→ (DRN 02-912)

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION

← (DRN 02-912)

→(EC-22790, Am. 119)

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be operable.

APPLICABILITY: As shown in Table 3.3-1.

ACTION: As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor protective instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per function such that all channels are tested at least once every N time 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the “Total No. of Channels” column of Table 3.3-1.

←(EC-22790, Am. 119)

→(EC-22790, Am. 119)

The Reactor Trip System Response Times appearing in Table 3.3-2 are the response times that are applicable to Technical Specification Surveillance Requirement 4.3.1.3 and Technical Requirements Manual Surveillance Requirement 4.3.1.3.

←(EC-22790, Am. 119)

→(EC-22790, Am. 119)

TABLE 3.3-1
REACTOR PROTECTIVE INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTIONS
1. Steam Generator Level – High	4/SG	2/SG[a]	3/SG	1, 2	1[b], 2[b]

TABLE NOTATION

(a) High steam generator level trip may be manually bypassed in Modes 1 and 2 at 20% power and below.
(b) The provisions of Specification 3.0.4 are not applicable.

←(EC-22790, Am. 119)

→(EC-22790, Am. 119)

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour. If the inoperable channel is bypassed, the desireability of maintaining this channel in the bypassed condition shall be document by the On-Site Safety Review Committee in accordance with plant administrative procedures. The channel shall be returned to OPERABLE status prior to STARTUP following the next COLD SHUTDOWN.

With a channel process measurement circuit that affects multiple functional units inoperable or in test, bypass or trip all associated functional units as listed below:

Process Measurement Circuit	Functional Unit Bypassed/Tripped
1. Steam Generator Level	*TS Steam Generator Level – Low Steam Generator Level – High *TS Steam Generator ΔP (EFAS)

ACTION 2 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, STARTUP and/or POWER OPERATOR may continue provided the following conditions are satisfied:

a. Verify that one of the inoperable channels has been bypassed and place the other channel in the tripped condition within 1 hour, and

b. All functional units affected by the bypassed/tripped channel shall also be placed in the bypassed/tripped condition as listed below:

Process Measurement Circuit	Functional Unit Bypassed/Tripped
1. Steam Generator Level	*TS Steam Generator Level – Low Steam Generator Level – High *TS Steam Generator ΔP (EFAS)

*The Technical Specification functional units are included for completeness to ensure these affected units are not omitted. The Technical Requirements Manual does not supercede the Technical Specifications.

←(EC-22790, Am. 119)

TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT		RESPONSE TIME
1. Manual Reactor Trip		Not Applicable
2. Linear Power Level - High		≤ 0.40 second*
3. Logarithmic Power Level - High		≤ 0.40 second*
4. Pressurizer Pressure - High		≤ 0.90 second
5. Pressurizer Pressure - Low		≤ 0.90 second
6. Containment Pressure - High		≤ 1.70 seconds
7. Steam Generator Pressure - Low		≤ 0.90 second
8. Steam Generator Level - Low		≤ 0.90 second
9. Local Power Density - High		
→(DRN 04-1244, Am. 99)		
a. Neutron Flux Power from Excore Neutron Detectors		≤ 0.191 second*
b. CEA Positions		≤ 0.186 second**
c. CEA Positions: CEAC Penalty Factor #1	Channel A	≤ 0.271 second
	Channel B	≤ 0.236 second
	Channel C	≤ 0.236 second
	Channel D	≤ 0.236 second
d. CEA Positions: CEAC Penalty Factor #2	Channel A	≤ 0.236 second
	Channel B	≤ 0.236 second
	Channel C	≤ 0.236 second
	Channel D	≤ 0.271 second
10. DNBR - Low		
a. Neutron Flux Power from Excore Neutron Detectors		≤ 0.191 second*
b. CEA Positions		≤ 0.186 second**
c. Cold Leg Temperature		≤ 0.285 second#
d. Hot Leg Temperature		≤ 0.285 second#
e. Primary Coolant Pump Shaft Speed		≤ 0.185 second**
f. Reactor Coolant Pressure from Pressurizer		≤ 0.186 second##
←(DRN 04-1244, Am. 99)		

TABLE 3.3-2 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT		RESPONSE TIME
→(DRN 04-1244, Am. 99)		
g. CEA Positions: CEAC Penalty Factor #1	Channel A	≤ 0.271 second
	Channel B	≤ 0.236 second
	Channel C	≤ 0.236 second
	Channel D	≤ 0.236 second
h. CEA Positions: CEAC Penalty Factor #2	Channel A	≤ 0.236 second
	Channel B	≤ 0.236 second
	Channel C	≤ 0.236 second
	Channel D	≤ 0.271 second
←(DRN 04-1244, Am. 99)		
→(EC-22790, Am. 119)		
11. TRM Steam Generator Level - High		Not Applicable
←(EC-22790, Am. 119)		
12. Reactor Protection System Logic		Not Applicable
13. Reactor Trip Breakers		Not Applicable
14. Core Protection Calculators		Not Applicable
15. CEA Calculators		Not Applicable
16. Reactor Coolant Flow - Low		0.70 second

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

**Response time shall be measured from the time the CPC/CEAC receives an input signal until the electrical power is interrupted to the CEA drive mechanism.

#Response time shall be measured from the output of the sensor. RTD response time for all the RTDs shall be measured at least once per 18 months. The measured P_t of the slowest RTD shall be less than or equal to 8 seconds (P_t assumed in the safety analysis).

##Response time shall be measured from the output of the pressure transmitter. The transmitter response time shall be less than or equal to 0.70 second.

→(EC-22790, Am. 119)

TABLE 4.3-1
REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Steam Generator Level – High	S	R	Q	1, 2

←(EC-22790, Am. 119)

→(DRN 02-912)
INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
←(DRN 02-912)

→(EC-22790, Am. 119)

ACTION STATEMENTS

The following functional units are applicable to the Technical Specification action statements 19 and 20.

