	≤ 14% RTP
b. Simulated Thermal Power – High	1	3	B	TRS 3.1.3.2 TRS 3.1.3.6	0.55W + 56.2% ^(b)
c. Downscale	1	3	B	TRS 3.1.3.2 TRS 3.1.3.6	≥ 3% RTP
d. Inop	1, 2	3	B	TRS 3.1.3.2	NA
	5 ^(a)	3	B	TRS 3.1.3.2	NA
2. Source Range Monitors					
a. Detector not full in	2 ^(c)	3	B	TRS 3.1.3.3 TRS 3.1.3.7	NA
	5 ^(d)	2	B	TRS 3.1.3.3 TRS 3.1.3.7	NA
b. Upscale	2 ^(d)	3	B	TRS 3.1.3.3 TRS 3.1.3.6 TRS 3.1.3.7	≤ 3.3E5 cps
	5 ^(d)	2	B	TRS 3.1.3.3 TRS 3.1.3.6 TRS 3.1.3.7	≤ 3.3E5 cps
c. Inop	2 ^(d)	3	B	TRS 3.1.3.3 TRS 3.1.3.7	NA
	5 ^(d)	2	B	TRS 3.1.3.3 TRS 3.1.3.7	NA

(continued)

^(a) When performing Shutdown Margin Demonstration per Technical Specification 3.10.8.^(b) 0.55 (W-ΔW) + 56.2% when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating". For single loop operation, the value of ΔW = 8.7.^(c) When not automatically bypassed with SRM counts ≥ 100 cps or the IRM channels on range 3 or higher.^(d) When not automatically bypassed with IRM channels on range 8 or higher.^(e) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

TABLE 3.1.3-1 (Page 2 of 2)
CONTROL ROD BLOCK INSTRUMENTATION

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
d. Downscale	2 ^(e)	3	B	TRS 3.1.3.3 TRS 3.1.3.6 TRS 3.1.3.7	≥ 1.8 cps ^(f)
	5 ^(f) ^(g)	2	B	TRS 3.1.3.3 TRS 3.1.3.6 TRS 3.1.3.7	≥ 1.8 cps ^(f)
3. Intermediate Range Monitors					
a. Detector not full in	2, 5 ^(g)	6	B	TRS 3.1.3.3 TRS 3.1.3.7	NA
b. Neutron Flux - High	2, 5 ^(g)	6	B	TRS 3.1.3.1 TRS 3.1.3.3 TRS 3.1.3.5 TRS 3.1.3.7	$\leq 110/125$ divisions of full scale
c. Inop	2, 5 ^(g)	6	B	TRS 3.1.3.3 TRS 3.1.3.7	NA
d. Downscale	2 ^(g) 5 ^(g)	6	B	TRS 3.1.3.1 TRS 3.1.3.3 TRS 3.1.3.5 TRS 3.1.3.7	3/125 divisions of full scale
4. Scram Discharge Volume Water Level - High	1, 2, 5 ^(h)	2	C	TRS 3.1.3.4 TRS 3.1.3.6	≤ 36.5 gallons
5. Reactor Coolant System Recirculation Flow					
a. Upscale	1	3	C	TRS 3.1.3.2 TRS 3.1.3.6	$\leq 117/125$ divisions of full scale

(e) When not automatically bypassed with IRMs on range 3 or higher.

(f) With a signal-to-noise ratio ≥ 2 , or within the limits of TS Figure 3.3.1.2-1.

(g) When not automatically bypassed with IRM channels on range 1.

(h) When more than one control rod is withdrawn. Not applicable to control rods removed per Technical Specification 3.10.5 or 3.10.6.

(i) Not required when eight or fewer fuel assemblies (adjacent to the SRMs) are in the core.

