

ATTACHMENT 3

**PROPOSED TECHNICAL
SPECIFICATIONS**

Technical Specification 3/4.2

"INSTRUMENTATION"

3.2 - LIMITING CONDITIONS FOR OPERATIONA. Isolation Actuation

The isolation actuation instrumentation CHANNEL(s) shown in Table 3.2.A-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

As shown in Table 3.2.A-1.

ACTION:

1. With an isolation actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.A-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement for one TRIP SYSTEM, place the inoperable CHANNEL(s) and/or TRIP SYSTEM in the tripped condition^(a) within one hour.

4.2 - SURVEILLANCE REQUIREMENTSA. Isolation Actuation

1. Each isolation actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.A-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

a An inoperable CHANNEL need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the inoperable CHANNEL shall be restored to OPERABLE status within 2 hours or the ACTION required by Table 3.2.A-1 for that trip function shall be taken.

3.2 - LIMITING CONDITIONS FOR OPERATION4.2 - SURVEILLANCE REQUIREMENTS

3. With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement for both TRIP SYSTEMS, place at least one TRIP SYSTEM^(b) in the tripped condition^(c) within one hour and take the ACTION required by Table 3.2.A-1.

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- b If more CHANNEL(s) are inoperable in one TRIP SYSTEM than in the other, select the TRIP SYSTEM with the greater number of inoperable CHANNEL(s) to place in the tripped condition except when this would cause the trip function to occur; if both TRIP SYSTEM(s) have the same number of inoperable CHANNEL(s), place either TRIP SYSTEM in the tripped condition.
 - c An inoperable CHANNEL need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the inoperable CHANNEL shall be restored to OPERABLE status within one hour or the ACTION required by Table 3.2.A-1 for that trip function shall be taken.

TABLE 3.2.A-1

ISOLATION ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint⁽ⁱ⁾</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low	≥ 144 inches	2	1, 2, 3	20
b. Drywell Pressure - High ^(d)	≤ 2 psig	2	1, 2, 3	20
c. Drywell Radiation - High	≤ 100 R/hr	1	1, 2, 3	23
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low ^(c)	≥ 144 inches	2	1, 2, 3 & *	24
b. Drywell Pressure - High ^(c,d)	≤ 2 psig	2	1, 2, 3	24
c. Reactor Building Ventilation Exhaust Radiation - High ^(c)	≤ 4 mR/hr	2	1, 2, 3 & * *	24
d. Refueling Floor Radiation - High ^(c)	≤ 100 mR/hr	2	1, 2, 3 & * *	24
<u>3. MAIN STEAM LINE (MSL) ISOLATION</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	2	1, 2, 3	21
b. MSL Tunnel Radiation - High ^(b)	≤ 3 ^(g) x normal background	2	1, 2, 3	21
c. MSL Pressure - Low	≥ 825 psig	2	1	22
d. MSL Flow - High	≤ 120% of rated	2/line	1, 2, 3	21
e. MSL Tunnel Temperature - High	≤ 200°F	4	1, 2, 3	21

TABLE 3.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(f)</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>4. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. Standby Liquid Control System Initiation ^(f)	NA	NA	1, 2, 3	23
b. Reactor Vessel Water Level - Low	≥ 144 inches	2	1, 2, 3	23
<u>5. ISOLATION CONDENSER ISOLATION</u>				
a. Steam Flow - High	≤ 300% of rated steam flow	1	1, 2, 3	23
b. Return Flow - High	≤ 32 (Unit 2)/ ≤ 14.8 (Unit 3) inches water diff.	1	1, 2, 3	23
<u>6. HIGH PRESSURE COOLANT INJECTION ISOLATION</u>				
a. Steam Flow - High	≤ 300% of rated steam flow ^(h)	1	1, 2, 3	23
b. Reactor Vessel Pressure - Low	≥ 80 psig	2	1, 2, 3	23
c. Area Temperature - High	≤ 200°F	8	1, 2, 3	23

TABLE 3.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint⁽ⁱ⁾</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>7. SHUTDOWN COOLING ISOLATION</u>				
a. Reactor Vessel Water Level - Low	≥ 144 inches	2	3, 4, 5	23
b. Recirculation Line Water Temperature - High (Cut-in Permissive)	$\leq 350^{\circ}\text{F}$	2 ^(e)	1, 2, 3	23

TABLE 3.2.A-1 (Continued)ISOLATION ACTUATION INSTRUMENTATIONACTION

- ACTION 20 - Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 21 - Be in at least STARTUP with the associated isolation valves closed within 8 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 22 - Be in at least STARTUP within 8 hours.
- ACTION 23 - Close the affected system isolation valves within one hour and declare the affected system inoperable.
- ACTION 24 - Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within one hour.

TABLE 3.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATIONTABLE NOTATION

- * During CORE ALTERATIONS or operations with a potential for draining the reactor vessel.
- ** When handling irradiated fuel in the secondary containment.
- (a) A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the CHANNEL in the tripped condition provided the Functional Unit maintains isolation actuation capability.
- (b) Also trips the mechanical vacuum pump and isolates the steam jet air ejectors.
- (c) Isolates the reactor building ventilation system and actuates the standby gas treatment system.
- (d) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (e) Only one TRIP SYSTEM.
- (f) Closes only reactor water cleanup system isolation valves.
- (g) Normal background is as measured during full power operation without hydrogen being injected. With Unit 2 operating above 20% RATED THERMAL POWER and hydrogen being injected into the feedwater, this Unit 2 setting may be as measured during full power operation with hydrogen being injected.
- (h) Includes a time delay of $3 \leq t \leq 9$ seconds.
- (i) Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

TABLE 4.2.A-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low	S	M	E ^(a)	1, 2, 3
b. Drywell Pressure - High ^(b)	NA	M	Q	1, 2, 3
c. Drywell Radiation - High	S	M	E	1, 2, 3
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low ^(c)	S	M	E ^(a)	1, 2, 3 & *
b. Drywell Pressure - High ^(b,c)	NA	M	Q	1, 2, 3
c. Reactor Building Ventilation Exhaust Radiation - High ^(c)	S	M	E	1, 2, 3 & * *
d. Refueling Floor Radiation - High ^(c)	S	M	E	1, 2, 3 & * *
<u>3. MAIN STEAM LINE (MSL) ISOLATION</u>				
a. Reactor Vessel Water Level - Low Low	S	M	E ^(a)	1, 2, 3
b. MSL Tunnel Radiation - High	S	M	E	1, 2, 3
c. MSL Pressure - Low	NA	M	Q	1
d. MSL Flow - High	S	M	E	1, 2, 3
e. MSL Tunnel Temperature - High	NA	E	E	1, 2, 3

TABLE 4.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>4. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. Standby Liquid Control System Initiation	NA	E	NA	1, 2, 3
b. Reactor Vessel Water Level - Low	S	M	E ^(a)	1, 2, 3
<u>5. ISOLATION CONDENSER</u>				
a. Steam Flow - High	NA	M	Q	1, 2, 3
b. Condensate Flow - High	NA	M	Q	1, 2, 3
<u>6. HIGH PRESSURE COOLANT INJECTION ISOLATION</u>				
a. Steam Flow - High	NA	M	Q ^(a)	1, 2, 3
b. Reactor Vessel Pressure - Low	NA	M	Q ^(a)	1, 2, 3
c. Area Temperature - High	NA	E	E	1, 2, 3
<u>7. SHUTDOWN COOLING ISOLATION</u>				
a. Reactor Vessel Water Level - Low	S	M	E ^(a)	3, 4, 5
b. Recirculation Line Water Temperature - High (Cut-in Permissive)	NA	M	Q	1, 2, 3

TABLE 4.2.A-1 (Continued)ISOLATION ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTSTABLE NOTATION

- * During CORE ALTERATIONS or operations with a potential for draining the reactor vessel.
- ** When handling irradiated fuel in the secondary containment.
- (a) Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency identified in the table.
- (b) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (c) Isolates the reactor building ventilation system and actuates the standby gas treatment system.

3.2 - LIMITING CONDITIONS FOR OPERATION

B. Emergency Core Cooling Systems (ECCS) Actuation

The ECCS actuation instrumentation CHANNEL(s) shown in Table 3.2.B-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

As shown in Table 3.2.B-1.

ACTION:

1. With an ECCS actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.B-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With one or more ECCS actuation instrumentation CHANNEL(s) inoperable, take the ACTION required by Table 3.2.B-1.
3. With either ADS TRIP SYSTEM inoperable, restore the inoperable TRIP SYSTEM to OPERABLE status within:
 - a. 7 days provided that both the HPCI and IC are OPERABLE, or
 - b. 72 hours.

With the above provisions of this ACTION not met, be in at least HOT

4.2 - SURVEILLANCE REQUIREMENTS

B. ECCS Actuation

1. Each ECCS actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.B-1.
2. LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

3.2 - LIMITING CONDITIONS FOR OPERATION

SHUTDOWN within the next 12 hours
and reduce reactor steam dome
pressure to ≤ 150 psig within the
following 24 hours.

4.2 - SURVEILLANCE REQUIREMENTS

TABLE 3.2.B-1

EMERGENCY CORE COOLING SYSTEMS ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(h)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>1. CORE SPRAY (CS) SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low ^(b)	≥ 84 inches	4	1, 2, 3, 4 ^(c) , 5 ^(c)	30
b. Drywell Pressure - High ^{(b)(f)}	≤ 2 psig	4	1, 2, 3	30
c. Reactor Vessel Pressure - Low (Permissive)	≥ 300 psig & ≤ 350 psig	2	1, 2, 3	31
			4 ^(c) , 5 ^(c)	32
d. CS Pump Discharge Flow - Low (Bypass)	≥ 750 gpm	1/loop	1, 2, 3, 4 ^(c) , 5 ^(c)	33
<u>2. LOW PRESSURE COOLANT INJECTION (LPCI) SUBSYSTEM</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	4	1, 2, 3, 4 ^(c) , 5 ^(c)	30
b. Drywell Pressure - High ^(f)	≤ 2 psig	4	1, 2, 3	30
c. Reactor Vessel Pressure - Low (Permissive)	≥ 300 psig & ≤ 350 psig	2	1, 2, 3	31
			4 ^(c) , 5 ^(c)	32
d. LPCI Pump Discharge Flow - Low (Bypass)	≥ 1000 gpm	1/loop	1, 2, 3, 4 ^(c) , 5 ^(c)	33

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(h)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>3. HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM^(d)</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	4	1, 2, 3	35
b. Drywell Pressure - High ^(f)	≤ 2 psig	4	1, 2, 3	35
c. Condensate Storage Tank Level - Low ⁽ⁱ⁾	≥ 10,000 gal	2	1, 2, 3	35
d. Suppression Chamber Water Level - High ⁽ⁱ⁾	≤ 15' 5" above bottom of chamber	2	1, 2, 3	35
e. Reactor Vessel Water Level - High (Trip)	≤ 194 inches	1	1, 2, 3	31
f. HPCI Pump Discharge Flow - Low (Bypass)	≥ 600 gpm	1	1, 2, 3	33
g. Manual Initiation	NA	1/system	1, 2, 3	34
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM - TRIP SYSTEM 'A' ^(d)</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	2	1, 2, 3	30
b. Drywell Pressure - High ^(f)	≤ 2 psig	2	1, 2, 3	30
c. Initiation Timer	≤ 120 sec	1	1, 2, 3	31
d. Low Low Level Timer	≤ 8.5 min	1	1, 2, 3	31
e. CS Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31
f. LPCI Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(h)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>5. AUTOMATIC DEPRESSURIZATION SYSTEM - TRIP SYSTEM 'B' ^(d)</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	2	1, 2, 3	30
b. Drywell Pressure - High ^(f)	≤ 2 psig	2	1, 2, 3	30
c. Initiation Timer	≤ 120 sec	1	1, 2, 3	31
d. Low Low Level Timer	≤ 8.5 min	1	1, 2, 3	31
e. CS Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31
f. LPCI Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31
<u>6. LOSS OF POWER</u>				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	2930 ± 146 volts decreasing voltage	2/bus	1, 2, 3, 4 ^(e) , 5 ^(e)	36
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	≥ 3784 volts (Unit 2) ^{(g)(j)} ≥ 3832 volts (Unit 3) ^{(g)(j)}	2/bus	1, 2, 3, 4 ^(e) , 5 ^(e)	36

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATIONACTION

- ACTION 30 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement:
- a. With one CHANNEL inoperable, place the inoperable CHANNEL in the tripped condition within one hour or declare the associated ECCS system(s) inoperable.
 - b. With more than one CHANNEL inoperable, declare the associated ECCS system(s) inoperable.
- ACTION 31 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement:
- a. For ADS, declare the associated ADS TRIP SYSTEM inoperable.
 - b. For CS, LPCI or HPCI, declare the associated ECCS system(s) inoperable.
- ACTION 32 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour.
- ACTION 33 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour; restore the inoperable CHANNEL to OPERABLE status within 7 days or declare the associated ECCS system(s) inoperable.
- ACTION 34 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, restore the inoperable CHANNEL to OPERABLE status within 8 hours or declare the associated ECCS system(s) inoperable.
- ACTION 35 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place at least one inoperable CHANNEL in the tripped condition within one hour or declare the HPCI system inoperable.
- ACTION 36 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour, or declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.9.A or 3.9.B, as appropriate.