Process Measurement Circuit	Functional Unit Bypassed/Tripped
1. Steam Generator Level	*TS Steam Generator Level – Low Steam Generator Level – High *TS Steam Generator ΔP (EFAS)

*The Technical Specification functional units are included for completeness to ensure these affected units are not omitted. The Technical Requirements Manual does not supercede the Technical Specifications.
←(EC-22790, Am. 119)

The Engineered Safety Features Response Times appearing in Table 3.3-5 are the response times applicable to Technical Specification Surveillance Requirement 4.3.2.3

TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
1. Manual	
a. SIAS	
Safety Injection (ECCS)	Not Applicable
Shield Building Filtration System	Not Applicable
b. CSAS	
Containment Spray	Not Applicable
c. CIAS	
Containment Isolation	Not Applicable
d. MSIS	
Main Steam Isolation	Not Applicable
e. RAS	
Safety Injection System Sump Recirculation	Not Applicable
f. EFAS	
Emergency Feedwater Pumps	Not Applicable

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
2. Pressurizer Pressure-Low	
→(DRN 04-1244, Am. 99)	
a. Safety Injection (ECCS)	
(1) High Pressure Safety Injection	≤ 27.0*/18.5**
(2) Low Pressure Safety Injection	≤ 42.5*/34.0**
←(DRN 04-1244, Am. 99)	
b. Containment Isolation	≤ 23.5*/12.0**
c. Containment Cooling	≤ 31.0*/19.5**
3. Containment Pressure-High	
→(DRN 04-1244, Am. 99)	
a. Safety Injection (ECCS)	
(1) High Pressure Safety Injection	≤ 27.0*/18.5**
(2) Low Pressure Safety Injection	≤ 42.5*/34.0**
←(DRN 04-1244, Am. 99)	
b. Containment Isolation	≤ 23.5*/12.0**
c. Main Steam Isolation	≤ 8.0*/8.0**
d. Main Feedwater Isolation ###	≤ 6.0*/6.0**
e. Containment Cooling	≤ 31.0*/19.5**
4. Containment Pressure--High-High	
a. Containment Spray Pump	≤ 15.2*/4.6**
b. Containment Spray Valves	≤ 10.4*/10.4**
→(DRN 03-168, Am. 82)	
c. CCW to RCP Valves (CC-641, CC-710 & CC-713)	≥ 5.0, ≤ 50.0* / ≥ 5.0, ≤ 50.0**
←(DRN 03-168, Am. 82)	
5. Containment Area Radiation-High #	
Containment Purge Valves Isolation	≤ 6.2*/6.2**
6. Steam Generator Pressure-Low	
a. Main Steam Isolation	≤ 8.0*/8.0**
b. Main Feedwater Isolation ###	≤ 6.0*/6.0**
7. Refueling Water Storage Pool-Low	
Safety Injection Sump Recirculation Valves Open	≤ 50.0##
8. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	
Loss of Power (0 volts)	≤ 2***
9. 480V Emergency Bus Undervoltage (Loss of Voltage)	
Loss of Power (0 volts)	N.A.
10. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	
Loss of Power	≤ 14***

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
11. Steam Generator Level-Low	
Emergency Feedwater Pump	≤ 60.0*/50.0**
Emergency Feedwater Block Valves	≤ 25.0*/25.0**
12. Wide Range Steam Generator Level-Low	
Emergency Feedwater Control Valves	≤ 25.0*/25.0**

TABLE NOTATIONS

*Loss of Offsite Power. Diesel generator starting delays and diesel generator sequence loading delays included in accordance with the ESFAS Response Time definition in Technical Specification 1.12.

**Offsite Power Available. Diesel generator starting delays and diesel generator sequence loading delays not included in accordance with the ESFAS Response Time definition in Technical Specification 1.12.

***Response time measured from the sensing relay to the channel output only.

#Response time does not include the detector.

##Response time based on ensuring uninterrupted flow during transfer of suction from RWSP to Safety Injection Sump.

###Pertains to closure during design basis accident conditions, using the SGFPs to feed the steam generators. During auxiliary feedwater pump operation, a 30 second closure time is allowed during the feedwater line break scenario.

INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6

ACTION:

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable.

b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

→(DRN 04-1191, Am. 91)

c. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-3.

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
a. Fuel Storage Pool Area Fuel Handling Building Ventilation System Isolation	2	*	$\leq$ 100 mR/h	10^{-1} - 10^{4} mR/h	24

*With irradiated fuel in the storage pool.

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 24 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Requirement 3.9.12.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. AREA MONITORS				
a. Fuel Storage Pool Area Fuel Handling Building Ventilation System Isolation	S	R	Q	*

*With irradiated fuel in the storage pool.

3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION/INCORE DETECTORS

LIMITING CONDITION FOR OPERATION

3.3.3.2 The incore detection system shall be OPERABLE with:

a. At least 75% of all incore detector locations,

b. A minimum of two quadrant symmetric incore detector locations per core quadrant, and

c. At least 75% of all incore detectors operable with at least one incore detector in each quadrant at each level.

→(DRN 03-1608, Am. 83)
←(DRN 03-1608, Am. 83)

→(DRN 03-1608, Am. 83)

d. At least one incore detector location in each 4x4 array of adjacent fuel assemblies with at least three functional rhodium detectors (one each at any three of the five axial levels).

Except for Item 3.3.3.2.d above, an OPERABLE incore detector location shall consist of a fuel assembly containing a fixed detector string with a minimum of four OPERABLE rhodium detectors.
←(DRN 03-1608, Am. 83)

APPLICABILITY: When the incore detection system is used for monitoring:

a. AZIMUTHAL POWER TILT,

b. Radial Peaking Factors,

c. Local Power Density,

d. DNB Margin.

ACTION:

a. With the incore detection system inoperable do not use the system for the above applicable monitoring or calibration functions.

→(DRN 04-1191, Am.91)
b. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
←(DRN 04-1191, Am. 91)

→(DRN 03-1608, Am. 83)
c. If requirement 3.3.3.2.d above is not satisfied, then perform one of the following actions:

1. During initial startup testing for a cycle, perform CEA symmetry checks prior to exceeding 50% power for at least one CEA group having a CEA in the 4x4 array of fuel assemblies for each 4x4 array not in compliance with Item 3.3.3.2.d above; or

2. Perform an evaluation within 7 EFPD to determine the ability of the incore detector system to detect an average power asymmetry of at least 10% between quadrant 4x4 arrays of assemblies with the actual operable incore detector pattern and suitable adjustments to COLSS and CPCS are installed to assure conservative predictions of the DNBR and Peak Linear Heat Rate margins. During initial startup testing for a cycle, if fuel symmetry verification testing has not been successfully completed as required, then this evaluation must be completed prior to exceeding 50% power.

←(DRN 03-1608, Am. 83)

SURVEILLANCE REQUIREMENTS

4.3.3.2 The incore detection system shall be demonstrated OPERABLE:

a. By performance of a CHANNEL CHECK within 24 hours prior to its use and at least once per 7 days thereafter when required for monitoring the AZIMUTHAL POWER TILT, radial peaking factors, local power density or DNB margin:

b. At least once per 18 months by performance of a CHANNEL CALIBRATION operation which exempts the neutron detectors but includes all electronic components. The neutron detectors shall be calibrated prior to installation in the reactor core.