(j) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

3.7.3 Fire Protection

3.7.3.8 Fire Detection Instrumentation

TRO 3.7.3.8 The fire detection instrumentation for each fire detection zone shown in Table 3.7.3.8-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTIONS

NOTE

1. Separate condition entry is allowed for each instrument.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The number of OPERABLE fire detection instruments less than the Minimum Instruments Operable requirement of Table 3.7.3.8-1	A. Establish an hourly fire watch patrol	1 hour
	<u>AND</u>	
	A.2.1 Inspect the accessible zone(s) with inoperable instrument(s)	Once per hour
B. Communication between Control Room and a Local Control Panel with local monitoring capability is not operable.	<u>OR</u>	
	A.2.2 Inspect the affected area surrounding any inaccessible zones	Once per hour
	B. Establish an hourly fire watch for Local Control Panel Monitoring	1 hour
	<u>AND</u>	
	B.2.1 Monitor status for the instruments reporting to the Local Control Panel.	Once per hour

TECHNICAL REQUIREMENT SURVEILLANCE

SURVEILLANCE	FREQUENCY
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-----NOTE-----

When a detector is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and required Actions may be delayed for up to 15 minutes to allow for the individual detector trip to clear.

TRS 3.7.3.8.1	Perform CHANNEL FUNCTIONAL TEST on accessible fire detection instruments.	12 months
TRS 3.7.3.8.2	Verify that the supervised circuits supervision associated with the detector alarms of each of the fire detection instruments listed in Table 3.7.3.8-1 are OPERABLE.	12 months
TRS 3.7.3.8.3	Perform CHANNEL FUNCTIONAL TEST on inaccessible fire detection instruments.	Prior to startup from each COLD SHUTDOWN exceeding 48 hours unless performed in the previous 12 months
TRS 3.7.3.8.4	Perform CHANNEL FUNCTIONAL TEST on heat detectors fixed-temperature, non-restorable line type fire detection instrument.	18 months

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENT OPERABLE			
FIRE ZONE	ROOM OR AREA	ELEV.	HEAT		SMOKE	
			TOTAL	MIN.	TOTAL	MIN.
a.	Control Building					
0-21A	Common Equipment Room Elevator Lobby	656'-0"	NA	NA	1	1
0-22A	Chem Lab 0F135 High Temp. Alarm	687'-10"	2	1	NA	NA
	Chem Lab DS-021	687'-10"	2	1	NA	NA
	Chem Lab 0F138 High Temp. Alarm	687'-10"	2	1	NA	NA
	Chem Lab DS-022	687'-10"	2	1	NA	NA
	Chem Lab 0F141 High Temp. Alarm	687'-10"	2	1	NA	NA
	Chem Lab DS-023	687'-10"	2	1	NA	NA
	Chem Lab 0F144 High Temp. Alarm	687'-10"	2	1	NA	NA
	Chem Lab DS-024	687'-10"	2	1	NA	NA
0-22A	Above Ceiling/Filter Area	687'-8"	NA	NA	10	5
0-22A	Elevator Lobby	676'-0"	NA	NA	1	1
0-23	Egress Corridor to South Stairwell	686'-6"	NA	NA	1	1
	C-134 Storage (HCVS ROS Area)	686'-6"	NA	NA	1	1
0-24B	Corridor	698'-0"	NA	NA	3	2
0-24B	Corridor Elevator Lobby	698'-0"	NA	NA	1	1
0-24C	UPS Panel Room U-1	698'-0"	4	2	2	1
0-24D	U-1 Lower Relay Room 1U704	697'-0"	11	6	6	3
	PGCC Halon Panel Division II 1U705	697'-0"	11	6	6	3
	1U706	697'-0"	11	6	6	3
	1U731	697'-0"	10	5	6	3
	1U732	697'-0"	11	6	6	3
0-24D	U-1 Lower Relay Room	698'-0"	4	2	4	2
0-24E	Computer Room	698'-0"	NA	NA	6	3
0-24E	Computer Room (Above Ceiling)	698'-0"	12	6	4	2
0-24E	Computer Room 1U720	697'-0"	NA	NA	4	2
	PGCC Underfloor 1U722	697'-0"	NA	NA	4	2
	1U724	697'-0"	NA	NA	4	2
	1U726	697'-0"	NA	NA	4	2