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATIONTABLE NOTATION

- (a) A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the CHANNEL in the tripped condition provided the associated Functional Unit maintains ECCS initiation capability.
- (b) Also actuates the associated emergency diesel generator.
- (c) When the system is required to be OPERABLE per Specification 3.5.B.
- (d) Not required to be OPERABLE when reactor steam dome pressure is ≤ 150 psig.
- (e) Required when the associated diesel generator is required to be OPERABLE per Specification 3.9.B.
- (f) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (g) With no LOCA signal present, there is an additional time delay of 5 ± 0.25 minutes.
- (h) Reactor water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).
- (i) Provides signal to pump suction valves only.
- (j) There is an inherent time delay of 7 ± 1.4 seconds on degraded voltage.

TABLE 4.2.B-1

ECCS ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>1. CORE SPRAY (CS) SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low	S	M	Q	1, 2, 3, 4 ^(b) , 5 ^(b)
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Reactor Vessel Pressure - Low (Permissive)	NA	M	Q	1, 2, 3, 4 ^(b) , 5 ^(b)
d. CS Pump Discharge Flow - Low (Bypass)	NA	M	E ^(e)	1, 2, 3, 4 ^(b) , 5 ^(b)
<u>2. LOW PRESSURE COOLANT INJECTION (LPCI) SUBSYSTEM</u>				
a. Reactor Vessel Water Level - Low Low	S	M	Q	1, 2, 3, 4 ^(b) , 5 ^(b)
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Reactor Vessel Pressure - Low (Permissive)	NA	M	Q	1, 2, 3, 4 ^(b) , 5 ^(b)
d. LPCI Pump Discharge Flow - Low (Bypass)	NA	M	E ^(e)	1, 2, 3, 4 ^(b) , 5 ^(b)
<u>3. HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM^(a)</u>				
a. Reactor Vessel Water Level - Low Low	S	M	Q	1, 2, 3
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level - Low	NA	M	NA	1, 2, 3
d. Suppression Chamber Water Level - High	NA	M	NA	1, 2, 3
e. Reactor Vessel Water Level - High (Trip)	NA	M	E	1, 2, 3
f. HPCI Pump Discharge Flow - Low (Bypass)	NA	M	E	1, 2, 3
g. Manual Initiation	NA	E	NA	1, 2, 3

DRESDEN - UNITS 2 & 3

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Amendment No.

INSTRUMENTATION

ECCS Actuation 3/4.2.B

TABLE 4.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM^(a)</u>				
a. Reactor Vessel Water Level - Low Low	S	M	Q	1, 2, 3
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Initiation Timer	NA	E	E	1, 2, 3
d. Low Low Level Timer	NA	E	E	1, 2, 3
e. CS Pump Discharge Pressure - High (Permissive)	NA	M	Q	1, 2, 3
f. LPCI Pump Discharge Pressure - High (Permissive)	NA	M	Q	1, 2, 3
<u>5. LOSS OF POWER</u>				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	NA	E	E	1, 2, 3, 4 ^(c) , 5 ^(c)
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	NA	E	E	1, 2, 3, 4 ^(c) , 5 ^(c)

DRESDEN - UNITS 2 & 3

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Amendment No.

INSTRUMENTATION

ECCS Actuation 3/4.2.B

TABLE 4.2.B-1 (Continued)ECCS ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTSTABLE NOTATION

- (a) Not required to be OPERABLE when reactor steam dome pressure is ≤ 150 psig.
- (b) When the system is required to be OPERABLE per Specification 3.5.B.
- (c) Required when the associated diesel generator is required to be OPERABLE per Specification 3.9.B.
- (d) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (e) Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency identified in the table.

3.2 - LIMITING CONDITIONS FOR OPERATIONC. ATWS - RPT

The anticipated transient without scram recirculation pump trip (ATWS - RPT) instrumentation CHANNEL(s) shown in Table 3.2.C-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

OPERATIONAL MODE 1.

ACTION:

1. With an ATWS - RPT instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.C-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With the number of OPERABLE CHANNEL(s) one less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for one or both TRIP SYSTEM(s), restore the inoperable CHANNEL(s) to OPERABLE status within 14 days or be in at least STARTUP within the next 8 hours.
3. With the number of OPERABLE CHANNEL(s) two or more less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for one TRIP SYSTEM and:

4.2 - SURVEILLANCE REQUIREMENTSC. ATWS - RPT

1. Each ATWS - RPT instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.C-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

3.2 - LIMITING CONDITIONS FOR OPERATION

4.2 - SURVEILLANCE REQUIREMENTS

- a. If the inoperable CHANNEL(s) consist of one reactor vessel water level CHANNEL and one reactor vessel pressure CHANNEL, place both inoperable CHANNEL(s) in the tripped^(a) condition within one hour or declare the TRIP SYSTEM inoperable.
 - b. If the inoperable CHANNEL(s) include two reactor vessel water level CHANNEL(s) or two reactor vessel pressure CHANNEL(s), declare the TRIP SYSTEM inoperable.
4. With one TRIP SYSTEM inoperable, restore the inoperable TRIP SYSTEM to OPERABLE status within 72 hours or be in at least STARTUP within the next 8 hours.
 5. With both TRIP SYSTEM(s) inoperable, restore at least one TRIP SYSTEM to OPERABLE status within one hour or be in at least STARTUP within the next 8 hours.

a The inoperable CHANNEL(s) need not be placed in the tripped condition where this would cause the Trip Function to occur.

TABLE 3.2.C-1ATWS - RPT INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(c)</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>
1. Reactor Vessel Water Level - Low Low	≥ 84 inches ^(b)	2
2. Reactor Vessel Pressure - High	≤ 1250 psig	2

-
- a A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the TRIP SYSTEM in the tripped condition provided at least one OPERABLE CHANNEL in the same TRIP SYSTEM is monitoring that parameter.
- b Includes a time delay of $8 \leq t \leq 10$ seconds.
- c Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

TABLE 4.2.C-1ATWS - RPT INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Water Level - Low Low	S	M	E ^(a)
2. Reactor Vessel Pressure - High	S	M	E ^(a)

a Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency identified in the table.

3.2 - LIMITING CONDITIONS FOR OPERATIOND. Isolation Condenser Actuation

The isolation condenser actuation instrumentation CHANNEL(s) shown in Table 3.2.D-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

OPERATIONAL MODE(s) 1, 2 and 3 with the reactor steam dome pressure > 150 psig.

ACTION:

1. With an isolation condenser actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.D-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With one or more isolation condenser system actuation instrumentation CHANNEL(s) inoperable, take the ACTION required by Table 3.2.D-1.

4.2 - SURVEILLANCE REQUIREMENTSD. Isolation Condenser Actuation

1. Each isolation condenser actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.D-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

TABLE 3.2.D-1ISOLATION CONDENSER ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>ACTION</u>
Reactor Vessel Pressure - High	≤ 1070 psig for ≤ 15 seconds	2	40

ACTION

- ACTION 40 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement:
- With one CHANNEL inoperable, place the inoperable CHANNEL in the tripped condition within one hour or declare the isolation condenser system inoperable.
 - With more than one CHANNEL inoperable, declare the isolation condenser system inoperable.

a A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the TRIP SYSTEM in the tripped condition provided at least one OPERABLE CHANNEL in the same TRIP SYSTEM is monitoring that parameter.

TABLE 4.2.D-1ISOLATION CONDENSER ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL</u> <u>CHECK</u>	<u>CHANNEL</u> <u>FUNCTIONAL</u> <u>TEST</u>	<u>CHANNEL</u> <u>CALIBRATION</u>
Reactor Vessel Pressure - High	NA	M	E

3.2 - LIMITING CONDITIONS FOR OPERATIONE. Control Rod Block Actuation

The control rod block actuation instrumentation CHANNEL(s) shown in Table 3.2.E-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

As shown in Table 3.2.E-1.

ACTION:

1. With a control rod block actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.E-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, take the ACTION required by Table 3.2.E-1.

4.2 - SURVEILLANCE REQUIREMENTSE. Control Rod Block Actuation

Each of the required control rod block actuation TRIP SYSTEM(s) and instrumentation CHANNEL(s) shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.E-1.

TABLE 3.2.E-1

CONTROL ROD BLOCK INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>1. ROD BLOCK MONITORS^(a)</u>				
a. Upscale	As specified in the COLR	2	1 ^(f)	50
b. Inoperative	NA	2	1 ^(f)	50
c. Downscale	$\geq 5/125$ of full scale	2	1 ^(f)	50
<u>2. AVERAGE POWER RANGE MONITORS</u>				
a. Flow Biased Neutron Flux - High				
1. Dual Recirculation Loop Operation	$\leq (0.58W + 50)^{(h)}$	4	1	51
2. Single Recirculation Loop Operation	$\leq (0.58W + 46.5)^{(h)}$	4	1	51
b. Inoperative	NA	4	1, 2, 5 ^(j)	51
c. Downscale	$\geq 3/125$ of full scale	4	1	51
d. Startup Neutron Flux - High	$\leq 12/125$ of full scale	4	2, 5 ^(j)	51

TABLE 3.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>3. SOURCE RANGE MONITORS</u>				
a. Detector not full in ^(b)	NA	3 2	2 5	51 51
b. Upscale ^(c)	$\leq 1 \times 10^5$ cps	3 2	2 5	51 51
c. Inoperative ^(c)	NA	3 2	2 5	51 51
d. Downscale ^(d)	≥ 3 cps ⁽ⁱ⁾	3 2	2 5	51 51
<u>4. INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in ^(e)	NA	6	2, 5	51
b. Upscale	$\leq 108/125$ of full scale	6	2, 5	51
c. Inoperative	NA	6	2, 5	51
d. Downscale ^(e)	$\geq 5/125$ of full scale	6	2, 5	51

TABLE 3.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>5. SCRAM DISCHARGE VOLUME (SDV)</u>				
a. Water Level - High	≤ 25 gal	1 per bank	1, 2, 5 ^(g)	52
b. SDV Switch in Bypass	NA	1	5 ^(g)	52

TABLE 3.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION

ACTION

- ACTION 50 - Declare the rod block monitor inoperable and take the ACTION required by Specification 3.3.M.
- ACTION 51- With the number of OPERABLE CHANNEL(s):
- a. One less than required by the Minimum CHANNEL(s) per Trip Function requirement, restore the inoperable CHANNEL to OPERABLE status within 7 days or place the inoperable CHANNEL in the tripped condition within the next hour.
 - b. Two or more less than required by the Minimum CHANNEL(s) per Trip Function requirement, place at least one inoperable CHANNEL in the tripped condition within one hour.
- ACTION 52 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour.

TABLE 3.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATIONTABLE NOTATION

- (a) The RBM shall be automatically bypassed when a peripheral control rod is selected or the reference APRM channel indicates less than 30% of RATED THERMAL POWER.
- (b) This function shall be automatically bypassed if detector count rate is > 100 cps or the IRM channels are on range 3 or higher.
- (c) This function shall be automatically bypassed when the associated IRM channels are on range 8 or higher.
- (d) This function shall be automatically bypassed when the IRM channels are on range 3 or higher.
- (e) This function shall be automatically bypassed when the IRM channels are on range 1.
- (f) With THERMAL POWER $\geq 30\%$ of RATED THERMAL POWER.
- (g) With more than one control rod withdrawn. Not applicable to control rods removed per Specification 3.10.I or 3.10.J.
- (h) The Average Power Range Monitor rod block function is varied as a function of recirculation drive flow (W). The trip setting of this function must be maintained in accordance with Specification 3.11.B. W is equal to the percentage of the drive flow required to produce a rated core flow of 98×10^6 lbs/hr.
- (i) Shall be ≥ 0.7 cps provided signal-to-noise ratio is ≥ 2.0 .
- (j) Required to be OPERABLE only during SHUTDOWN MARGIN demonstrations performed per Specification 3.12.B.

TABLE 4.2.E-1

CONTROL ROD BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>1. ROD BLOCK MONITORS</u>				
a. Upscale	NA	S/U ^(b,c) , M ^(c)	Q	1 ^(d)
b. Inoperative	NA	S/U ^(b,c) , M ^(c)	NA	1 ^(d)
c. Downscale	NA	S/U ^(b,c) , M ^(c)	Q	1 ^(d)
<u>2. AVERAGE POWER RANGE MONITORS</u>				
a. Flow Biased Neutron Flux - High				
1. Dual Recirculation Loop Operation	NA	S/U ^(b) , M	SA	1
2. Single Recirculation Loop Operation	NA	S/U ^(b) , M	SA	1
b. Inoperative	NA	S/U ^(b) , M	NA	1, 2, 5 ^(k)
c. Downscale	NA	S/U ^(b) , M	SA	1
d. Startup Neutron Flux - High	NA	S/U ^(b) , M	SA	2, 5 ^(k)
<u>3. SOURCE RANGE MONITORS</u>				
a. Detector not full in ^(f)	NA	S/U ^(b) , W	NA	2, ^(j) 5
b. Upscale ^(g)	NA	S/U ^(b) , W	E	2, ^(j) 5
c. Inoperative ^(g)	NA	S/U ^(b) , W	NA	2, ^(j) 5
d. Downscale ^(h)	NA	S/U ^(b) , W	E	2, ^(j) 5

INSTRUMENTATION

Control Rod Blocks 3/4.2.E

DRESDEN - UNITS 2 & 3

3/4.2-34

Amendment No.