3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION/SEISMIC

LIMITING CONDITION FOR OPERATION

3.3.3.3 The seismic monitoring instrumentation shown in Table 3.3-7 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.

→(DRN 04-1191, Am. 91)
b. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.3.3.3.1 Each of the above seismic monitoring instruments shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-4.

4.3.3.3.2 Each of the above seismic monitoring instruments which is accessible during power operation and which is actuated during a seismic event (one or more basemat accelerations of 0.05 g or greater) shall be restored to OPERABLE status within 24 hours and a CHANNEL CALIBRATION performed within 5 days. Data shall be retrieved from the accessible actuated instruments and analyzed to determine the magnitude of the vibratory ground motion. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 10 days describing the magnitude, frequency spectrum, and resultant effect upon facility features important to safety. Each of the above seismic monitoring instruments which is actuated during a seismic event (one or more basemat accelerations of 0.05 g or greater) but is not accessible during power operation shall be restored to OPERABLE status and a CHANNEL CALIBRATION performed the next time the plant enters MODE 3 or below. A supplemental report shall then be prepared and submitted to the Commission within 10 days pursuant to Specification 6.9.2 describing the additional data from these instruments.

TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

INSTRUMENTS AND SENSOR LOCATIONS	MEASUREMENT RANGE	MINIMUM INSTRUMENTS OPERABLE
1. Triaxial Time-History Accelerograph System		
a. Accelerometer (YT-SM 6000) Adjacent to RB -35 ft MSL	0.02-1.0 g	1
b. Accelerometer (YT-SM 6001) RB +46 ft MSL	0.02-1.0 g	1
c. Accelerometer (YT-SM 6002) Free Field Yard Area	0.02-1.0 g	1
d. Starter Unit (YS-SM 6000) Adjacent to RB -35 ft MSL	0.01-0.02 g	1
e. Starter Unit (YS-SM 6001) RB +51 ft MSL	0.01-0.02 g	1
f. Recorder (YR-SM 6000) Control Room RAB +46 ft MSL	0.02-1.0 g	1
g. Control Unit (YZ-SM 6000) Control Room RAB +46 ft MSL	0.02-1.0 g	1*
h. Playback Unit (YR-SM 6001) Control Room RAB +46 ft MSL	0.02-1.0 g	1
2. Triaxial Peak Accelerographs		
a. YR-SM 6020 RB +56 ft MSL	0-2 g	1
b. YR-SM 6021 RB 23 ft MSL	0-2 g	1
c. YR-SM 6022 RAB +21 ft MSL	0-2 g	1
3. Triaxial Seismic Switches		
→ (DRN 02-1931) a. Seismic Switch (YS-SM 6060) RB -34 ft MSL	0.1-0.25 g	1
← (DRN 02-1931) b. Control Unit (YZ-SM 6060) Control Room RAB +46 ft MSL	0.1-0.25 g	1*
4. Triaxial Response-Spectrum Recorders		
→ (DRN 02-1931) a. YR-SM 6040 RB +50 ft MSL	1-32 Hz, 0-2 g	1
b. YR-SM 6041 RAB -34 ft MSL	1-32 Hz, 0-2 g	1
c. YR-SM 6042 RAB +22 ft MSL	1-32 Hz, 0-2 g	1
d. Peak Shock Annunciator (YR-SM 6045) RB -34 ft MSL	1-32 Hz, 0-2 g	1
← (DRN 02-1931) e. Peak Shock Annunciator Control Unit (YZ-SM 6045) Control Room RAB +46 ft MSL	1-32 Hz, 0-2 g	1

*With reactor control room annunciation.

TABLE 4.3-4
SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENTS AND SENSOR LOCATIONS	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Triaxial Time-History Accelerograph System			
a. Accelerometer (YT-SM 6000) Adjacent to RB -35 ft MSL	N.A.	R	SA
b. Accelerometer (YT-SM 6001) RB +46 ft MSL	N.A.	R	SA
c. Accelerometer (YT-SM 6002) Free Field Yard Area	N.A.	R	SA
d. Starter Unit (YS-SM 6000) Adjacent to RB -35 ft MSL	M	R	SA
e. Starter Unit (YS-SM 6001) RB +51 ft MSL	M	R	SA
f. Recorder (YR-SM 6000) Control Room RAB +46 ft MSL	M	R	SA
g. Control Unit (YZ-SM 6000) Control Room RAB +46 ft MSL	M	R	SA*
h. Playback Unit (YR-SM 6001) Control Room RAB +46 ft MSL	N.A.	R	SA
2. Triaxial Peak Accelerographs			
a. YR-SM 6020 RB +56 ft MSL	N.A.	R	N.A.
b. YR-SM 6021 RB 23 ft MSL	N.A.	R	N.A.
c. YR-SM 6022 RAB +21 ft MSL	N.A.	R	N.A.
3. Triaxial Seismic Switches			
→ (DRN 02-1931)			
a. Seismic Switch YS-SM 6060 RB -34 ft MSL	M	R	SA
← (DRN 02-1931)			
b. Control Unit YZ-SM 6060 Control Room RAB +46 ft MSL	M	R	SA*
4. Triaxial Response-Spectrum Recorders			
→ (DRN 02-1931)			
a. YR-SM 6040 RB +50 ft MSL	N.A.	R	N.A.
b. YR-SM 6041 RAB -34 ft MSL	N.A.	R	N.A.
c. YR-SM 6042 RAB +22 ft MSL	N.A.	R	N.A.
d. Peak Shock Annunciator YR-SM 6045 RB -34 ft MSL	N.A.	R	N.A.
← (DRN 02-1931)			
→ (DRN 04-1309, Am. 94)			
e. Peak Shock Annunciator Control Unit YZ-SM 6045 Control Room RAB +46 ft MSL	N.A.	N.A.	SA
← (DRN 04-1309, Am. 94)			

*With reactor control room annunciation.

3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION/METEOROLOGICAL

LIMITING CONDITION FOR OPERATION

3.3.3.4 The meteorological monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE.

APPLICABILITY : At all times.

ACTION :

a. With one or more required meteorological monitoring channels inoperable for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.

→(DRN 04-1191, Am. 91)

b. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.3.3.4 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-5.