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			ELEV.	INSTRUMENT OPERABLE			
FIRE ZONE	ROOM OR AREA	HEAT		SMOKE			
		TOTAL		MIN.	TOTAL	MIN.	
0-24E	Computer Room	2U721	697'-0"	NA	NA	4	2
	PGCC Underfloor	2U723	697'-0"	NA	NA	4	2
		2U725	697'-0"	NA	NA	4	2
		2U727	697'-0"	NA	NA	4	2
0-24F	Computer Maintenance Rm and Office		698'-0"	NA	NA	2	1
0-24J	South Cable Chase		698'-0"	1	1	NA	NA
0-24L	Center Cable Chase		698'-0"	1	1	NA	NA
0-24M	North Cable Chase		698'-0"	1	1	NA	NA
0-25A	U-2 Lower Cable Spreading Room		714'-0"	20	10	6	3
0-25B	South Cable Chase		714'-0"	1	1	NA	NA
0-25C	Center Cable Chase		714'-0"	1	1	NA	NA
0-25D	North Cable Chase		714'-0"	1	1	NA	NA
0-25E	U-1 Lower Cable Spreading Room		714'-0"	26	13	5	3
0-25E	U-1 Lower Cable Spreading Room Elevator Lobby		714'-0"	NA	NA	1	1
0-26A	Copy Room		729'-1"	NA	NA	1	1
0-26B	South Cable Chase		729'-1"	NA	NA	1	1
0-26C	Center Cable Chase		729'-1"	NA	NA	1	1
0-26D	North Cable Chase		729'-1"	NA	NA	1	1
0-26E	Locker Room		729'-1"	NA	NA	1	1
0-26F	Vestibule Elevator Lobby		729'-1"	NA	NA	1	1
0-26F	Vestibule (Under Floor)		728'-1"	NA	NA	1	1
0-26G	Shift Office		729'-1"	NA	NA	1	1
0-26G	Shift Office (Under Floor)		728'-1"	NA	NA	2	1
0-26H	Control Room (Under Floor Unit 1)		728'-1"	NA	NA	15	8
0-26H	Control Room (Under Floor Unit 2)		728'-1"	NA	NA	12	6
0-26H	Control Room		729'-1"	NA	NA	10	5
0-26H	Control Room (Above Ceiling)		729'-1"	NA	NA	9	5
0-26I	Operational Support Center		729'-1"	NA	NA	1	1

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENT OPERABLE			
FIRE ZONE	ROOM OR AREA	ELEV.	HEAT		SMOKE	
			TOTAL	MIN.	TOTAL	MIN.
0-26I	Operational Support Center (Under Floor)	728'-1"	NA	NA	2	1
0-26J	Vestibule (Under Floor)	728'-1"	NA	NA	1	1
0-26J	Vestibule	729'-1"	NA	NA	1	1
0-26K	Technical Support Center	741'-1"	NA	NA	10	5
0-26K	Technical Support Center Elevator Lobby	741'-1"	NA	NA	1	1
0-26K	Technical Support Center (Above Ceiling)	741'-1"	NA	NA	5	3
0-26L	Conference Room	741'-1"	NA	NA	6	3
0-26L	Conference Room (Above Ceiling)	741'-1"	NA	NA	2	1
0-26M	U-1 TSC Soffit	729'-1"	NA	NA	2	1
0-26M	U-1 TSC Soffit	741'-1"	NA	NA	2	1
0-26N	U-1 Control Room Soffit	741'-1"	NA	NA	2	1
0-26P	U-2 Control Room Soffit	741'-1"	NA	NA	2	1
0-26R	U-2 TSC Soffit	729'-1"	NA	NA	2	1
0-26R	U-2 TSC Soffit	741'-1"	NA	NA	2	1
0-26S	South Cable Chase	741'-1"	1	1	NA	NA
0-26T	Center Cable Chase	741'-1"	1	1	NA	NA
0-26V	North Cable Chase	741'-1"	1	1	NA	NA
0-27B	U-2 Upper Cable Spreading Room	753'-0"	24	12	5	3
0-27C	U-1 Upper Cable Spreading Room	753'-0"	23	12	7	4
0-27C	U-1 Upper Cable Spreading Room Elevator Lobby	753'-0"	NA	NA	1	1
0-27D	Electrician's Office	754'-0"	2	1	1	1
0-27E	U-1 Upper Relay Room	754'-0"	4	2	2	1