TABLE 4.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>4. INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in ⁽ⁱ⁾	NA	S/U ^(b) , W	NA	2 ^(j) , 5
b. Upscale	NA	S/U ^(b) , W	E	2 ^(j) , 5
c. Inoperative	NA	S/U ^(b) , W	NA	2 ^(j) , 5
d. Downscale ⁽ⁱ⁾	NA	S/U ^(b) , W	E	2 ^(j) , 5
<u>5. SCRAM DISCHARGE VOLUME (SDV)</u>				
a. Water Level - High	NA	Q	NA	1, 2, 5 ^(e)
b. SDV Switch in Bypass	NA	M	NA	5 ^(e)

INSTRUMENTATION

Control Rod Blocks 3/4.2.E

DRESDEN - UNITS 2 & 3

3/4.2-35

Amendment No.

TABLE 4.2.E-1 (Continued)CONTROL ROD BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTSTABLE NOTATION

- (a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (b) Within 7 days prior to startup.
- (c) Includes reactor manual control "relay select matrix" system input.
- (d) With THERMAL POWER $\geq 30\%$ of RATED THERMAL POWER.
- (e) With more than one control rod withdrawn. Not applicable to control rods removed per Specification 3.10.I or 3.10.J.
- (f) This function shall be automatically bypassed if detector count rate is > 100 cps or the IRM channels are on range 3 or higher.
- (g) This function shall be automatically bypassed when the associated IRM channels are on range 8 or higher.
- (h) This function shall be automatically bypassed when the IRM channels are on range 3 or higher.
- (i) This function shall be automatically bypassed when the IRM channels are on range 1.
- (j) The provisions of Specification 4.0.D are not applicable to the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION surveillances for entry into the applicable OPERATIONAL MODE(s) from OPERATIONAL MODE 1 provided the surveillances are performed within 12 hours after such entry
- (k) Required to be OPERABLE only during SHUTDOWN MARGIN demonstrations performed per Specification 3.12.B.

3.2 - LIMITING CONDITIONS FOR OPERATION

F. Accident Monitoring

The accident monitoring instrumentation CHANNEL(s) shown in Table 3.2.F-1 shall be OPERABLE.

APPLICABILITY:

As shown in Table 3.2.F-1.

ACTION:

With one or more of the required number of accident monitoring instrumentation CHANNEL(s) inoperable, take the ACTION shown by Table 3.2.F-1.

4.2 - SURVEILLANCE REQUIREMENTS

F. Accident Monitoring

Each of the required accident monitoring instrumentation CHANNEL(s) shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.F-1.

TABLE 3.2.F-1

ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENTATION</u>	<u>Required CHANNEL(s)</u>	<u>Minimum CHANNEL(s)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
1. Reactor Vessel Pressure	2	1	1, 2	60
2. Reactor Vessel Water Level	2	1	1, 2	60
3. Torus Water Level - Wide Range	2	1	1, 2	60
4. Torus Water Temperature	2	1	1, 2	60
5. Drywell Pressure - Wide Range	2	1	1, 2	60
6. Drywell Pressure - Narrow Range	2	1	1, 2	60
7. Drywell Air Temperature	2	1	1, 2	60
8. Drywell Oxygen Concentration - Analyzer and Monitor	2	1	1, 2	62
9. Drywell Hydrogen Concentration - Analyzer and Monitor	2	1	1, 2	62
10. Safety & Relief Valve Position Indicators - Acoustic & Temperature	2/valve (1 each)	1/valve	1, 2	63
11. (Source Range) Neutron Monitors	2	2	1, 2	60
12. Drywell Radiation Monitors	2	2	1, 2, 3	61

TABLE 3.2.F-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATIONACTION

- ACTION 60 -
- a. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Required CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- ACTION 61- With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and:
- a. Either restore the inoperable CHANNEL(s) to OPERABLE status within 7 days of the event, or
 - b. Prepare and submit a Special Report to the Commission pursuant to Specification 6.6.C.3 within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
- ACTION 62-
- a. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) one less than the Required CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1; and provided the high radiation sampling system (HRSS) combustible gas monitoring capability for the drywell is OPERABLE; restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - c. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1; and the HRSS combustible gas monitoring capability for the drywell inoperable; restore at least one inoperable CHANNEL to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 3.2.F-1 (Continued)ACCIDENT MONITORING INSTRUMENTATION

- ACTION 63 -
- a. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Required CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status prior to startup from a COLD SHUTDOWN of longer than 72 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 4.2.F-1

ACCIDENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTATION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
1. Reactor Vessel Pressure	M	E	1, 2
2. Reactor Vessel Water Level	M	E	1, 2
3. Torus Water Level	M	E	1, 2
4. Torus Water Temperature	M	E	1, 2
5. Drywell Pressure - Wide Range	M	E	1, 2
6. Drywell Pressure - Narrow Range	M	E	1, 2
7. Drywell Air Temperature	M	E	1, 2
8. Drywell Oxygen Concentration - Analyzer and Monitor	M	E	1, 2
9. Drywell Hydrogen Concentration - Analyzer and Monitor	M	Q ^(a)	1, 2
10. Safety/Relief Valve Position Indicators - Acoustic & Temperature	M	E	1, 2
11. (Source Range) Neutron Monitors	M	E ^(c)	1, 2
12. Drywell Radiation Monitors	M	E ^(b)	1, 2, 3

INSTRUMENTATION

Accident Monitors 3/4.2.F

DRESDEN - UNITS 2 & 3

3/4.2-41

Amendment No.

TABLE 4.2.F-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

TABLE NOTATION

- (a) Using sample gas containing:
 - a. One volume percent hydrogen, balance nitrogen.
 - b. Four volume percent hydrogen, balance nitrogen.
- (b) CHANNEL CALIBRATION shall consist of an electronic calibration of the CHANNEL, not including the detector, for range decades above 10 R/hr and a one point calibration check of the detector below 10 R/hr with an installed or portable gamma source.
- (c) Neutron detectors may be excluded from the CHANNEL CALIBRATION.

3.2 - LIMITING CONDITIONS FOR OPERATIONG. Source Range Monitoring

At least the following source range monitor (SRM) channels shall be OPERABLE:

- a. In OPERATIONAL MODE 2^(a), three.
- b. In OPERATIONAL MODE 3 and 4, two.

APPLICABILITY:

OPERATIONAL MODE(s) 2^(a), 3, and 4.

ACTION:

1. In OPERATIONAL MODE 2^(a) with one of the above required source range monitor CHANNEL(s) inoperable, at least 3 source range monitor CHANNEL(s) shall be restored to OPERABLE status within 4 hours or the reactor shall be in at least HOT SHUTDOWN within the next 12 hours.
2. In OPERATIONAL MODE(s) 3 or 4 with one or more of the above required source range monitor CHANNEL(s) inoperable, verify all insertable control rods to be fully inserted in the core and lock the reactor mode switch in the Shutdown position within one hour.

4.2 - SURVEILLANCE REQUIREMENTSG. Source Range Monitoring

Each of the required source range monitor CHANNEL(s) shall be demonstrated OPERABLE by:

1. Verifying, prior to withdrawal of the control rods, that the SRM count rate is $\geq 3 \text{ cps}^{(b)}$ with the detector fully inserted.
2. Performance of a CHANNEL CHECK at least once per:
 - a. 12 hours in OPERATIONAL MODE 2^(a), and
 - b. 24 hours in OPERATIONAL MODE(s) 3 or 4.
3. Performance of a CHANNEL FUNCTIONAL TEST:
 - a. Within 7 days prior to startup, and
 - b. At least once per 31 days^(c).
4. Performance of a CHANNEL CALIBRATION^(d) at least once per 18 months^(c).

a With IRM's on range 2 or below.

b May be reduced to $\geq 0.7 \text{ cps}$ provided the signal-to-noise ratio is ≥ 2.0 .

c The provisions of Specification 4.0.D are not applicable for entry into the applicable OPERATIONAL MODE(s) from OPERATIONAL MODE 1, provided the surveillance is performed within 12 hours after such entry.

d Neutron detectors may be excluded from the CHANNEL CALIBRATION.

3.2 - LIMITING CONDITIONS FOR OPERATION

H. Explosive Mixture Monitoring

The explosive monitoring instrumentation CHANNEL(s) shown in Table 3.2.H-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.8.H are not exceeded.

APPLICABILITY:

During offgas holdup system operation.

ACTION:

1. With an explosive gas monitoring instrumentation CHANNEL alarm/trip setpoint less conservative than required by the above specification, declare the CHANNEL inoperable and take the ACTION shown in Table 3.2.H-1.
2. With less than the minimum number of explosive gas monitoring instrumentation CHANNEL(s) OPERABLE, take the ACTION shown in Table 3.2.H-1. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission pursuant to Specification 6.6.C.3 to explain why this inoperability was not corrected in a timely manner.
3. The provisions of Specification 3.0.C are not applicable.

4.2 - SURVEILLANCE REQUIREMENTS

H. Explosive Mixture Monitoring

Each explosive gas monitoring instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.H-1.

TABLE 3.2.H-1EXPLOSIVE GAS MONITORING INSTRUMENTATION

<u>Functional Unit</u>	<u>Minimum CHANNEL(s)</u>	<u>ACTION</u>
MAIN CONDENSER OFFGAS TREATMENT SYSTEM EXPLOSIVE GAS MONITORING SYSTEM		
1. Hydrogen Monitor	1	70

ACTION

- ACTION 70 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) OPERABLE requirement, operation of the main condenser offgas treatment system may continue provided grab samples are collected at least once per 4 hours and analyzed within the following 4 hours. If the recombiner(s) temperature remains constant and THERMAL POWER has not changed, the grab sample collection frequency may be changed to 8 hours..

TABLE 4.2.H-1EXPLOSIVE MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTSINSTRUMENTATION

Explosive Gas Monitors 3/4.2.H

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
MAIN CONDENSER OFFGAS TREATMENT SYSTEM EXPLOSIVE GAS MONITORING SYSTEM			
Hydrogen Monitor	D	M	Q ^(a)

-
- a The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
1. One volume percent hydrogen, balance nitrogen, and
 2. Four volume percent hydrogen, balance nitrogen.

INSTRUMENTATION

Supp. Chamber & Drywell Spray 3/4.2.1

3.2 - LIMITING CONDITIONS FOR OPERATION

I. Suppression Chamber and Drywell Spray Actuation

The suppression chamber and drywell spray actuation instrumentation CHANNEL(s) shown in Table 3.2.1-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.2.1-1.

APPLICABILITY:

OPERATIONAL MODE(s) 1, 2 and 3.

ACTION:

With a suppression chamber and drywell spray actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.1-1, declare the CHANNEL inoperable and take the ACTION shown in Table 3.2.1-1.

4.2 - SURVEILLANCE REQUIREMENTS

I. Suppression Chamber and Drywell Spray Actuation

1. Each suppression chamber and drywell spray actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.1-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

TABLE 3.2.I-1

SUPPRESSION CHAMBER AND DRYWELL SPRAY ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(a)</u>	Minimum CHANNEL(s) per <u>TRIP SYSTEM</u>	<u>ACTION</u>
1. Drywell Pressure - High (Permissive)	$0.5 \leq p \leq 1.5$ psig	2	80
2. Reactor Vessel Water Level -Low (Permissive)	≥ -48 inches	1	80

ACTION

- ACTION 80 -
- With the number of OPERABLE CHANNEL(s) less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for one TRIP SYSTEM, place at least one inoperable CHANNEL in the tripped condition^(b) within one hour or declare the suppression chamber and drywell sprays inoperable.
 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for both TRIP SYSTEM(s), declare the suppression chamber and drywell sprays inoperable.

a Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

b If an instrument is inoperable, it shall be placed (or simulated) in a tripped condition so that it will not prevent a containment spray.

TABLE 4.2.1-1SUPPRESSION CHAMBER AND DRYWELL SPRAY ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Drywell Pressure - High	NA	M	Q
2. Reactor Vessel Water Level -Low	D	M	E ^(a)

a Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency indicated in the table.

3.2 - LIMITING CONDITIONS FOR OPERATIONJ. Feedwater Pump Trip

The feedwater pump trip instrumentation CHANNEL(s) shown in Table 3.2.J-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.2.J-1.

APPLICABILITY:

OPERATIONAL MODE 1.

ACTION:

With a feedwater pump trip instrumentation CHANNEL trip setpoint less conservative than value shown in the Trip Setpoint column of Table 3.2.J-1, declare the CHANNEL inoperable and take the ACTION shown in Table 3.2.J-1.