TABLE 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT*	LOCATION (Nominal Elevation)	MINIMUM INSTRUMENTS OPERABLE
1. WIND SPEED		
a. Primary	33 ft (10 m)	1-(a or b)
b. Secondary	33 ft (10 m)	
c. Primary	199 ft (60 m)	1
2. WIND DIRECTION (SIGMA THETA)**		
a. Primary	33 ft (10 m)	1-(a or b)
b. Secondary	33 ft (10 m)	
c. Primary	199 ft (60 m)	1
3. TEMPERATURE DIFFERENCE		
a. Primary	33 ft - 199 ft (10 m-60 m)	1-(a,b,or c)
b. Secondary	33 ft - 199 ft (10 m-60 m)	
c. Primary	33 ft - 199 ft (10 m-60 m)	

*Primary, Secondary - Refers to the tower on which instrument is located, see Specification 5.5.

**Derived from instantaneous wind direction measurements.

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT*	LOCATION (Nominal Elevation)	CHANNEL CHECK	CHANNEL CALIBRATION
1. WIND SPEED			
a. Primary	33 ft (10 m)	D	SA
b. Secondary	33 ft (10 m)	D	SA
c. Primary	199 ft (60 m)	D	SA
2. WIND DIRECTION (SIGMA THETA)**			
a. Primary	33 ft (10m)	D	SA
b. Secondary	33 ft (10 m)	D	SA
c. Primary	199 ft (60 m)	D	SA
3. TEMPERATURE DIFFERENCE			
a. Primary	33 ft - 199 ft (10 m-60 m)	D	SA
b. Secondary	33 ft - 199 ft (10 m-60 m)	D	SA
c. Primary	33 ft - 199 ft (10 m-60 m)	D	SA

*Primary, Secondary - Refers to the tower on which instrument is located, see Specification 5.5.

**Derived from instantaneous wind direction measurements.

3/4.3 INSTRUMENTATION

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.8.1 As a minimum, the fire detection instrumentation for each fire detection zone shown shall be OPERABLE.

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

NOTE:
For Fire Detection Instruments located inside the Containment, notify the SS/CRS to initiate investigation of a possible fire in the event of:

1. Any unexplainable Containment Fan Cooler intake temperature increase,

2. Containment Fan Cooler (average) intake temperatures increase beyond the specified limit of 120°F, as based in Technical Specification 3.6.1.5.

NOTE:
If FP-601A or FP-601B are closed, FPM-1 and FPM-2 Low Supervisory Air signal(s) should not be relied upon for indication of Containment conditions or system operation.

NOTE:
Containment temperature recording is compensatory action for fire detection instrumentation and is based on observance of unexpected temperature increases being indication of a potential fire condition. Additional, indications may be, but are not limited to, equipment performance (motor amps, vibration, etc.) and abnormal indication from installed instrumentation and controls.

ACTION:
→(EC-25884, Am. 123)

a. With any, but not more than one-half the total in any fire zone, Function A fire detection instruments shown inoperable, restore the inoperable instrument(s) to OPERABLE STATUS within 14 days or within the next 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor and record air temperature at least once per hour at each of the operable Containment Fan Cooler Air Intakes.

b. With more than one-half of the Function A fire detection instruments in any fire zone shown inoperable, or with any Function B fire detection instruments shown inoperable, or with any two or more adjacent fire detection instruments shown inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor air temperature at least once per hour at each of the operable Containment Fan Cooler Air Intakes.

←(EC-25884, Am. 123)

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION (Continued)

→(EC-25884, Am. 123)

←(EC-25884, Am. 123)

→(DRN 04-1191, Am. 91)
d. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.3.3.8.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 12 months by performance of a CHANNEL FUNCTIONAL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 12 months.

4.3.3.8.2 The NFPA Standard 72D supervised circuit supervision associated with the detector alarms of each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months. Circuits which are not accessible during plant operation shall be demonstrated OPERABLE during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

→ **(DRN 02-912)**

TABLE 3.3-11

FIRE DETECTION INSTRUMENTS

← **(DRN 02-912)**

Fire Detection Instruments previously listed on pages 3/4 3-17 - 20 were removed from this document with the completion of DC 3268.

TABLE 3.3-11

FIRE DETECTION INSTRUMENTS

FIRE AREA	ROOM NAME/NUMBER	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
1. REACTOR AUXILIARY BUILDING				
RAB 1A	Main Control Panels 1,2,3,4,6,7, 8,18,35,36	+46		10/0
→(EC-1939, Am. 126)				
RAB 1A	Control Room Proper	+46		18/0
←(EC-1939, Am. 126)				
RAB 1B	Emergency Equip. H&V Room	+46		0/4
→(EC-1939, Am. 126)				
RAB 1C	Control Room Emergency Living Quarters	+46		9/0
←(EC-1939, Am. 126)				
RAB 1D	Computer Room (above raised floor)	+46		5/0
	Computer Room (below raised floor)	+46		7/0
RAB 2	Ventilation Equip. Room	+46		0/25
RAB 3	RAB Corridor to Relay Room	+35		0/5
	RAB HVAC Switchgear Equip. Room	+46		0/4
RAB 3A	RAB Battery Exhaust Fan Room	+69		0/3
	Elevator Vestibule	+21		1/0
RAB 1E	Cable Vault	+35		0/17
RAB 5	Electrical Penetration Area "A"	+35		0/12
RAB 6	Electrical Penetration Area "B"	+35		0/10
RAB 7	Relay Room	+35		0/7
	Isolation Panel (9 Compartments)	+35		18/0
RAB 8A	High Voltage Switchgear Room "A"	+21		1/11
RAB 8B	Electrical Equip. Room and High Voltage Switchgear Room "B" 480V Switchgear 3AB2 Room CEA M/G Set Room	+21		3/19
RAB 8C	High Voltage Switchgear Room "A-B"	+21		0/8
RAB 9	Remote Shutdown Panel Room	+21		1/0
RAB 11	Battery Room "B"	+21		1/0
RAB 12	Battery Room "AB"	+21		1/0
RAB 13	Battery Room "A"	+21		1/0
RAB 15	Emergency Diesel Gen. "B" Room	+21	0/3	
RAB 15A	Emergency Diesel Gen. "B" Feed Tk Room	+46	0/1	
RAB 16	Emergency Diesel Gen. "A" Room	+21	0/3	
RAB 16A	Emergency Diesel Gen. "A" Feed Tk. Room	+46	0/1	
RAB 17	CCW Heat Exchanger "B"	+21		0/3
RAB 18	CCW Heat Exchanger "A"	+21		0/3
RAB 19	CCW Pump "A"	+21		0/2
RAB 20	CCW Pump "AB"	+21		0/2
RAB 21	CCW Pump "B"	+21		1/0

TABLE 3.3-11 (Continued)