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION				INSTRUMENT OPERABLE			
FIRE ZONE	ROOM OR AREA	ELEV.		HEAT		SMOKE	
				TOTAL	MIN.	TOTAL	MIN.
0-27E	U-1 Upper Relay Room	1U700	753'-0"	11	6	6	3
	PGCC Halon Panel Division	1U701	753'-0"	11	6	6	3
		1U702	753'-0"	11	6	6	3
		1U703	753'-0"	11	6	6	3
		1U730	753'-0"	11	6	6	3
0-27F	South Cable Chase		754'-0"	1	1	NA	NA
0-27G	Center Cable Chase		754'-0"	1	1	NA	NA
0-27H	North Cable Chase		754'-0"	1	1	NA	NA
0-28A-I	Equipment Room		771'-0"	NA	NA	1	1
0-28A-II	Equipment Room		771'-0"	NA	NA	3	2
0-28B-I	Equipment Room		771'-0"	NA	NA	1	1
0-28B-II	Equipment Room		771'-0"	NA	NA	2	1
0-28B-II	Equipment Room Elevator Lobby		771'-0"	NA	NA	1	1
0-28C	Battery Room		771'-0"	NA	NA	1	1
0-28D	Battery Room		771'-0"	NA	NA	1	1
0-28E	Battery Room		771'-0"	NA	NA	1	1
0-28F	Battery Room		771'-0"	NA	NA	1	1
0-28G	Battery Room		771'-0"	NA	NA	1	1
0-28H	Repair Shop		771'-0"	NA	NA	2	1
0-28I	Battery Room		771'-0"	NA	NA	1	1
0-28J	Battery Room		771'-0"	NA	NA	1	1
0-28K	Battery Room		771'-0"	NA	NA	1	1
0-28L	Battery Room		771'-0"	NA	NA	1	1
0-28M	Battery Room		771'-0"	NA	NA	1	1
0-28N	Battery Room		771'-0"	NA	NA	1	1
0-28P	South Cable Chase		771'-0"	1	1	NA	NA
0-28Q	Center Cable Chase		771'-0"	1	1	NA	NA
0-28R	North Cable Chase		771'-0"	1	1	NA	NA
0-28T	Battery Room		771'-0"	NA	NA	1	1
0-29A	Elevator Vestibule		783'-0"	NA	NA	1	1
0-29B	H&V Equipment Room		783'-0"	NA	NA	10	5