4.2 - SURVEILLANCE REQUIREMENTSJ. Feedwater Pump Trip

1. Each feedwater pump trip instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.J-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

TABLE 3.2.J-1FEEDWATER PUMP TRIP INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(a)</u>	<u>Minimum CHANNEL(s)</u>	<u>ACTION</u>
Reactor Vessel Water Level -High	≤ 201 inches	2	90

ACTION

- ACTION 90 -
- With the number of OPERABLE CHANNEL(s) one less than required by the Minimum CHANNEL(s) requirement, restore the inoperable CHANNEL to OPERABLE status within 7 days or place the inoperable CHANNEL in the tripped condition within the next 8 hours.
 - With the number of OPERABLE CHANNEL(s) two less than required by the Minimum CHANNEL(s) requirement, restore at least one of the inoperable CHANNEL(s) to OPERABLE status within 72 hours or be in at least STARTUP within the next 8 hours.

a Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

TABLE 4.2.J-1FEEDWATER PUMP TRIP INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL</u> <u>CHECK</u>	<u>CHANNEL</u> <u>FUNCTIONAL</u> <u>TEST</u>	<u>CHANNEL</u> <u>CALIBRATION</u>
Reactor Vessel Water Level - High	D	E	E

BASES

3/4.2 INSTRUMENTATION

In addition to reactor protection instrumentation which initiates a reactor scram (See Sections 2.2 and 3/4.1), protective instrumentation has been provided which initiates action to mitigate the consequences of accidents which are beyond the operator's ability to control, or which terminates operator errors before they result in serious consequences. The objectives of these specifications are to assure the effectiveness of the protective instrumentation when required and to prescribe the trip settings required to assure adequate performance. As indicated, one CHANNEL may be required to be made inoperable for brief intervals to conduct required surveillance. Some of the settings have tolerances explicitly stated where the high and low values are both critical and may have a substantial effect on safety. It should be noted that the setpoints of other instrumentation, where only the high or low end of the setting has a direct bearing on safety, are chosen at a level away from the normal operating range to prevent inadvertent actuation of the safety system involved and exposure to abnormal situations. Surveillance requirements for the instrumentation are selected in order to demonstrate proper function and OPERABILITY. Additional instrumentation for REFUELING operations is identified in Sections 3/4.10.B.

3/4.2.A Isolation Actuation Instrumentation

The isolation actuation instrumentation automatically initiates closure of appropriate isolation valves and/or dampers, which are necessary to prevent or limit the release of fission products from the reactor coolant system, the primary containment and the secondary containment in the event of a loss-of-coolant accident or other reactor coolant pressure boundary (RCPB) leak. The parameters which result in isolation of the secondary containment also actuate the standby gas treatment system. The isolation instrumentation includes the sensors, relays, and switches that are necessary to cause initiation of primary and secondary containment and RCPB system isolation. Functional diversity is provided by monitoring a wide range of dependent and independent parameters. Redundant sensor input signals for each parameter are provided for initiation of isolation (one exception is standby liquid control system initiation).

The reactor low level instrumentation is set to trip at greater than or equal to 144 inches above the top of active fuel (which is defined to be 360 inches above vessel zero). Retrofit 8x8 fuel has an active fuel length 1.24 inches longer than earlier fuel designs. However, present trip setpoints were used in the loss-of-coolant accident (LOCA) analysis for Dresden Units 2 & 3 and Quad Cities Units 1 & 2. This trip initiates closure of Group 2 and 3 primary containment isolation valves but does not trip the recirculation pumps. For this trip setting and a 60-second valve closure time, the valves will be closed before perforation of the cladding occurs, even for the maximum break.

BASES

3/4.2.B Emergency Core Cooling System Actuation Instrumentation

The emergency core cooling system (ECCS) instrumentation generates signals to automatically actuate those safety systems which provide adequate core cooling in the event of a design basis transient or accident. The instrumentation which actuates the ECCS is generally arranged in a one-out-of-two taken twice logic circuit. The logic circuit is composed of the four CHANNEL(s) and each CHANNEL contains the logic from the functional unit sensor up to and including all relays which actuate upon a signal from that sensor. For core spray and low pressure coolant injection, the divisionally powered actuation logic is duplicated and the redundant components are powered from the other division's power supply. The single-failure criterion is met through provisions for redundant core cooling functions, e.g., sprays and automatic blowdown and high pressure coolant injection. Although the instruments are listed by system, in some cases the same instrument is used to send the actuation signal to more than one system at the same time.

For effective emergency core cooling during small pipe breaks, the high pressure coolant injection (HPCI) system must function since reactor pressure does not decrease rapidly enough to allow either core spray or the low pressure coolant injection (LPCI) system to operate in time. The automatic pressure relief function is provided as a backup to the HPCI, in the event HPCI does not operate. The arrangement of the tripping contacts is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the specification are adequate to assure the above criteria are met. The specification preserves the effectiveness of the system during periods of maintenance, testing or calibration and also minimizes the risk of inadvertent operation, i.e., only one instrument CHANNEL out-of-service.

3/4.2.C ATWS - RPT Instrumentation

The anticipated transient without scram (ATWS) recirculation pump trip (RPT) provides a means of limiting the consequences of the unlikely occurrence of a failure to scram during an anticipated transient. The response of this plant to this postulated event falls within the bounds of study events in General Electric Company Topical Report NEDO-10349, dated March 1971 and NEDO-24222, dated December 1979. Tripping the recirculation pumps adds negative reactivity from the increase in steam voiding in the core area as core flow decreases.

3/4.2.D Isolation Condenser Actuation Instrumentation

The isolation condenser system actuation instrumentation is provided to initiate actions to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel without providing actuation of any of the emergency core cooling equipment.

BASES

3/4.2.E Control Rod Block Actuation Instrumentation

The control rod block functions are provided to prevent excessive control rod withdrawal so that the MINIMUM CRITICAL POWER RATIO (MCPR) does not go below the MCPR fuel cladding integrity Safety Limit. During shutdown conditions, control rod block instrumentation initiates withdrawal blocks to ensure that all control rods remain inserted to prevent inadvertent criticality.

The trip logic for this function is one-out-of-n; e.g., any trip on one of the six average power range monitors (APRMs), eight intermediate range monitors (IRMs), or four source range monitors (SRMs), will result in a rod block. The minimum instrument CHANNEL requirements assure sufficient instrumentation to assure that the single failure criterion is met. The minimum instrument CHANNEL requirements for the rod block monitor may be reduced by one for a short period of time to allow for maintenance, testing, or calibration.

The APRM rod block function is flow-biased and prevents a significant reduction in MCPR, especially during operation at reduced flow. The APRM provides gross core protection, i.e., limits the gross withdrawal of control rods in the normal withdrawal sequence.

In the REFUEL and STARTUP/HOT STANDBY OPERATIONAL MODE(s), the APRM rod block function setpoint is significantly reduced to provide the same type of protection in the REFUEL and STARTUP/HOT STANDBY OPERATIONAL MODE(s) as the APRM flow-biased rod block does in the RUN OPERATIONAL MODE, i.e., prevents control rod withdrawal before a scram is reached.

The rod block monitor (RBM) function provides local protection of the core, i.e., the prevention of transition boiling in a local region of the core for a single rod withdrawal error. The trip setting is flow-biased. At low power, the worst-case withdrawal of a single control rod without rod block action will not violate the fuel cladding integrity Safety Limit. Thus the RBM rod block function is not required below the specified power level. The worst-case single control rod withdrawal error is analyzed for each reload to assure that, with the specific trip settings, rod withdrawal is blocked before the MCPR reaches the fuel cladding integrity Safety Limit. An RBM "inoperative" actuates on several inputs including: (1) nulling, (2) failure to null, (3) <50% assigned inputs, (4) card pulled, (5) no rod selected, (6) > 1 rod selected and (7) switch not in operate.

The IRM rod block function provides local as well as gross core protection. The scaling arrangement is such that the trip setting is less than a factor of ten above the indicated level. Analysis of the worst-case accident results in rod block action before MCPR approaches the MCPR fuel cladding integrity Safety Limit.

A downscale indication on an APRM is an indication that the instrument has failed or is not sensitive enough. In either case, the instrument will not respond to changes in control rod motion, and the control rod motion is thus prevented.

The SRM rod blocks of low count rate and the detector not fully inserted assure that the SRMs are not withdrawn from the core prior to commencing rod withdrawal for startup. The scram discharge volume, high water level rod block provides annunciation for operator action. The alarm

BASES

setpoint has been selected to provide adequate time to allow for the determination of the cause for the level increase and corrective action prior to automatic scram initiation.

3/4.2.F Accident Monitoring Instrumentation

Instrumentation is provided to monitor sufficient accident conditions to adequately assess important variables and provide the operators with the necessary information to complete the appropriate mitigation actions. OPERABILITY of the instrumentation listed provides adequate monitoring of the containment following a loss-of-coolant accident. Information from this instrumentation will provide the operator with a detailed knowledge of the conditions resulting from the accident; based on this information, the operator can make logical decisions regarding post accident recovery. Allowable outage times are based on diverse instrumentation availability for guiding the operator should an accident occur, and on the low probability of an instrument being out-of-service concurrent with an accident. This instrumentation is identified in response to Generic Letter 82-33 and the associated NRC Safety Evaluation Report, and some instrumentation is included in accordance with the response to Generic Letter 83-36.

3/4.2.G Source Range Monitoring Instrumentation

The source range monitors (SRM) provide the operator with the status of the neutron flux in the core at very low power levels during startup and shutdown. The consequences of reactivity accidents are functions of the initial neutron flux. Therefore, the requirements for a minimum count rate assures that any transient, should it occur, begins at or above the initial value used in the analyses of transients from cold conditions. Two OPERABLE SRM CHANNEL(s) are adequate to monitor the approach to criticality using homogeneous patterns of scattered control rod withdrawal. Three OPERABLE SRMs provide an added conservatism. When the intermediate range monitors are on scale, adequate information is available without the SRMs and they can be retracted.

3/4.2.H Explosive Gas Monitoring Instrumentation

Instrumentation is provided to monitor the concentrations of potentially explosive mixtures in the off-gas (waste) holdup system to prevent a possible uncontrolled release via this pathway. This instrumentation is included in accordance with Generic Letter 89-01.

3/4.2.I Suppression Chamber and Drywell Spray Actuation Instrumentation

Instrumentation is provided to monitor the parameters which are necessary to permit initiation of the suppression chamber and drywell spray mode of the low pressure coolant injection/containment cooling system to condense steam in the containment atmosphere. The spray mode does not significantly affect the rise of drywell pressure following a loss of coolant accident, but does result in quicker depressurization following completion of the blowdown.

BASES

3/4.2.J Feedwater Trip System Actuation

The feedwater trip system actuation instrumentation is designed to detect a potential failure of the feedwater control system which causes excessive feedwater flow. If undetected, this would lead to reactor vessel water carryover into the main steam lines and to the main turbine. This instrumentation is included in response to Generic Letter 89-19.

3.2 - LIMITING CONDITIONS FOR OPERATIONA. Isolation Actuation

The isolation actuation instrumentation CHANNEL(s) shown in Table 3.2.A-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

As shown in Table 3.2.A-1.

ACTION:

1. With an isolation actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.A-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement for one TRIP SYSTEM, place the inoperable CHANNEL(s) and/or TRIP SYSTEM in the tripped condition^(a) within one hour.

4.2 - SURVEILLANCE REQUIREMENTSA. Isolation Actuation

1. Each isolation actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.A-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

a An inoperable CHANNEL need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the inoperable CHANNEL shall be restored to OPERABLE status within 2 hours or the ACTION required by Table 3.2.A-1 for that trip function shall be taken.

3.2 - LIMITING CONDITIONS FOR OPERATION

4.2 - SURVEILLANCE REQUIREMENTS

3. With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement for both TRIP SYSTEMS, place at least one TRIP SYSTEM^(b) in the tripped condition^(c) within one hour and take the ACTION required by Table 3.2.A-1.

-
- b If more CHANNEL(s) are inoperable in one TRIP SYSTEM than in the other, select the TRIP SYSTEM with the greater number of inoperable CHANNEL(s) to place in the tripped condition except when this would cause the trip function to occur; if both TRIP SYSTEM(s) have the same number of inoperable CHANNEL(s), place either TRIP SYSTEM in the tripped condition.
 - c An inoperable CHANNEL need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the inoperable CHANNEL shall be restored to OPERABLE status within one hour or the ACTION required by Table 3.2.A-1 for that trip function shall be taken.