FIRE DETECTION INSTRUMENTS

FIRE AREA	ROOM NAME/NUMBER	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
1. REACTOR AUXILIARY BUILDING (Continued)				
RAB 22	Drumming Station	+21		0/5
RAB 23	Corridor to CCW Pumps, Corridor to CCW Heat Exchangers and Corridor to Emergency Diesel Gen.	+21		0/18
RAB 24	Hot Machine Shop	+21		17/0
RAB 25	Equip. Access Area Wing Area	+21		12/0
RAB 27	H&V Room	+7		0/4
→(DRN 02-818, Am. 63)				
	Electrical Area and Health Physics	+7		0/31
←(DRN 02-818, Am. 63)				
	Offices			
	I&C Room	+7		0/5
→(DRN 04-450, Am. 88)				
	Communications Equip. Room	+7		1/0
→(DRN 04-956, Am. 89)				
←(DRN 02-450, Am. 88)				
←(DRN 04-956, Am. 89)				
→(DRN 06-876, Am. 115)				
RAB 30	Administration Area (HP)	- 4		32/0
←(DRN 06-876, Am. 115)				
RAB 31	Corridors and Passageways			0/17
RAB 32	Wing Area - Auxiliary Component	-35		22/0
	Cooling Water Pump	-4		21/0
RAB 33	S/D Cooling Heat Exchangers A&B	-35		0/9
RAB 34	Valve Gallery Room A&B “A”	-15.5		5/0
RAB 35	Safety Injection Pump Room B	-35		5/0
RAB 36	Safety Injection Pump Room A	-35		6/0
RAB 37	Motor-Driven Emergency Feedpump “A”	-35		0/1
RAB 38	Motor-Driven Emergency Feedpump “B”	-35		1/0
→(EC-1939, Am. 126)				
RAB 39	Corridors & General Equip. Areas			8/22
←(EC-1939, Am. 126)				
RAB 40	Diesel Storage Tank “A”	-35		1/0
RAB 41	Diesel Storage Tank “B”	-35		1/0
2. REACTOR CONTAINMENT BUILDING**				
→(DRN 02-238, Am. 52)				
←(DRN 02-238, Am. 52)				
→(EC-25884, Am. 123)				
←(EC-25884, Am. 123)				
RCB	Electrical Penetration Area A&B	+21		44/0
RCB	Reactor Cable Trays	+46		16/0
CTA	Cooling Tower “A”		16/0	1/0
CTB	Cooling Tower “B”		2/0	1/0

TABLE 3.3-11 (Continued)

FIRE DETECTION INSTRUMENTS

FIRE AREA	ROOM NAME/NUMBER	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
3. FUEL HANDLING BUILDING				
FHB	General Area	-35		12/0
	Purification Pump Room, Fuel Pool	+1		
	Pump “A”, Fuel Pool Pump “B”,	+1		
	Fuel Pool Heater Exchanger and	+1		
	Access Area	+1		
	Emergency Filter Train Unit	+1		
	Emergency Elect. Equip. Room	+1		8/0
	Operating Floor	+46		1/0
	Corridors	+21		4/0
	Truck Bay	+18		1/0

TABLE NOTATIONS

*(x/y): x is the number of Function A (early warning fire detection and notification only) instruments.

y is the number of Function B (actuation of fire suppression systems and early warning and notification) instruments.

**The fire detection instruments located within the containment are not required to be operable during the performance of Type A containment leakage rate tests.

→(EC-25884, Am. 123)

←(EC-25884, Am. 123)

3/4.3 INSTRUMENTATION

3/4.3.3.9 LOOSE-PART DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The loose-part detection system shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

→(EC-26965, Am. 120)

a. With one or more loose-part detection system channels inoperable, restore within 30 days. Otherwise, enter the condition into the Corrective Action Program and obtain Condition Review Group approval of the corrective action plan.

←(EC-26965, Am. 120)

→(DRN 04-1191, Am. 91)

b. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.3.3.9 Each channel of the loose-part detection system shall be demonstrated OPERABLE by performance of:

a. a CHANNEL CHECK at least once per 24 hours,

b. a CHANNEL FUNCTIONAL TEST at least once per 31 days, and

c. a CHANNEL CALIBRATION at least once per 18 months.

➔ (DRN 02-216)
3/4.3 INSTRUMENTATION (See note below)
← (DRN 02-216)
3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.10 RADIOACTIVE LIQUID EFFLUENT

LIMITING CONDITION FOR OPERATION

3.3.3.10 The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Requirement 3.11.1.1 are not exceeded during releases to the environment. The alarm/trip setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the Offsite Dose Calculation Manual (ODCM).

APPLICABILITY: At all times.

ACTION:

a. With radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Requirement, immediately suspend release to the environment of radioactive liquid effluents monitored by the affected channel, or declare the channel inoperable, or change the setpoint so it is acceptably conservative.

b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within 30 days if release to the environment are in progress or, if unsuccessful, explain in the next Annual Radioactive Effluent Release Report, pursuant to Technical Specification 6.9.1.8, why this inoperability was not corrected within the time specified. Releases need not be terminated after 30 days provided the specified ACTIONS are continued.

SURVEILLANCE REQUIREMENT

4.3.3.10 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-8.

➔ (DRN 02-216)

NOTE: TRM Specifications 3.3.3.10 and 4.3.3.10 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specifications requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ (DRN 02-216)

TABLE 3.3-12 (See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	RELEASE INFORMATION	ACTION
1. BORON WASTE MANAGEMENT SYSTEM (BWMS):			
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release(PRM-IRE-0627)	1	Batch Release from Boric Acid Condensate Tanks	1
b. Waste (Process) Flow Rate Measurement Device (BM-IFT-0627)	1		2
2. LIQUID WASTE MANAGEMENT SYSTEM DISCHARGE (LWMS):			
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-0647)	1	Batch Release from Liquid Waste Management Tanks	1
b. Waste (Process) Flow Rate Measurement Device (LWM-IFT-0647)	1		2

➔ (DRN 02-216)

NOTE: TRM Table 3.3-12 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 3.3-12 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	RELEASE INFORMATION	ACTION
3. DRY COOLING TOWER SUMPS (DCTS):			
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release [PRM-IRE-6775 (DCTS#1) and PRM-IRE-6776(DCTS#2)]	1/sump	Release Path is NOT Aligned to LWMS	3
b. Waste (Process) Flow Rate Measurement Device (See Table Note. #1)	N/A	(see Note #2)	N/A
4. INDUSTRIAL WASTE SUMP TURBINE BUILDING (TBIWS):			
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-6778)	1	Release Path is NOT Aligned to LWMS	3
b. Waste (Process) Flow Rate Measurement Device (See Table Note. #1)	N/A	(see Note #2)	N/A

➔ (DRN 02-216)