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION		ELEV.	INSTRUMENT OPERABLE			
FIRE ZONE	ROOM OR AREA		HEAT		SMOKE	
			TOTAL	MIN.	TOTAL	MIN.
0-30A	HVAC Equipment Room	806'-0"	NA	NA	19	10
0-30A	Freight Elevator Lobby	806'-0"	NA	NA	1	1
0-30A	CREOASS 0F125A High Temp. Alarm	806'-0"	7	4	NA	NA
0-30A	CREOASS DS-091	806'-0"	7	4	NA	NA
0-30A	CREOASS 0F125B High Temp. Alarm	806'-0"	7	4	NA	NA
0-30A	CREOASS DS-092	806'-0"	7	4	NA	NA
0-30A	SGTS - 0F169A High Temp. Alarm	806'-0"	1	1	NA	NA
0-30A	SGTS - DS-093	806'-0"	1	1	NA	NA
0-30A	SGTS - 0F169B High Temp. Alarm	806'-0"	1	1	NA	NA
0-30A	SGTS - DS-094	806'-0"	1	1	NA	NA
b.	Reactor Building					
0-6G	Surge Tank Vault	779'-4"	NA	NA	2	1
0-8A	Refueling Floor	818'-1"	NA	NA	60	30
0-8A	Refueling Floor Elevators	818'-1"	NA	NA	2	1
1-1A	Core Spray Pump Room	645'-0"	NA	NA	7	4
1-1B	Core Spray Pump Room	645'-0"	NA	NA	5	3
1-1B	Elevator Lobby	645'-0"	NA	NA	1	1
1-1C	HPCI Pump Room	645'-0"	2	1	7	4
1-1D	RCIC Pump Room	645'-0"	2	1	5	3
1-1E	RHR Pump Room	645'-0"	NA	NA	13	7
1-1F	RHR Pump Room	645'-0"	NA	NA	15	8
1-1G	Sump Room	645'-0"	NA	NA	2	1
1-1I	NW Stairway and Elevator Vestibule	676'-0"	NA	NA	1	1
1-2A	Access Area	670'-0"	NA	NA	7	4
1-2B	Access Area	670'-0"	NA	NA	9	5
1-2B	Access Area Elevator Lobby	670'-0"	NA	NA	1	1
1-2D	Remote Shutdown Panel Room	670'-0"	NA	NA	2	1
1-3A	Access Area	683'-0"	NA	NA	9	5
1-3B-N	Equipment Removal Area - North	683'-0"	NA	NA	8	4
1-3B-N	Equipment Removal Area Elevator Lobby	683'-0"	NA	NA	1	1

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENT OPERABLE					
FIRE ZONE	ROOM OR AREA	ELEV.	HEAT		SMOKE			
			TOTAL	MIN.	TOTAL	MIN.		
1-3B-S	Equipment Removal Area - South	683'-0"	NA	NA	1	1		
1-3B-W	Equipment Removal Area - Wraparound	683'-0"	NA	NA	2	1		
1-3C-N	Equipment Access Area - North	683'-0"	NA	NA	4	2		
1-3C-S	Equipment Access Area - South	683'-0"	NA	NA	4	2		
1-3C-W	Equipment Access Area - Wraparound	683'-0"	NA	NA	5	3		
					IONIZATION		PHOTO ELECTRIC	
					TOTAL	MIN.	TOTAL	MIN.
1-4A-N	Containment Access Area - North	719'-0"	NA	NA	11	6	4	2
1-4A-N	Containment Access Area Elevator Lobby	719'-0"	NA	NA	1	1	NA	NA
					SMOKE			
					TOTAL	MIN.		
1-4A-S	Containment Access Area - South	719'-0"	NA	NA	10	5		
1-4A-W	Containment Access Area - Wraparound	719'-0"	NA	NA	6	3		
1-4B	Pipe Penetration Room	719'-1"	NA	NA	1	1		
1-4C	Switchgear Room	719'-1"	NA	NA	2	1		
1-4D	Switchgear Room	719'-1"	NA	NA	2	1		
1-4G	Main Steam Pipeway	719'-1"	4*	2	NA	NA		
1-4G	Exhaust Fan Room (Note: these detectors also cover el. 749'-1")	799'-1"	2	1	NA	NA		
					IONIZATION		PHOTO ELECTRIC	
					TOTAL	MIN.	TOTAL	MIN.
1-5A-N	General Access Area - North	749'-1"	NA	NA	5	3	1	1
1-5A-N	General Access Area Elevator Lobby	749'-1"	NA	NA	1	1	NA	NA
1-5A-S	SLC / Chiller Area - South	749'-1"	NA	NA	15	8	7	4
					SMOKE			
					TOTAL	MIN.		
1-5A-W	Access Corridor - Wraparound	749'-1"	NA	NA	7	4		
1-5B	Valve Access Area	761'-10"	2	1	NA	NA		
1-5D	RWCU Pumps & Heat Exchangers	749'-1"	NA	NA	10	5		
1-5E	Penetration Room	749'-1"	NA	NA	2	1		
1-5F	Load Center Room	749'-1"	NA	NA	2	1		
1-5G	Load Center Room	749'-1"	NA	NA	2	1		
1-5H	Instrument Repair Shop/Sample Station	749'-1"	NA	NA	1	1		
1-6A	Access Area	779'-1"	NA	NA	9	5		
1-6A	Access Area Elevator Lobby	779'-1"	NA	NA	1	1		
1-6B	Load Center Room	779'-1"	NA	NA	4	2		
1-6C	Electrical Equipment Room	779'-1"	NA	NA	2	1		
1-6D	H&V Equipment Room	779'-1"	NA	NA	12	6		