TABLE 3.2.A-1

ISOLATION ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(j)</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low	≥ 144 inches	2	1, 2, 3	20
b. Drywell Pressure - High ^(d)	≤ 2.5 psig	2	1, 2, 3	20
c. Drywell Radiation - High	≤ 100 R/hr	1	1, 2, 3	23
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low ^(c,k)	≥ 144 inches	2	1, 2, 3 & *	24
b. Drywell Pressure - High ^(c,d,k)	≤ 2.5 psig	2	1, 2, 3	24
c. Reactor Building Ventilation Exhaust Radiation - High ^(c,k)	≤ 3 mR/hr	2	1, 2, 3 & **	24
d. Refueling Floor Radiation - High ^(c,k)	≤ 100 mR/hr	2	1, 2, 3 & **	24
<u>3. MAIN STEAM LINE (MSL) ISOLATION</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	2	1, 2, 3	21
b. MSL Tunnel Radiation - High ^(b)	≤ 15 ^(h) x normal background	2	1, 2, 3	21
c. MSL Pressure - Low	≥ 825 psig	2	1	22
d. MSL Flow - High ^(k)	≤ 140% of rated	2/line	1, 2, 3	21
e. MSL Tunnel Temperature - High	≤ 200°F	8	1, 2, 3	21

TABLE 3.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(j)</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>4. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. Standby Liquid Control System Initiation ^(f)	NA	NA	1, 2, 3	23
b. Reactor Vessel Water Level - Low	≥ 144 inches	2	1, 2, 3	23
<u>5. REACTOR CORE ISOLATION COOLING ISOLATION</u>				
a. Steam Flow - High	≤ 300% of rated steam flow ⁽ⁱ⁾	1	1, 2, 3	23
b. Reactor Vessel Pressure - Low	≥ 60 psig	4 ^(e)	1, 2, 3	23
c. Area Temperature - High	≤ 170°F	2	1, 2, 3	23
<u>6. HIGH PRESSURE COOLANT INJECTION ISOLATION</u>				
a. Steam Flow - High	≤ 300% of rated steam flow ⁽ⁱ⁾	1	1, 2, 3	23
b. Reactor Vessel Pressure - Low	≥ 100 psig	2	1, 2, 3	23
c. Area Temperature - High	≤ 170°F	2	1, 2, 3	23

TABLE 3.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(j)</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>7. RHR SHUTDOWN COOLING MODE ISOLATION</u>				
a. Reactor Vessel Water Level - Low	≥ 144 inches	2 ^(g)	3, 4, 5	23
b. Reactor Vessel Pressure - High (Cut-in Permissive)	≤ 135 psig	2	1, 2, 3	23

TABLE 3.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

ACTION

- ACTION 20 - Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 21 - Be in at least STARTUP with the associated isolation valves closed within 8 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 22 - Be in at least STARTUP within 8 hours.
- ACTION 23 - Close the affected system isolation valves within one hour and declare the affected system inoperable.
- ACTION 24 - Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within one hour.

TABLE 3.2.A-1 (Continued)ISOLATION ACTUATION INSTRUMENTATIONTABLE NOTATION

- * During CORE ALTERATIONS or operations with a potential for draining the reactor vessel.
- ** When handling irradiated fuel in the secondary containment.
- (a) A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the CHANNEL in the tripped condition provided the Functional Unit maintains isolation actuation capability.
- (b) Also trips the mechanical vacuum pump and isolates the steam jet air ejectors.
- (c) Isolates the reactor building ventilation system and actuates the standby gas treatment system.
- (d) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (e) Only one TRIP SYSTEM.
- (f) Closes only reactor water cleanup system isolation valves.
- (g) Only one trip system required in OPERATIONAL MODE(s) 4 and 5 with RHR Shutdown Cooling System integrity maintained. System integrity is maintained provided the piping is intact and no maintenance is being performed that has the potential for draining the reactor vessel through the system.
- (h) Normal background is as measured during full power operation without hydrogen being injected.
- (i) Includes a time delay of $3 \leq t \leq 9$ seconds.
- (j) Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).
- (k) Also isolates the control room ventilation system.

TABLE 4.2.A-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>1. PRIMARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low	S	M	E ^(a)	1, 2, 3
b. Drywell Pressure - High ^(b)	NA	M	Q	1, 2, 3
c. Drywell Radiation - High	S	M	E	1, 2, 3
<u>2. SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level - Low ^(c,d)	S	M	E ^(a)	1, 2, 3 & *
b. Drywell Pressure - High ^(b,c,d)	NA	M	Q	1, 2, 3
c. Reactor Building Ventilation Exhaust Radiation - High ^(c,d)	S	M	E	1, 2, 3 & **
d. Refueling Floor Radiation - High ^(c,d)	S	M	E	1, 2, 3 & **
<u>3. MAIN STEAM LINE (MSL) ISOLATION</u>				
a. Reactor Vessel Water Level - Low Low	S	M	E ^(a)	1, 2, 3
b. MSL Tunnel Radiation - High	S	M	E	1, 2, 3
c. MSL Pressure - Low	NA	M	Q	1
d. MSL Flow - High ^(d)	S	M	E	1, 2, 3
e. MSL Tunnel Temperature - High	NA	E	E	1, 2, 3

TABLE 4.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>4. REACTOR WATER CLEANUP SYSTEM ISOLATION</u>				
a. Standby Liquid Control System Initiation	NA	E	NA	1, 2, 3
b. Reactor Vessel Water Level - Low	S	M	E ^(a)	1, 2, 3
<u>5. REACTOR CORE ISOLATION COOLING ISOLATION</u>				
a. Steam Flow - High	NA	M	Q	1, 2, 3
b. Reactor Vessel Pressure - Low	NA	M	Q	1, 2, 3
c. Area Temperature - High	NA	E	E	1, 2, 3
<u>6. HIGH PRESSURE COOLANT INJECTION ISOLATION</u>				
a. Steam Flow - High	NA	M	Q ^(a)	1, 2, 3
b. Reactor Vessel Pressure - Low	NA	M	Q ^(a)	1, 2, 3
c. Area Temperature - High	NA	E	E	1, 2, 3
<u>7. RHR SHUTDOWN COOLING MODE ISOLATION</u>				
a. Reactor Vessel Water Level - Low	S	M	E ^(a)	3, 4, 5
b. Reactor Vessel Pressure - High (Cut-in Permissive)	NA	M	Q	1, 2, 3

TABLE 4.2.A-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

TABLE NOTATION

- * During CORE ALTERATIONS or operations with a potential for draining the reactor vessel.
- ** When handling irradiated fuel in the secondary containment.

- (a) Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency identified in the table.
- (b) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (c) Isolates the reactor building ventilation system and actuates the standby gas treatment system.
- (d) Also isolates the control room ventilation system.

3.2 - LIMITING CONDITIONS FOR OPERATION**B. Emergency Core Cooling Systems (ECCS) Actuation**

The ECCS actuation instrumentation CHANNEL(s) shown in Table 3.2.B-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

As shown in Table 3.2.B-1.

ACTION:

1. With an ECCS actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.B-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With one or more ECCS actuation instrumentation CHANNEL(s) inoperable, take the ACTION required by Table 3.2.B-1.
3. With either ADS TRIP SYSTEM inoperable, restore the inoperable TRIP SYSTEM to OPERABLE status within:
 - a. 7 days provided that both the HPCI and RCIC systems are OPERABLE, or
 - b. 72 hours.

With the above provisions of this ACTION not met, be in at least HOT

4.2 - SURVEILLANCE REQUIREMENTS**B. ECCS Actuation**

1. Each ECCS actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.B-1.
2. LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

3.2 - LIMITING CONDITIONS FOR OPERATION

SHUTDOWN within the next 12 hours
and reduce reactor steam dome
pressure to ≤ 150 psig within the
following 24 hours.

4.2 - SURVEILLANCE REQUIREMENTS

TABLE 3.2.B-1

EMERGENCY CORE COOLING SYSTEMS ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(h)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>1. CORE SPRAY (CS) SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low ^(b)	≥ 84 inches	4	1, 2, 3, 4 ^(c) , 5 ^(c)	30
b. Drywell Pressure - High ^{(f)(b)}	≤ 2.5 psig	4	1, 2, 3	30
c. Reactor Vessel Pressure - Low (Permissive)	≥ 300 psig & ≤ 350 psig	2	1, 2, 3 4 ^(c) , 5 ^(c)	31 32
d. CS Pump Discharge Flow - Low (Bypass)	≥ 500 gpm	1/loop	1, 2, 3, 4 ^(c) , 5 ^(c)	33
<u>2. LOW PRESSURE COOLANT INJECTION (LPCI) SUBSYSTEM</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	4	1, 2, 3, 4 ^(c) , 5 ^(c)	30
b. Drywell Pressure - High ^(f)	≤ 2.5 psig	4	1, 2, 3	30
c. Reactor Vessel Pressure - Low (Permissive)	≥ 300 psig & ≤ 350 psig	2	1, 2, 3 4 ^(c) , 5 ^(c)	31 32
d. LPCI Pump Discharge Flow - Low (Bypass)	≥ 2400 gpm	1/loop	1, 2, 3, 4 ^(c) , 5 ^(c)	33

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(h)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>3. HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM^(d)</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	4	1, 2, 3	35
b. Drywell Pressure - High ^(f)	≤ 2.5 psig	4	1, 2, 3	35
c. Condensate Storage Tank Level - Low ⁽ⁱ⁾	≥ 10,000 gal	2	1, 2, 3	35
d. Suppression Chamber Water Level - High ⁽ⁱ⁾	≤ 14'8" above bottom of chamber	2	1, 2, 3	35
e. Reactor Vessel Water Level - High (Trip)	≤ 201 inches	2	1, 2, 3	31
f. HPCI Pump Discharge Flow - Low (Bypass)	≥ 600 gpm	1	1, 2, 3	33
g. Manual Initiation	NA	1/system	1, 2, 3	34
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM - TRIP SYSTEM 'A' ^(d)</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	2	1, 2, 3	30
b. Drywell Pressure - High ^(f)	≤ 2.5 psig	2	1, 2, 3	30
c. Initiation Timer	≤ 120 sec	1	1, 2, 3	31
d. Low Low Level Timer	≤ 9.0 min	1	1, 2, 3	31
e. CS Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31
f. LPCI Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(h)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>5. AUTOMATIC DEPRESSURIZATION SYSTEM - TRIP SYSTEM 'B' ^(d)</u>				
a. Reactor Vessel Water Level - Low Low	≥ 84 inches	2	1, 2, 3	30
b. Drywell Pressure - High ^(f)	≤ 2.5 psig	2	1, 2, 3	30
c. Initiation Timer	≤ 120 sec	1	1, 2, 3	31
d. Low Low Level Timer	≤ 9.0 min	1	1, 2, 3	31
e. CS Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31
f. LPCI Pump Discharge Pressure - High (Permissive)	≥ 100 psig & ≤ 150 psig	1/pump	1, 2, 3	31
	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>6. LOSS OF POWER</u>				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	3045 ± 152 volts decreasing voltage	2/bus	1, 2, 3, 4 ^(e) , 5 ^(e)	36
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	≥ 3845 volts (Unit 1) ^{(g) (j)} ≥ 3833 volts (Unit 2) ^{(g) (j)}	2/bus	1, 2, 3, 4 ^(e) , 5 ^(e)	36

TABLE 3.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATIONACTION

- ACTION 30 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement:
- With one CHANNEL inoperable, place the inoperable CHANNEL in the tripped condition within one hour or declare the associated ECCS system(s) inoperable.
 - With more than one CHANNEL inoperable, declare the associated ECCS system(s) inoperable.
- ACTION 31 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement:
- For ADS, declare the associated ADS TRIP SYSTEM inoperable.
 - For CS, LPCI or HPCI, declare the associated ECCS system(s) inoperable.
- ACTION 32 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour.
- ACTION 33 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour; restore the inoperable CHANNEL to OPERABLE status within 7 days or declare the associated ECCS system(s) inoperable.
- ACTION 34 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, restore the inoperable CHANNEL to OPERABLE status within 8 hours or declare the associated ECCS system(s) inoperable.
- ACTION 35 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place at least one inoperable CHANNEL in the tripped condition within one hour or declare the HPCI system inoperable.
- ACTION 36 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour, or declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.9.A or 3.9.B, as appropriate.

TABLE 3.2.B-1 (Continued)ECCS ACTUATION INSTRUMENTATIONTABLE NOTATION

- (a) A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the CHANNEL in the tripped condition provided the associated Functional Unit maintains ECCS initiation capability.
- (b) Also actuates the associated emergency diesel generator.
- (c) When the system is required to be OPERABLE per Specification 3.5.B.
- (d) Not required to be OPERABLE when reactor steam dome pressure is ≤ 150 psig.
- (e) Required when the associated diesel generator is required to be OPERABLE per Specification 3.9.B.
- (f) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (g) With no LOCA signal present, there is an additional time delay of 5 ± 0.25 minutes.
- (h) Reactor water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).
- (i) Provides signal to pump suction valves only.
- (j) There is an inherent time delay of 7 ± 1.4 seconds on degraded voltage.

TABLE 7.2.B-1

ECCS ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>1. CORE SPRAY (CS) SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low	S	M	E	1, 2, 3, 4 ^(b) , 5 ^(b)
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Reactor Vessel Pressure - Low (Permissive)	NA	M	Q	1, 2, 3, 4 ^(b) , 5 ^(b)
d. CS Pump Discharge Flow - Low (Bypass)	NA	M	E ^(e)	1, 2, 3, 4 ^(b) , 5 ^(b)
<u>2. LOW PRESSURE COOLANT INJECTION (LPCI) SUBSYSTEM</u>				
a. Reactor Vessel Water Level - Low Low	S	M	E	1, 2, 3, 4 ^(b) , 5 ^(b)
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Reactor Vessel Pressure - Low (Permissive)	NA	M	Q	1, 2, 3, 4 ^(b) , 5 ^(b)
d. LPCI Pump Discharge Flow - Low (Bypass)	NA	M	E ^(e)	1, 2, 3, 4 ^(b) , 5 ^(b)
<u>3. HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM^(a)</u>				
a. Reactor Vessel Water Level - Low Low	S	M	E	1, 2, 3
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Condensate Storage Tank Level - Low	NA	M	NA	1, 2, 3
d. Suppression Chamber Water Level - High	NA	M	NA	1, 2, 3
e. Reactor Vessel Water Level - High (Trip)	NA	M	E	1, 2, 3
f. HPCI Pump Discharge Flow - Low (Bypass)	NA	M	E	1, 2, 3
g. Manual Initiation	NA	E	NA	1, 2, 3

QUAD CITIES - UNITS 1 & 2

3/4.2-18

Amendment No.