NOTE: TRM Table 3.3-12 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 3.3-12 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	RELEASE INFORMATION	ACTION
5. CIRCULATING WATER DISCHARGE (CWD) - BLOWDOWN AND BLOWDOWN HEAT EXCHANGER DISCHARGES AND AUXILIARY COMPONENT COOLING WATER PUMPS:		1. Detectable Activity in Secondary Plant 2. During Blowdown of Steam Generators	
a. Radioactivity Monitor Providing Alarm and initiate Automatic Closure of Blowdown Valve BD-303 (PRM-IRE-1900)	1	to CW System. 3. During Discharge of ACCW Basins	4
b. Waste (Process) Flow Rate Measurement Device (See Table Note. #1)	N/A	to CW System	N/A
6. STEAM GENERATOR BLOWDOWN (SGB) EFFLUENT LINE		During Blowdown Of S / Gs	
a. Continuous Composite Sampler	1	to CW System or Metal Waste Ponds (see Note #3)	4

➔ (DRN 02-216)

NOTE: TRM Table 3.3-12 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)
TABLE 3.3-12 (Continued, See note below)
← (DRN 02-216)

TABLE NOTATIONS

NOTE #1 Waste (process) Flow Measurement Devices are not installed on the release paths for the DCTS, TBIWS or CWD monitors. For these release paths, pump performance curves generated in place or some form of volumetric estimate or measurement device may be used for effluent flow rate estimates.

NOTE #2 DCTS and TBIWS monitor operation should be maximized during releases to the environment, even when detectable activity is not present in the CCW/ACCW or secondary systems, to provide capability for release termination in the event that Primary to Secondary or Primary to CCW leakage occurs.

NOTE #3 The Steam Generator Blowdown Composite Sampler is capable of sampling blowdown discharge to either the CW System or Waste Ponds. Blowdown to the Waste Ponds is not allowed unless radiation monitoring capable of release termination is added to the release path.

ACTION STATEMENTS

ACTION 1 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that prior to initiating a release:

a. At least two independent samples are analyzed in accordance with Requirement 4.11.1.1.1 and

b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valve lineup.

ACTION 2 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that the flow rate is estimated at least once per FOUR hours during actual releases. Pump performance curves generated in place may be used to estimate flow.

➔ (DRN 02-216)
NOTE: TRM Table 3.3-12 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ (DRN 02-216)
TABLE 3.3-12 (Continued, See note below)
← (DRN 02-216)
ACTION STATEMENTS

ACTION 3 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that grab samples are collected and are analyzed within 24 hours of collection time for radioactivity at a lower limit of detection of at least 5 E-07 microcurie/ml. Sample collection and analysis is NOT required if the release path for the DCTS/TBIWS is aligned to the LWMS. The sample collection frequency is:

a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microcurie/gram DOSE EQUIVALENT I-131, or

b. At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microcurie/gram DOSE EQUIVALENT I-131.

ACTION 4 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that grab samples are collected and are analyzed within 24 hours of collection time for radioactivity at a lower limit of detection of at least 5 E-07 microcurie/ml. Sample collection and analysis is NOT required if no detectable activity exists in either the secondary plant or CCW/ACCW systems. Sampling of Steam Generator Blowdown is required during blowdown to the CW System or Waste Ponds. The sample collection frequency is:

a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microcurie/gram DOSE EQUIVALENT I-131, or

b. At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microcurie/gram DOSE EQUIVALENT I-131.

➔ (DRN 02-216)
NOTE: TRM Table 3.3-12 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL SOURCE CHECK	CHANNEL CALIBRATION	FUNCTIONAL TEST	RELEASE INFORMATION
1. BORON WASTE MANAGEMENT SYSTEM DISCHARGE (BWMS):					
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-0627)	Prior to Release (6)	Prior to Release (6)	18 Months (3)	Quarterly (1)	Batch Release from Boric Acid Condensate Tanks
b. Waste (Process) Flow Rate Measurement Device.(BM-IFT-0627)	Daily (4)	N/A	18 Months		
2. LIQUID WASTE MANAGEMENT SYSTEM DISCHARGE (LWMS):					
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-0647)	Prior to Release (6)	Prior to Release (6)	18 Months (3)	Quarterly (1)	Batch Release from Liquid Waste Management Tanks
b. Waste (Process) Flow Rate Measurement Device (LWM-IFT-0647)	Daily (4)	N/A	18 Months		
3. DRY COOLING TOWER SUMPS (DCTS):					
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-6775 and PRM-IRE-6776)	Daily	Monthly	18 Months (3)	Quarterly (2)	Release Path is NOT Aligned to LWMS
b. Waste (Process) Flow Rate Measurement	N/A	N/A	N/A	N/A	

TABLE 4.3-8 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL SOURCE CHECK	CHANNEL CALIBRATION	FUNCTIONAL TEST	RELEASE INFORMATION
4. INDUSTRIAL WASTE SUMPS TURBINE BUILDING (IWSTB):					
a. Radioactivity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-6778)	Daily	Monthly	18 Months(3)	Quarterly (2)	Release Path is NOT Aligned to LWMS
b. Waste (Process) Flow Rate Measurement	N/A	N/A	N/A	N/A	
5. CIRCULATING WATER DISCHARGE (CWD) BLOWDOWN AND BLOWDOWN HEAT EXCHANGER DISCHARGE AND AUXILIARY COMPONENT COOLING WATER PUMPS: (TERMINATION OF BLOWDOWN DISCHARGE ONLY)					1. Steam Generators Blowdown to CW System
a. Radioactivity Monitor Providing Alarm and initiate Automatic Closure of Blowdown Discharge Valve BD-303	Daily	Monthly	18 Months (3)	Quarterly (2)	2. Discharge of ACCW Basins to CW System
b. Waste (Process) Flow Rate Measurement	N/A	N/A	N/A	N/A	
6. STEAM GENERATOR BLOWDOWN (SGB) EFFLUENT LINE:					Blowdown of S/Gs to
a. Continuous Composite Sampler	Daily (5)	N/A	18 Months	Quarterly	CW System or Metal Waste Ponds

TABLE 4.3-8 (Continued)

TABLE NOTATIONS

1. The CHANNEL FUNCTIONAL TEST for BWM and LWM shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exists.

a. Instrument indicates measured levels above the alarm/trip setpoint.
b. Circuit failure.
c. Instrument indicates a downscale failure.

2. The CHANNEL FUNCTIONAL TEST for DCTS, TBIWS and CWD shall also demonstrate that automatic isolation of this pathway occurs if the instrument indicates measured levels above the alarm/trip setpoint and that control room alarm annunciation occurs if any of the following conditions exists:

a. Instrument indicates measured levels above the alarm setpoint.
b. Circuit failure.
c. Instrument controls not set in operate mode.