* Inaccessible

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENT OPERABLE					
FIRE ZONE	ROOM OR AREA	ELEV.	HEAT		SMOKE			
			TOTAL	MIN.	TOTAL	MIN.		
1-6E	Recirculation Fans Area	779'-1"	NA	NA	2	1		
1-6I	Fuel Pooling Holding Pump Room	779'-1"	NA	NA	2	1		
1-7A	H&V Fan & Filter Rooms	799'-1"	NA	NA	15	8		
1-7A	HVAC Filter 1F257A High Temp. Alarm	799'-1"	7	4	NA	NA		
1-7A	HVAC Filter 1F257A DS-181	799'-1"	7	4	NA	NA		
1-7A	HVAC Filter 1F257B High Temp. Alarm	799'-1"	7	4	NA	NA		
1-7A	HVAC Filter 1F257B DS-182	799'-1"	7	4	NA	NA		
1-7A	HVAC Filter 1F217A High Temp. Alarm	799'-1"	5	3	NA	NA		
1-7A	HVAC Filter 1F217A DS-183	799'-1"	5	3	NA	NA		
1-7A	HVAC Filter 1F217B High Temp. Alarm	799'-1"	5	3	NA	NA		
1-7A	HVAC Filter 1F217B DS-184	799'-1"	5	3	NA	NA		
c	ESW Pumphouse							
0-51	Pump Room	685'-6"	NA	NA	6	3		
0-52	Pump Room	685'-6"	NA	NA	6	3		
d	Diesel Generator Building		HEAT		INFRA-RED		SMOKE	
0-41A	Diesel Generator "A" Bay	660'-0" & 677'-0" 710' - 9"	22 N/A	11 N/A	2 N/A	1 N/A	15 8	8 4
0-41B	Diesel Generator "B" Bay	660'-0" & 677'-0" 710' - 9"	23 N/A	12 N/A	2 N/A	1 N/A	15 9	8 5
0-41C	Diesel Generator "C" Bay	660'-0" & 677'-0" 710'-9"	22 N/A	11 N/A	2 N/A	1 N/A	15 8	8 4
0-41D	Diesel Generator "D" Bay	660'-0" & 677'-0" 710'-9"	22 N/A	11 N/A	2 N/A	1 N/A	15 8	8 4
e	Diesel Generator E Building		HEAT		INFRA-RED		SMOKE	
0-41E	Diesel Generator Rooms	656'-6" & 675'-6" & 708'-0"	1 NA NA	1 NA NA	NA 6 4	NA 3 2	21 3 NA	11 2 NA