INSTRUMENTATION

ECCS Actuation 3/4.2.B

TABLE 4.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>4. AUTOMATIC DEPRESSURIZATION SYSTEM^(a)</u>				
a. Reactor Vessel Water Level - Low Low	S	M	Q	1, 2, 3
b. Drywell Pressure - High ^(d)	NA	M	Q	1, 2, 3
c. Initiation Timer	NA	E	E	1, 2, 3
d. Low Low Level Timer	NA	E	E	1, 2, 3
e. CS Pump Discharge Pressure - High (Permissive)	NA	M	Q	1, 2, 3
f. LPCI Pump Discharge Pressure - High (Permissive)	NA	M	Q	1, 2, 3
<u>5. LOSS OF POWER</u>				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	NA	E	E	1, 2, 3, 4 ^(c) , 5 ^(c)
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	NA	E	E	1, 2, 3, 4 ^(c) , 5 ^(c)

QUAD CITIES - UNITS 1 & 2

3/4.2-19

Amendment No.

INSTRUMENTATION

ECCS Actuation 3/4.2.B

TABLE 4.2.B-1 (Continued)

ECCS ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TABLE NOTATION

- (a) Not required to be OPERABLE when reactor steam dome pressure is ≤ 150 psig.
- (b) When the system is required to be OPERABLE per Specification 3.5.B.
- (c) Required when the associated diesel generator is required to be OPERABLE per Specification 3.9.B.
- (d) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (e) Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency identified in the table.

3.2 - LIMITING CONDITIONS FOR OPERATION

C. ATWS - RPT

The anticipated transient without scram recirculation pump trip (ATWS - RPT) instrumentation CHANNEL(s) shown in Table 3.2.C-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

OPERATIONAL MODE 1.

ACTION:

1. With an ATWS - RPT instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.C-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with the CHANNEL trip setpoint adjusted consistent with the Trip Setpoint value.
2. With the number of OPERABLE CHANNEL(s) one less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for one or both TRIP SYSTEM(s), restore the inoperable CHANNEL(s) to OPERABLE status within 14 days or be in at least STARTUP within the next 8 hours.
3. With the number of OPERABLE CHANNEL(s) two or more less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for one TRIP SYSTEM and:

4.2 - SURVEILLANCE REQUIREMENTS

C. ATWS - RPT

1. Each ATWS - RPT instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.C-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

3.2 - LIMITING CONDITIONS FOR OPERATION4.2 - SURVEILLANCE REQUIREMENTS

- a. If the inoperable CHANNEL(s) consist of one reactor vessel water level CHANNEL and one reactor vessel pressure CHANNEL, place both inoperable CHANNEL(s) in the tripped condition^(a) within one hour or declare the TRIP SYSTEM inoperable.
- b. If the inoperable CHANNEL(s) include two reactor vessel water level CHANNEL(s) or two reactor vessel pressure CHANNEL(s), declare the TRIP SYSTEM inoperable.
4. With one TRIP SYSTEM inoperable, restore the inoperable TRIP SYSTEM to OPERABLE status within 72 hours or be in at least STARTUP within the next 8 hours.
5. With both TRIP SYSTEM(s) inoperable, restore at least one TRIP SYSTEM to OPERABLE status within one hour or be in at least STARTUP within the next 8 hours.

a The inoperable CHANNEL(s) need not be placed in the tripped condition where this would cause the Trip Function to occur.

TABLE 3.2.C-1ATWS - RPT INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(c)</u>	<u>Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM^(a)</u>
1. Reactor Vessel Water Level - Low Low	≥ 84 inches ^(b)	2
2. Reactor Vessel Pressure - High	≤ 1250 psig	2

-
- a A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the TRIP SYSTEM in the tripped condition provided at least one OPERABLE CHANNEL in the same TRIP SYSTEM is monitoring that parameter.
- b Includes a time delay of $8 \leq t \leq 10$ seconds.
- c Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

TABLE 4.2.C-1ATWS - RPT INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Water Level - Low Low	S	M	E ^(a)
2. Reactor Vessel Pressure - High	S	M	E ^(a)

a Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency identified in the table.

3.2 - LIMITING CONDITIONS FOR OPERATIOND. Reactor Core Isolation Cooling Actuation

The reactor core isolation cooling (RCIC) system actuation instrumentation CHANNEL(s) shown in Table 3.2.D-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

OPERATIONAL MODE(s) 1, 2 and 3 with the reactor steam dome pressure > 150 psig.

ACTION:

1. With a RCIC system actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.D-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With one or more RCIC system actuation instrumentation CHANNEL(s) inoperable, take the ACTION required by Table 3.2.D-1.

4.2 - SURVEILLANCE REQUIREMENTSD. Reactor Core Isolation Cooling Actuation

1. Each RCIC system actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.D-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

TABLE 3.2.D-1

REACTOR CORE ISOLATION COOLING ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(c)</u>	<u>Minimum CHANNEL(s) per Trip Function^(a)</u>	<u>ACTION</u>
1. Reactor Vessel Water Level - Low Low	≥ 84 inches	4	40
2. Reactor Vessel Level - High (Trip)	≤ 201 inches	2	41
3. Condensate Storage Tank Level - Low	≥ 598' El.	2 ^(b)	42
4. Suppression Chamber Water Level - High	≤ 14'8" above bottom of chamber	2 ^(b)	42
5. Manual Initiation	NA	1/system	43

a A CHANNEL may be placed in an inoperable status for up to 2 hours for required surveillance without placing the CHANNEL in the tripped condition provided the Functional Unit maintains RCIC actuation capability.

b Provides signal to pump suction valves only.

c Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

TABLE 4.2.D-1(Continued)

REACTOR CORE ISOLATION COOLING ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

ACTION

- ACTION 40 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement:
- a. With one CHANNEL inoperable, place the inoperable CHANNEL in the tripped condition within one hour or declare the RCIC system inoperable.
 - b. With more than one CHANNEL inoperable, declare the RCIC system inoperable.
- ACTION 41 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement, declare the RCIC system inoperable.
- ACTION 42 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per TRIP SYSTEM requirement, place at least one inoperable CHANNEL in the tripped condition within one hour or declare the RCIC system inoperable.
- ACTION 43 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement, restore the inoperable CHANNEL to OPERABLE status within 8 hours or declare the RCIC system inoperable.

TABLE 4.2.D-1

REACTOR CORE ISOLATION COOLING ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Vessel Water Level - Low Low	S	M	E
2. Reactor Vessel Water Level - High (Trip)	S	M	E
3. Condensate Storage Tank Level - Low	NA	M	NA
4. Suppression Chamber Water Level - High	NA	M	NA
5. Manual Initiation	NA	E	NA

3.2 - LIMITING CONDITIONS FOR OPERATION

E. Control Rod Block Actuation

The control rod block actuation instrumentation CHANNEL(s) shown in Table 3.2.E-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column.

APPLICABILITY:

As shown in Table 3.2.E-1.

ACTION:

1. With a control rod block actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.E-1, declare the CHANNEL inoperable until the CHANNEL is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.
2. With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, take the ACTION required by Table 3.2.E-1.

4.2 - SURVEILLANCE REQUIREMENTS

E. Control Rod Block Actuation

Each of the required control rod block actuation TRIP SYSTEM(s) and instrumentation CHANNEL(s) shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.E-1.

TABLE 3.2.E-1

CONTROL ROD BLOCK INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>1. ROD BLOCK MONITORS^(a)</u>				
a. Upscale	As specified in COLR	2	1 ^(f)	50
b. Inoperative	NA	2	1 ^(f)	50
c. Downscale	$\geq 3/125$ of full scale	2	1 ^(f)	50
<u>2. AVERAGE POWER RANGE MONITORS</u>				
a. Flow Biased Neutron Flux - High				
1. Dual Recirculation Loop Operation	$\leq (0.58W + 50)^{(h)}$	4	1	51
2. Single Recirculation Loop Operation	$\leq (0.58W + 46.5)^{(h)}$	4	1	51
b. Inoperative	NA	4	1, 2, 5 ^(j)	51
c. Downscale	$\geq 3/125$ of full scale	4	1	51
d. Startup Neutron Flux - High	$\leq 12/125$ of full scale	4	2, 5 ^(j)	51

TABLE 3.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>3. SOURCE RANGE MONITORS</u>				
a. Detector not full in ^(b)	NA	3 2	2 5	51 51
b. Upscale ^(c)	$\leq 1 \times 10^5$ cps	3 2	2 5	51 51
c. Inoperative ^(c)	NA	3 2	2 5	51 51
d. Downscale ^(d)	≥ 3 cps ^(f)	3 2	2 5	51 51
<u>4. INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	6	2, 5	51
b. Upscale	$\leq 108/125$ of full scale	6	2, 5	51
c. Inoperative	NA	6	2, 5	51
d. Downscale ^(e)	$\geq 3/125$ of full scale	6	2, 5	51

TABLE 3.2.E-1 (Continued)CONTROL ROD BLOCK INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint</u>	<u>Minimum CHANNEL(s) per Trip Function</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
<u>5. SCRAM DISCHARGE VOLUME (SDV)</u>				
a. Water Level - High	≤ 25 gal	1 per bank	1, 2, 5 ^(g)	52
b. SDV Switch in Bypass	NA	1	5 ^(g)	52

TABLE 3.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION

ACTION

ACTION 50 - Declare the rod block monitor inoperable and take the ACTION required by Specification 3.3.M.

ACTION 51- With the number of OPERABLE CHANNEL(s):

- a. One less than required by the Minimum CHANNEL(s) per Trip Function requirement, restore the inoperable CHANNEL to OPERABLE status within 7 days or place the inoperable CHANNEL in the tripped condition within the next hour.
- b. Two or more less than required by the Minimum CHANNEL(s) per Trip Function requirement, place at least one inoperable CHANNEL in the tripped condition within one hour.

ACTION 52 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) per Trip Function requirement, place the inoperable CHANNEL in the tripped condition within one hour.

TABLE 3.2.E-1 (Continued)CONTROL ROD BLOCK INSTRUMENTATIONTABLE NOTATION

- (a) The RBM shall be automatically bypassed when a peripheral control rod is selected or the reference APRM channel indicates less than 30% of RATED THERMAL POWER.
- (b) This function shall be automatically bypassed if detector count rate is > 100 cps or the IRM channels are on range 3 or higher.
- (c) This function shall be automatically bypassed when the associated IRM channels are on range 8 or higher.
- (d) This function shall be automatically bypassed when the IRM channels are on range 3 or higher.
- (e) This function shall be automatically bypassed when the IRM channels are on range 1.
- (f) With THERMAL POWER $\geq 30\%$ of RATED THERMAL POWER.
- (g) With more than one control rod withdrawn. Not applicable to control rods removed per Specification 3.10.I or 3.10.J.
- (h) The Average Power Range Monitor rod block function is varied as a function of recirculation loop flow (W). The trip setting of this function must be maintained in accordance with Specification 3.11.B. W is equal to the percentage of the drive flow required to produce a rated core flow of 98×10^6 lbs/hr.
- (i) May be ≥ 0.7 cps provided signal-to-noise ratio is ≥ 2.0 .
- (j) Required to be OPERABLE only during SHUTDOWN MARGIN demonstrations performed per Specification 3.12.B.

TABLE 4.2.E-1

CONTROL ROD BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>1. ROD BLOCK MONITORS</u>				
a. Upscale	NA	S/U ^(b,c) , M ^(c)	Q	1 ^(d)
b. Inoperative	NA	S/U ^(b,c) , M ^(c)	NA	1 ^(d)
c. Downscale	NA	S/U ^(b,c) , M ^(c)	Q	1 ^(d)
<u>2. AVERAGE POWER RANGE MONITORS</u>				
a. Flow Biased Neutron Flux - High				
1. Dual Recirculation Loop Operation	NA	S/U ^(b) , M	SA	1
2. Single Recirculation Loop Operation	NA	S/U ^(b) , M	SA	1
b. Inoperative	NA	S/U ^(b) , M	NA	1, 2, 5 ^(k)
c. Downscale	NA	S/U ^(b) , M	SA	1
d. Startup Neutron Flux - High	NA	S/U ^(b) , M	SA	2, 5 ^(k)
<u>3. SOURCE RANGE MONITORS</u>				
a. Detector not full in ^(f)	NA	S/U ^(b) , W	NA	2 ^(j) , 5
b. Upscale ^(g)	NA	S/U ^(b) , W	E	2 ^(j) , 5
c. Inoperative ^(g)	NA	S/U ^(b) , W	NA	2 ^(j) , 5
d. Downscale ^(h)	NA	S/U ^(b) , W	E	2 ^(j) , 5

QUAD CITIES - UNITS 1 & 2

3/4.2-35

Amendment No.