3. The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Institute of Standards and Technology NIST or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards shall permit calibrating the system for over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used in lieu of the reference standards associated with the initial calibration.

4. CHANNEL CHECK for BWM and LWM shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.

5. CHANNEL CHECK for Steam Generator Blowdown Composite Sampler shall be made at least once per 24 hours on days on which releases are made to the Circulating Water System or Waterford 3 waste pond.

6. CHANNEL CHECK for BWM and LWM shall consist of observing a satisfactory channel source check which is also performed prior to the release.

➔ (DRN 02-216)
3/4.3 INSTRUMENTATION (See note below)
← (DRN 02-216)
3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.11 RADIOACTIVE GASEOUS EFFLUENT

LIMITING CONDITION FOR OPERATION

3.3.3.11 The radioactive gaseous effluent monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Requirement 3.11.2.1 are not exceeded during releases to the environment. The alarm/trip setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the Offsite Dose Calculation Manual (ODCM).

APPLICABILITY: As shown in Table 3.3-13

ACTION:

a. With a radioactive gaseous effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, immediately suspend release to the environment of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable, or change the setpoint so it is acceptably conservative.

b. With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Restore the inoperable instrumentation to OPERABLE status within 30 days if releases to the environment are in progress or, if unsuccessful, explain in the next Annual Radioactive Effluent Release Report, pursuant to Technical Specification 6.9.1.8, why this inoperability was not corrected within the time specified. Releases need not be terminated after 30 days provided the specified ACTIONS are continued.

SURVEILLANCE REQUIREMENTS

4.3.3.11 Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-9.

➔ (DRN 02-216)
NOTE: TRM Specifications 3.3.3.11 and 4.3.3.11 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specifications requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

TABLE 3.3-13

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. GASEOUS WASTE MANAGEMENT SYSTEM (GWMS):			
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-0648)	1	Batch Release from Waste Gas	1
→(DRN 04-956, Am. 89) b. Waste (Process) Flow Rate Measurement Device (GWM-IFIT-0648) ←(DRN 04-956, Am. 89)	1	Decay Tank	5
2. CONDENSER VACUUM PUMPS - MAIN CONDENSER EVACUATION (MCES) AND TURBINE GLAND SEALING SYSTEM:			
a. Noble Gas Activity Monitor (PRM-IRE-0002)	1	Main Condenser is	3
b. Iodine Sampler (see NOTE 1)	1	Under a vacuum	4
c. Particulate Sampler (see NOTE 1).	1		4
d. Sampler Flow Rate Monitor (see NOTE 1)	1		6

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
3. REACTOR AUXILIARY BUILDING VENTILATION SYSTEM (PLANT STACK):			
a1. Noble Gas Activity Monitor Providing Alarm and Automatic Termination Containment Purge (PRM-IRE-0100.1S & 2S)	1	Containment Purge	2
a2. Noble Gas Activity Monitor (PRM-IRE-0100.1S, 2S or 0110)	1	At All Times	3
b. Iodine Sampler (see NOTE 1)	1	At All Times	4
c. Particulate Sampler (see NOTE 1)	1	At All Times	4
d. Sampler Flow Rate Monitor (see NOTE 1)	1	At All Times	6
e. Waste (Process) Flow Rate Monitor (PRM-IFT-0100-12/22)	1	At All Times	5
4. FUEL HANDLING BUILDING VENTILATION SYSTEM - (NORMAL EXHAUST):			
a. Noble Gas Activity Monitor (PRM-IRE-5107 A or B)	1	With	3
b. Iodine Sampler (see NOTE 1)	1	Irradiated	4
c. Particulate Sampler (see NOTE 1)	1	Fuel in	4
d. Sampler Flow Rate Monitor (see NOTE 1)	1	the Storage	6
e. Waste (Process) Flow Rate Monitor (PRM-IFT-5107 A or B)	1	Pool	5

TABLE 3.3-13 (Continued)

TABLE NOTATIONS

NOTE 1 The sampler flow rate monitor operability also satisfies the particulate and Iodine sampler requirements as long as the filter media for the applicable sample pump is installed. For the MCES and Plant Stack WRGM's, the low range detector sample pump is normally used to satisfy these requirements. For the Plant Stack and Fuel Handling Building PIG'S, the filter media necessary to satisfy the particulate and Iodine sampler is normally applicable to the Iodine/gas channel sample pump.

ACTION STATEMENTS

ACTION 1 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment provided best efforts are made to repair the instrument and that prior to initiating the release:

a. At least two independent samples of the tank's contents are analyzed, and

b. At least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve lineup.

ACTION 2 With the number of channels operable less than required, containment purging of radioactive effluents must be immediately suspended. This ACTION only applies to the noble gas channels of the Plant Stack PIG's (PRM-IRE-0100.1S and PRM-IRM-0100.2S).

ACTION 3 With the number of Noble Gas activity monitor Channels OPERABLE less than the minimum channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that grab samples are taken at least once per 12 hours and these samples are analyzed for gross activity within 24 hours. For the Main Condenser Evacuation and Turbine Gland Sealing Systems (MCES), this ACTION only applies during releases with Turbine Gland Sealing System or Condenser Vacuum Pumps in OPERATION.

ACTION 4 With the number of Particulate/Iodine Sampler Channels OPERABLE less than the minimum channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that samples are continuously collected with auxiliary sampling equipment as required in Table 4.11-2, within one hour after the channel has been declared inoperable. For the MCES WRGM, this ACTION only applies during periods of Primary to Secondary leakage.

TABLE 3.3-13 (Continued)

TABLE NOTATIONS

ACTION 5 With the number of Waste (Process) flow rate monitor channels OPERABLE less than the minimum channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and that flow rate is estimated at least once every four hours. Waste (Process) flow rate estimates may be in the form of a log of running ventilation equipment which is updated at four hour intervals. For the waste gas holdup tank, this ACTION is applicable only during periods of release.

ACTION 6 With the number of Sampler Flow Rate Monitor Channels OPERABLE less than the minimum channels OPERABLE requirement, effluent releases via this pathway may continue provided best efforts are made to repair the instrument and flow rate is estimated at least once every four hours. For the MCES WRGM, this ACTION only applies during periods of Primary to Secondary leakage.