TABLE 3.7.3.8-1

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENT OPERABLE			
FIRE ZONE	ROOM OR AREA	ELEV.	HEAT		SMOKE	
			TOTAL	MIN.	TOTAL	MIN.
<i>f.</i>	<i>Outside Area</i>		<i>HEAT</i>		<i>SMOKE</i>	
0-00	Startup Transformer (0X103) DS-014	NA	10	5	NA	NA
0-00	Startup Transformer (0X104) DS-015	NA	12	6	NA	NA
0-00	ESS Transformer – DS-016					
	0X201	NA	6	3	NA	NA
	0X 213	NA	6	3	NA	NA
0-00	ESS Transformer – DS-017					
	0X203	NA	6	3	NA	NA
	0X211	NA	6	3	NA	NA

B 3.1.3 Control Rod Block Instrumentation

BASES

TRO

The Control Rod Block Instrumentation is a portion of the Reactor Manual Control System (RMCS), which upon receipt of input signals from other systems and subsystems, inhibits movement or selection of control rods (Reference 1). The purpose of the Control Rod Block function is to avoid conditions that would require Reactor Protection System (RPS) action if allowed to proceed.

The specific Functions associated with the TRM Control Rod Block Instrumentation are identified in Table 3.1.3-1 and are discussed below.

1. Average Power Range Monitors (APRM)
2. Source Range Monitors (SRM)
3. Intermediate Range Monitors (IRM)

The same grouping of neutron monitoring equipment (APRM, SRM, and IRM) that is used in the RPS is also used in the rod block circuitry. Half of the total monitors (APRM, SRM, and IRM) provide inputs to one of the two RMCS rod block logic circuits and the remaining half provide inputs to the other RMCS rod block circuit.

The APRM rod block settings are varied as a function of Reactor Coolant System (RCS) recirculation flow. The settings are selected so that all the neutron monitoring rod blocks are sufficient to avoid an RPS action. Mechanical switches in the SRM and IRM detector drive systems provide the position signals used to indicate that a detector is not fully inserted.

The SRM minimum count rate Allowable Value is discussed in the TS Bases for SR 3.3.1.2.4.

4. Scram Discharge Volume Water Level - High

Scram Discharge Volume Water Level – High signals are provided as inputs into both rod block logic circuits. Both rod block logic circuits sense when the high water level scram trip for the Scram Discharge Volume is bypassed. The rod block from Scram Discharge Volume Water Level – High comes from one of two float type level switches installed in each of two scram discharge instrument volumes. The second float switch in each instrument volume provides a control room annunciation of increasing level below the level at which a rod block occurs.

(continued)

B 3.1.3 Control Rod Block Instrumentation

BASES

TRO
(continued)5. RCS Recirculation Flow

The recirculation flow system consists of four separate transmitters on each of two recirculation loops (eight total). The transmitter output signals from one flow channel is routed to one of four APRM channels. Each APRM processes and sums the transmitter's signals. Each APRM then sends its total flow signal to both RBMs. Each RBM then compares the four flows and issues Alarms based on user entered values. Both RBM channels are identical, but are configured to support either RBM channel A or channel B.

With the NUMAC PRNMS system, the Upscale flow function is performed within the APRM and sent on to the reactor manual control system. The flow comparator is performed with the RBM. There is no separate 'inop' function from the APRM 'Upscale/Inop' and RBM 'Upscale/Inop' functions for the recirculation flow.

ACTIONS

The ACTIONS are defined to ensure proper corrective measures are taken in response to the inoperable components.

TRS

The TRSs are performed at the specified Frequency to ensure that the Control Rod Block Function is maintained OPERABLE.

TRS 3.1.3.1, TRS 3.1.3.2, TRS 3.1.3.3, TRS 3.1.3.4, TRS 3.1.3.5,
TRS 3.1.3.6, and TRS 3.1.3.7

Control Rod Block Instrumentation surveillances are performed consistent with the Bases for the comparable channels in LCO 3.3.1.1 and LCO 3.3.1.2.

(continued)

B 3.1.3 Control Rod Block Instrumentation

BASES (continued)

REFERENCE	1.	FSAR Section 7.7.1
	2.	NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function"