INSTRUMENTATION

Control Rod Blocks 3/4.2.E

TABLE 4.2.E-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION^(a)</u>	<u>Applicable OPERATIONAL MODE(s)</u>
<u>4. INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(b) , W	NA	2 ^(j) , 5
b. Upscale	NA	S/U ^(b) , W	E	2 ^(j) , 5
c. Inoperative	NA	S/U ^(b) , W	NA	2 ^(j) , 5
d. Downscale ⁽ⁱ⁾	NA	S/U ^(b) , W	E	2 ^(j) , 5
<u>5. SCRAM DISCHARGE VOLUME (SDV)</u>				
a. Water Level - High	NA	Q	NA	1, 2, 5 ^(e)
b. SDV Switch in Bypass	NA	M	NA	5 ^(e)

INSTRUMENTATION

Control Rod Blocks 3/4.2.E

QUAD CITIES - UNITS 1 & 2

3/4.2-36

Amendment No.

TABLE 4.2.E-1 (Continued)CONTROL ROD BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTSTABLE NOTATION

- (a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (b) Within 7 days prior to startup.
- (c) Includes reactor manual control "relay select matrix" system input.
- (d) With THERMAL POWER $\geq 30\%$ of RATED THERMAL POWER.
- (e) With more than one control rod withdrawn. Not applicable to control rods removed per Specification 3.10.I or 3.10.J.
- (f) This function shall be automatically bypassed if detector count rate is > 100 cps or the IRM channels are on range 3 or higher.
- (g) This function shall be automatically bypassed when the associated IRM channels are on range 8 or higher.
- (h) This function shall be automatically bypassed when the IRM channels are on range 3 or higher.
- (i) This function shall be automatically bypassed when the IRM channels are on range 1.
- (j) The provisions of Specification 4.0.D are not applicable to the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION surveillances for entry into the applicable OPERATIONAL MODE(s) from OPERATIONAL MODE 1 provided the surveillances are performed within 12 hours after such entry.
- (k) Required to be OPERABLE only during SHUTDOWN MARGIN demonstrations performed per Specification 3.12.B.

3.2 - LIMITING CONDITIONS FOR OPERATION

F. Accident Monitoring

The accident monitoring instrumentation CHANNEL(s) shown in Table 3.2.F-1 shall be OPERABLE.

APPLICABILITY:

As shown in Table 3.2.F-1.

ACTION:

With one or more of the required number of accident monitoring instrumentation CHANNEL(s) inoperable, take the ACTION shown by Table 3.2.F-1.

4.2 - SURVEILLANCE REQUIREMENTS

F. Accident Monitoring

Each of the required accident monitoring instrumentation CHANNEL(s) shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations for the OPERATIONAL MODE(s) and at the frequencies shown in Table 4.2.F-1.

TABLE 3.2.F-1

ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENTATION</u>	<u>Required CHANNEL(s)</u>	<u>Minimum CHANNEL(s)</u>	<u>Applicable OPERATIONAL MODE(s)</u>	<u>ACTION</u>
1. Reactor Vessel Pressure	2	1	1, 2	60
2. Reactor Vessel Water Level	2	1	1, 2	60
3. Torus Water Level - Wide Range	2	1	1, 2	60
4. Torus Water Temperature	2	1	1, 2	60
5. Drywell Pressure - Wide Range	2	1	1, 2	60
6. Drywell Pressure - Narrow Range	2	1	1, 2	60
7. Drywell Air Temperature	2	1	1, 2	60
8. Drywell Oxygen Concentration - Analyzer and Monitor	2	1	1, 2	62
9. Drywell Hydrogen Concentration - Analyzer and Monitor	2	1	1, 2	62
10. Safety & Relief Valve Position Indicators - Acoustic & Temperature	2/valve (1 each)	1/valve	1, 2	63
11. (Source Range) Neutron Monitors	2	2	1, 2	60
12. Drywell Radiation Monitors	2	2	1, 2, 3	61
13. Torus Air Temperature	2	1	1, 2	60

INSTRUMENTATION

Accident Monitors 3/4.2.F

QUAD CITIES - UNITS 1 & 2

3/4.2-39

Amendment No.

TABLE 3.2.F-1 (Continued)ACCIDENT MONITORING INSTRUMENTATIONACTION

- ACTION 60 -
- a. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Required CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- ACTION 61-
- With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and:
- a. Either restore the inoperable CHANNEL(s) to OPERABLE status within 7 days of the event, or
 - b. Prepare and submit a Special Report to the Commission pursuant to Specification 6.6.C.3 within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
- ACTION 62-
- a. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) one less than the Required CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1; and provided the high radiation sampling system (HRSS) combustible gas monitoring capability for the drywell is OPERABLE; restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - c. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1; and the HRSS combustible gas monitoring capability for the drywell inoperable; restore at least one inoperable CHANNEL to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 3.2.F-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

- ACTION 63 -
- a. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Required CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status prior to startup from a COLD SHUTDOWN of longer than 72 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation CHANNEL(s) less than the Minimum CHANNEL(s) shown in Table 3.2.F-1, restore the inoperable CHANNEL(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 4.2.F-1

ACCIDENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTATION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicable OPERATIONAL MODE(s)</u>
1. Reactor Vessel Pressure	M	E	1, 2
2. Reactor Vessel Water Level	M	E	1, 2
3. Torus Water Level - Wide Range	M	E	1, 2
4. Torus Water Temperature	M	E	1, 2
5. Drywell Pressure - Wide Range	M	E	1, 2
6. Drywell Pressure - Narrow Range	M	E	1, 2
7. Drywell Air Temperature	M	E	1, 2
8. Drywell Oxygen Concentration - Analyzer and Monitor	M	E	1, 2
9. Drywell Hydrogen Concentration - Analyzer and Monitor	M	Q ^(a)	1, 2
10. Safety & Relief Valve Position Indicators - Acoustic & Temperature	M	E	1, 2
11. (Source Range) Neutron Monitors	M	E ^(c)	1, 2
12. Drywell Radiation Monitors	M	E ^(b)	1, 2, 3
13. Torus Air Temperature	M	E	1, 2

INSTRUMENTATION

Accident Monitors 3/4.2.F

QUAD CITIES - UNITS 1 & 2

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TABLE 4.2.F-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

TABLE NOTATION

- (a) Using sample gas containing:
 - a. One volume percent hydrogen, balance nitrogen.
 - b. Four volume percent hydrogen, balance nitrogen.
- (b) CHANNEL CALIBRATION shall consist of an electronic calibration of the CHANNEL, not including the detector, for range decades above 10 R/hr and a one point calibration check of the detector below 10 R/hr with an installed or portable gamma source.
- (c) Neutron detectors may be excluded from the CHANNEL CALIBRATION.

3.2 - LIMITING CONDITIONS FOR OPERATION

G. Source Range Monitoring

At least the following source range monitor (SRM) channels shall be OPERABLE:

- a. In OPERATIONAL MODE 2^(a), three.
- b. In OPERATIONAL MODE 3 and 4, two.

APPLICABILITY:

OPERATIONAL MODE(s) 2^(a), 3, and 4.

ACTION:

1. In OPERATIONAL MODE 2^(a) with one of the above required source range monitor CHANNEL(s) inoperable, at least 3 source range monitor CHANNEL(s) shall be restored to OPERABLE status within 4 hours or the reactor shall be in at least HOT SHUTDOWN within the next 12 hours.
2. In OPERATIONAL MODE(s) 3 or 4 with one or more of the above required source range monitor CHANNEL(s) inoperable, verify all insertable control rods to be fully inserted in the core and lock the reactor mode switch in the Shutdown position within one hour.

4.2 - SURVEILLANCE REQUIREMENTS

G. Source Range Monitoring

Each of the required source range monitor CHANNEL(s) shall be demonstrated OPERABLE by:

1. Verifying, prior to withdrawal of the control rods, that the SRM count rate is ≥ 3 cps^(b) with the detector fully inserted.
2. Performance of a CHANNEL CHECK at least once per:
 - a. 12 hours in OPERATIONAL MODE 2^(a), and
 - b. 24 hours in OPERATIONAL MODE(s) 3 or 4.
3. Performance of a CHANNEL FUNCTIONAL TEST:
 - a. Within 7 days prior to startup, and
 - b. At least once per 31 days^(c).
4. Performance of a CHANNEL CALIBRATION^(d) at least once per 18 months^(c).

a With IRM's on range 2 or below.

b May be reduced to ≥ 0.7 cps provided the signal-to-noise ratio is ≥ 2.0 .

c The provisions of Specification 4.0.D are not applicable for entry into the applicable OPERATIONAL MODE(s) from OPERATIONAL MODE 1, provided the surveillance is performed within 12 hours after such entry.

d Neutron detectors may be excluded from the CHANNEL CALIBRATION.

3.2 - LIMITING CONDITIONS FOR OPERATION

H. Explosive Gas Monitoring

The explosive gas monitoring instrumentation CHANNEL(s) shown in Table 3.2.H-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.8.H are not exceeded.

APPLICABILITY:

During offgas holdup system operation:

ACTION:

1. With an explosive gas monitoring instrumentation CHANNEL alarm/trip setpoint less conservative than required by the above specification, declare the CHANNEL inoperable and take the ACTION shown in Table 3.2.H-1.
2. With less than the minimum number of explosive gas monitoring instrumentation CHANNEL(s) OPERABLE, take the ACTION shown in Table 3.2.H-1. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission pursuant to Specification 6.6.C.3 to explain why this inoperability was not corrected in a timely manner.
3. The provisions of Specification 3.0.C are not applicable.

4.2 - SURVEILLANCE REQUIREMENTS

H. Explosive Gas Monitoring

Each explosive gas monitoring instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.H-1.

TABLE 3.2.H-1EXPLOSIVE GAS MONITORING INSTRUMENTATION

<u>Functional Unit</u>	<u>Minimum CHANNEL(s) OPERABLE</u>	<u>ACTION</u>
MAIN CONDENSER OFFGAS TREATMENT SYSTEM EXPLOSIVE GAS MONITORING SYSTEM		
Hydrogen Monitor	1	70

ACTION

ACTION 70 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum CHANNEL(s) OPERABLE requirement, operation of the main condenser offgas treatment system may continue provided grab samples are collected at least once per 4 hours and analyzed within the following 4 hours. If the recombiner(s) temperature remains constant and THERMAL POWER has not changed, the grab sample collection frequency may be changed to 8 hours.

TABLE 4.2.H-1EXPLOSIVE GAS MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTSINSTRUMENTATION

Explosive Gas Monitoring 3/4.2.H

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
MAIN CONDENSER OFFGAS TREATMENT SYSTEM EXPLOSIVE GAS MONITORING SYSTEM			
Hydrogen Monitor	D	M	Q ^(a)

-
- a The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
1. One volume percent hydrogen, balance nitrogen, and
 2. Four volume percent hydrogen, balance nitrogen.

3.2 - LIMITING CONDITIONS FOR OPERATION

I. Suppression Chamber and Drywell Spray Actuation

The Suppression Chamber and Drywell Spray Actuation instrumentation CHANNEL(s) shown in Table 3.2.1-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.2.1-1.

APPLICABILITY:

OPERATIONAL MODE(s) 1, 2 & 3.

ACTION:

With a Suppression Chamber and Drywell Spray Actuation instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.1-1, declare the CHANNEL inoperable and take the ACTION shown in Table 3.2.1-1.

4.2 - SURVEILLANCE REQUIREMENTS

I. Suppression Chamber and Drywell Spray Actuation

1. Each Suppression Chamber and Drywell Spray Actuation instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.1-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

TABLE 3.2.I-1

SUPPRESSION CHAMBER AND DRYWELL SPRAY ACTUATION INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(a)</u>	<u>Minimum CHANNEL(s) per TRIP SYSTEM</u>	<u>ACTION</u>
1. Drywell Pressure - (Permissive)	$0.5 \leq p \leq 1.5$ psig	2	80
2. Reactor Vessel Water Level - Low (Permissive)	≥ -48 inches	1	80

ACTION

- ACTION 80 -
- With the number of OPERABLE CHANNEL(s) less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for one TRIP SYSTEM, place at least one inoperable CHANNEL in the tripped condition^(b) within one hour or declare the Suppression Chamber and Drywell Spray Actuation mode of the Residual Heat Removal system inoperable.
 - With the number of OPERABLE CHANNEL(s) less than required by the Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM requirement for both TRIP SYSTEM(s), declare the Suppression Chamber and Drywell Spray Actuation mode of the Residual Heat Removal system inoperable.

a Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

b If an instrument is inoperable, it shall be placed (or simulated) in a tripped condition so that it will not prevent a containment spray.

TABLE 4.2.1-1SUPPRESSION CHAMBER AND DRYWELL SPRAY ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Drywell Pressure - (Permissive)	NA	M	Q
2. Reactor Vessel Water Level - Low (Permissive)	D	M	E ^(a)

a Trip units are calibrated at least once per 31 days and transmitters are calibrated at the frequency indicated in the table.