TABLE 4.3-9

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	RELEASE INFORMATION
1. GASEOUS WASTE MANAGEMENT SYSTEM (GWMS):					
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-0648)	Prior to Release(6)	Prior to Release(6)	18 Months (4)	Quarterly (1)	Batch Release from Waste Gas
→(DRN 04-956, Am. 89) b. Waste (Process) Flow Rate Measurement Device (GWM-IFIT-0648) ←(DRN 04-956, Am. 89)	Daily (5)	N/A	18 Months	Quarterly	
2. CONDENSER VACUUM PUMPS - MAIN CONDENSER EVACUATION (MCES) AND TURBINE GLAND SEALING SYSTEM (MCES):					
a. Noble Gas Activity Monitor (PRM-IRE-0002)	Daily	Monthly	18 Months (4)	Quarterly (2)	Main Condenser is under a vacuum
b. Iodine Sampler	Weekly	N/A	N/A	N/A	
c. Particulate Sampler	Weekly	N/A	N/A	N/A	
d. Sampler Flow Rate Monitor	Daily	N/A	18 Months	Quarterly	

0TABLE 4.3-9 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	RELEASE INFORMATION
3. REACTOR AUXILIARY BUILDING VENTILATION SYSTEM (PLANT STACK):					
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release (PRM-IRE-0100.1S or 2S)	Daily	Monthly	18 Months (4)	Quarterly (3)	At All
b. Iodine Sampler	Weekly	N/A	N/A	N/A	
c. Particulate Sampler	Weekly	N/A	N/A	N/A	Times
d. Sampler Flow Rate Monitor	Daily	N/A	18 Months	Quarterly	
e. Waste (Process) Flow Rate Monitor (PRM-IFT-0100-12/22)	Daily	N/A	18 Months	Quarterly	
4. FUEL HANDLING BUILDING VENTILATION SYSTEM - (NORMAL EXHAUST):					
a. Noble Gas Activity Monitor (PRM-IRE-5107 A or B)	Daily	Monthly	18 Months (4)	Quarterly (2)	With Irradiated Fuel in the Storage Pool
b. Iodine Sampler	Weekly	N/A	N/A	N/A	
c. Particulate Sampler	Weekly	N/A	N/A	N/A	
d. Sampler Flow Rate Monitor	Daily	N/A	18 Months	Quarterly	
e. Waste (Process) Flow Rate Monitor (PRM-IFT-5107 A or B)	Daily	N/A	18 Months	Quarterly	

TABLE 4.3-9

TABLE NOTATIONS

1. The CHANNEL FUNCTIONAL TEST for Waste Gas Holdup System shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:

   a. Instrument indicates measured levels above the alarm/trip setpoint.
   b. Circuit failure.
   c. Instrument indicates a downscale failure.

2. The CHANNEL FUNCTIONAL TEST for MCES and Fuel Handling Building shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

   a. Instrument indicates measured levels above the alarm setpoint.
   b. Circuit failure.

3. The CHANNEL FUNCTIONAL TEST for Plant Stack shall also demonstrate that automatic isolation of this pathway occurs if the instrument indicates measured levels above the alarm/trip setpoint and that control room alarm annunciation occurs if any of the following conditions exists:

   a. Instrument indicates measured levels above the alarm set.
   b. Circuit failure.
   c. Instrument controls not set in operate mode.

4. The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Institute of Standards and Technology (NIST) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration may be used in lieu of the reference standards associated with the initial calibration.

5. CHANNEL CHECK for GWMS shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.

6. CHANNEL CHECK for GWMS shall consist of observing a satisfactory channel source check which is also performed prior to the release.

3/4.3 INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2*, and 3*.

ACTION:

a. With one stop valve or one control valve per high pressure turbine steam lead inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam lead or isolate the turbine from the steam supply within the next 6 hours.

b. With the above required overspeed protection system otherwise inoperable, within 6 hours isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

→(DRN 04-1191, Am. 91)
4.3.4.1 The provisions of TRM SR 4.0.4 are not applicable.
←(DRN 04-1191, Am. 91)

4.3.4.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE:
→(DRN 06-723, Am. 107)

a. At least once every 184 days (under direct observation) each of the following valves is cycled through at least one complete cycle from the running position.
←(DRN 06-723, Am. 107)

1. Four high pressure throttle valves.
2. Four high pressure governor valves.
3. Six low pressure reheat stop valves.
4. Six low pressure reheat intercept valves.

b. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.

c. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.
→(DRN 06-723, Am. 107)

d. At least once per 40 operating months by inspecting the installed light low pressure turbine discs, and not to exceed[#] at least once per 90 operating months by inspecting the installed heavy low pressure turbine discs.
←(DRN 06-723, Am. 107)

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*With any main steam isolation valve and/or any main steam line isolation valve bypass valve not fully closed.
→(DRN 06-723, Am. 107)
[#]The provisions of TRM SR 4.0.2 are not applicable to this requirement.
←(DRN 06-723, Am. 107)

→(DRN 02-677, Am. 56)

3/4.3 INSTRUMENTATION

3/4.3.5 ULTRASONIC FLOWMETER

LIMITING CONDITION FOR OPERATION

3.3.5 Two ultrasonic flowmeters (UFMs) shall be OPERABLE.

→(DRN 03-0247, Am. 75)

APPLICABILITY: MODE 1, above 50% power*

←(DRN 03-0247, Am. 75)

ACTION:

With one or both UFMs inoperable, perform the following:

→(DRN 03-0247, Am. 75)

a. With COLSS in service:

→(DRN 02-1889, Am. 74)

←(DRN 02-1889, Am. 74)

→(DRN 02-1889, Am. 74; DRN 03-247, Am. 75; DRN 04-1244, Am. 99)

1. Reduce THERMAL POWER to less than or equal to 3697 MWt (99.5%) within 48 hours of last calibration factor update.

2. Reduce THERMAL POWER to less than or equal to 3660 MWt (98.5%) within 31 days of last calibration factor update.

b. With COLSS out of service, return the UFM to service prior to the next required CPCS calibration or reduce THERMAL POWER to less than or equal to 3660 MWt (98.5%).

←(DRN 02-1889, Am. 74; DRN 03-247, Am. 75; DRN 04-1244, Am. 99)

→(DRN 04-1191, Am. 91)

The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.3.5 The ultrasonic flowmeters shall be demonstrated OPERABLE:

a. By the performance of a CHANNEL FUNCTIONAL TEST at least once per 18 months.

b. By the performance of a CHANNEL CHECK at least once every 31 days to demonstrate continuous calibration of COLSS MSBSCAL and FWBSCAL.

←(DRN 02-677, Am. 56)

→(DRN 03-0247, Am. 75)

* Following a reactor power cutback, entry is not required provided UFM is returned to service within the following 6 hours.

←(DRN 03-0247, Am. 75)