3.2 - LIMITING CONDITIONS FOR OPERATION

J. Feedwater Pump Trip

The feedwater pump trip instrumentation CHANNEL(s) shown in Table 3.2.J-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.2.J-1.

APPLICABILITY:

OPERATIONAL MODE 1.

ACTION:

With a feedwater pump trip instrumentation CHANNEL trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.2.J-1, declare the CHANNEL inoperable and take the ACTION shown in Table 3.2.J-1.

4.2 - SURVEILLANCE REQUIREMENTS

J. Feedwater Pump Trip

1. Each feedwater pump trip instrumentation CHANNEL shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.2.J-1.
2. LOGIC SYSTEM FUNCTIONAL TEST(s) and simulated automatic operation of all CHANNEL(s) shall be performed at least once per 18 months.

TABLE 3.2.J-1

FEEDWATER PUMP TRIP INSTRUMENTATION

<u>Functional Unit</u>	<u>Trip Setpoint^(a)</u>	<u>Minimum CHANNEL(s)</u>	<u>ACTION</u>
Reactor Vessel Water Level -High	≤ 201 inches	2	90

ACTION

- ACTION 90 -
- a. With the number of OPERABLE CHANNEL(s) one less than required by the Minimum CHANNEL(s) requirement, restore the inoperable CHANNEL to OPERABLE status within 7 days or place the inoperable CHANNEL in the tripped condition within the next 8 hours.
 - b. With the number of OPERABLE CHANNEL(s) two less than required by the Minimum CHANNEL(s) requirement, restore at least one of the inoperable CHANNEL(s) to OPERABLE status within 72 hours or be in at least STARTUP within the next 8 hours.

a Reactor vessel water level settings are expressed in inches above the top of active fuel (which is 360 inches above vessel zero).

TABLE 4.2.J-1FEEDWATER PUMP TRIP INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>Functional Unit</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
Reactor Vessel Water Level - High	D	E	E

3.2 - LIMITING CONDITIONS FOR OPERATION

K. Toxic Gas Monitoring

The toxic gas monitoring system shall be OPERABLE with the alarm/trip setpoints adjusted to actuate at an ammonia concentration of less than or equal to 50 ppm.

APPLICABILITY:

All OPERATIONAL MODE(s).

ACTION:

1. With the toxic gas monitoring system inoperable, within one hour initiate and maintain operation of the control room ventilation system in the isolation mode of operation.

4.2 - SURVEILLANCE REQUIREMENTS

K. Toxic Gas Monitoring

The toxic gas monitoring system shall be demonstrated OPERABLE by performance of a:

1. CHANNEL CHECK at least once per 12 hours,
2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
3. CHANNEL CALIBRATION at least once per 18 months.

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3/4.2 INSTRUMENTATION

In addition to reactor protection instrumentation which initiates a reactor scram (Sections 2.2 and 3/4.1), protective instrumentation has been provided which initiates action to mitigate the consequences of accidents which are beyond the operator's ability to control, or which terminates operator errors before they result in serious consequences. The objectives of these specifications are to assure the effectiveness of the protective instrumentation when required and to prescribe the trip settings required to assure adequate performance. As indicated, one CHANNEL may be required to be made inoperable for brief intervals to conduct required surveillance. Some of the settings have tolerances explicitly stated where the high and low values are both critical and may have a substantial effect on safety. It should be noted that the setpoints of other instrumentation, where only the high or low end of the setting has a direct bearing on safety, are chosen at a level away from the normal operating range to prevent inadvertent actuation of the safety system involved and exposure to abnormal situations. Surveillance requirements for the instrumentation are selected in order to demonstrate proper function and OPERABILITY. Additional instrumentation for REFUELING operations is identified in Sections 3/4.10.B.

3/4.2.A Isolation Actuation Instrumentation

The isolation actuation instrumentation automatically initiates closure of appropriate isolation valves and/or dampers, which are necessary to prevent or limit the release of fission products from the reactor coolant system, the primary containment and the secondary containment in the event of a loss-of-coolant accident or other reactor coolant pressure boundary (RCPB) leak. The parameters which result in isolation of the secondary containment also actuate the standby gas treatment system. The isolation instrumentation includes the sensors, relays, and switches that are necessary to cause initiation of primary and secondary containment and RCPB system isolation. Functional diversity is provided by monitoring a wide range of dependent and independent parameters. Redundant sensor input signals for each parameter are provided for initiation of isolation (one exception is standby liquid control system initiation).

The reactor low level instrumentation is set to trip at greater than or equal to 144 inches above the top of active fuel (which is defined to be 360 inches above vessel zero). This trip initiates closure of Group 2 and 3 primary containment isolation valves but does not trip the recirculation pumps. For this trip setting and a 60-second valve closure time, the valves will be closed before perforation of the cladding occurs, even for the maximum break.

3/4.2.B Emergency Core Cooling System Actuation Instrumentation

The emergency core cooling system (ECCS) instrumentation generates signals to automatically actuate those safety systems which provide adequate core cooling in the event of a design basis transient or accident. The instrumentation which actuates the ECCS is generally arranged in a one-out-of-two taken twice logic circuit. The logic circuit is composed of four CHANNEL(s) and each CHANNEL contains the logic from the functional unit sensor up to and including all relays

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which actuate upon a signal from that sensor. For core spray and low pressure coolant injection, the divisionally powered actuation logic is duplicated and the redundant components are powered from the other division's power supply. The single-failure criterion is met through provisions for redundant core cooling functions, e.g., sprays and automatic blowdown and high pressure coolant injection. Although the instruments are listed by system, in some cases the same instrument is used to send the actuation signal to more than one system at the same time.

For effective emergency core cooling during small pipe breaks, the high pressure coolant injection (HPCI) system must function since reactor pressure does not decrease rapidly enough to allow either core spray or the low pressure coolant injection (LPCI) system to operate in time. The automatic pressure relief function is provided as a backup to HPCI, in the event HPCI does not operate. The arrangement of the tripping contacts is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the specification are adequate to assure the above criteria are met. The specification preserves the effectiveness of the system during periods of maintenance, testing or calibration and also minimizes the risk of inadvertent operation, i.e., only one instrument CHANNEL out-of-service.

3/4.2.C ATWS - RPT Instrumentation

The anticipated transient without scram (ATWS) recirculation pump trip (RPT) provides a means of limiting the consequences of the unlikely occurrence of a failure to scram during an anticipated transient. The response of this plant to this postulated event falls within the bounds of study events in General Electric Company Topical Report NEDO-10349, dated March 1971 and NEDO-24222, dated December 1979. Tripping the recirculation pumps adds negative reactivity by increasing steam voiding in the core area as core flow decreases.

3/4.2.D Reactor Core Isolation Cooling Actuation Instrumentation

The reactor core isolation cooling system actuation instrumentation is provided to initiate actions to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel without providing actuation of any of the emergency core cooling equipment.

3/4.2.E Control Rod Block Actuation Instrumentation

The control rod block functions are provided to prevent excessive control rod withdrawal so that the MINIMUM CRITICAL POWER RATIO (MCPR) does not go below the MCPR fuel cladding integrity Safety Limit. During shutdown conditions, control rod block instrumentation initiates withdrawal blocks to ensure that all control rods remain inserted to prevent inadvertent criticality.

The trip logic for this function is one-out-of-n; e.g., any trip on one of the six average power range monitors (APRMs), eight intermediate range monitors (IRMs), or four source range monitors

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(SRMs), will result in a rod block. The minimum instrument CHANNEL requirements assure sufficient instrumentation to assure that the single failure criterion is met. The minimum instrument CHANNEL requirements for the rod block monitor may be reduced by one for a short period of time to allow for maintenance, testing, or calibration.

The APRM rod block function is flow-biased and prevents a significant reduction in MCPR, especially during operation at reduced flow. The APRM provides gross core protection, i.e., limits the gross withdrawal of control rods in the normal withdrawal sequence.

In the REFUEL MODE during SHUTDOWN MARGIN demonstrations and the STARTUP/HOT STANDBY OPERATIONAL MODE, the APRM-rod block function setpoint is significantly reduced to provide the same type of protection in the REFUEL and STARTUP/HOT STANDBY OPERATIONAL MODE(s) as the APRM flow-biased rod block does in the RUN OPERATIONAL MODE, i.e., prevents control rod withdrawal before a scram is reached.

The rod block monitor (RBM) function provides local protection of the core, i.e., the prevention of transition boiling in a local region of the core for a single rod withdrawal error. The trip setting is flow-biased. At low power, the worst-case withdrawal of a single control rod without rod block action will not violate the fuel cladding integrity Safety Limit. Thus the RBM rod block function is not required below the specified power level. The worst-case single control rod withdrawal error is analyzed for each reload to assure that, with the specific trip settings, rod withdrawal is blocked before the MCPR reaches the fuel cladding integrity Safety Limit. RBM "inoperative" actuates on several inputs including: (1) nulling, (2) failure to null, (3) < 50% assigned inputs, (4) card pulled, (5) no rod selected, (6) > 1 rod selected and (7) switch not in operate.

The IRM rod block function provides local as well as gross core protection. The scaling arrangement is such that the trip setting is less than a factor of ten above the indicated level. Analysis of the worst-case accident results in rod block action before MCPR approaches the MCPR fuel cladding integrity Safety Limit.

A downscale indication on an APRM is an indication that the instrument has failed or is not sensitive enough. In either case, the instrument will not respond to changes in control rod motion, and the control rod motion is thus prevented.

The SRM rod blocks of low count rate and the detector not fully inserted assure that the SRMs are not withdrawn from the core prior to commencing rod withdrawal for startup. The scram discharge volume, high water level rod block provides annunciation for operator action. The alarm setpoint has been selected to provide adequate time to allow for the determination of the cause for the level increase and corrective action prior to automatic scram initiation.

3/4.2.F Accident Monitoring Instrumentation

Instrumentation is provided to monitor sufficient accident conditions to adequately assess important variables and provide operators with necessary information to complete the appropriate

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mitigation actions. OPERABILITY of the instrumentation listed provides adequate monitoring of the containment following a loss-of-coolant accident. Information from this instrumentation will provide the operator with a detailed knowledge of the conditions resulting from the accident; based on this information, the operator can make logical decisions regarding post accident recovery. Allowable outage times are based on diverse instrumentation availability for guiding the operator should an accident occur, and on the low probability of an instrument being out-of-service concurrent with an accident. This instrumentation is identified in response to Generic Letter 82-33 and the associated NRC Safety Evaluation Report, and some instrumentation is included in accordance with the response to Generic Letter 83-36.

3/4.2.G Source Range Monitoring Instrumentation

The source range monitors (SRM) provide the operator with the status of the neutron flux in the core at very low power levels during startup and shutdown. The consequences of reactivity accidents are functions of the initial neutron flux. Therefore, the requirements for a minimum count rate assures that any transient, should it occur, begins at or above the initial value used in the analyses of transients from cold conditions. Two OPERABLE SRM CHANNEL(s) are adequate to monitor the approach to criticality using homogeneous patterns of scattered control rod withdrawal. Three OPERABLE SRMs provide an added conservatism. When the intermediate range monitors are on scale, adequate information is available without the SRMs and they can be retracted.

3/4.2.H Explosive Gas Monitoring Instrumentation

Instrumentation is provided to monitor the concentrations of potentially explosive mixtures in the off-gas holdup system to prevent a possible uncontrolled release via this pathway. This instrumentation is included in accordance with Generic Letter 89-01.

3/4.2.I Suppression Chamber and Drywell Spray Actuation Instrumentation

Instrumentation is provided to monitor the parameters which are necessary to permit initiation of the containment cooling mode of the residual heat removal system to condense steam in the containment atmosphere. The spray mode does not significantly affect the rise of drywell pressure following a loss of coolant accident, but does result in quicker depressurization following completion of the blowdown.

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3/4.2.J Feedwater Trip System Actuation

The feedwater trip system actuation instrumentation is designed to detect a potential failure of the feedwater control system which causes excessive feedwater flow. If undetected, this would lead to reactor vessel water carryover into the main steam lines and to the main turbine. This instrumentation is included in response to Generic Letter 89-19.

3/4.2.K Toxic Gas Monitoring

Toxic gas monitoring instrumentation is provided in or near the control room ventilation system intakes to allow prompt detection and the necessary protective actions to be initiated. Isolation from high toxic chemical concentration has been added to the station design as a result of the "Control Room Habitability Study" submitted to the NRC in December 1981 in response to NUREG-0737 Item III D.3.4. As explained in Section 3 of this study, ammonia, chlorine, and sulphur dioxide detection capability has been provided. In a report generated by Sargent and Lundy in April 1991, justification was provided to delete the chlorine and sulphur dioxide detectors from the plant. The setpoints chosen for the control room ventilation isolation are based on early detection in the outside air supply at the odor threshold, so that the toxic chemical will not achieve toxicity limit concentrations in the Control Room.

ATTACHMENT 4

**EXISTING TECHNICAL
SPECIFICATIONS**

Technical Specification 3/4.2

"INSTRUMENTATION"

ATTACHMENT 4

DELETION OF CURRENT TECHNICAL SPECIFICATIONS

This technical specification amendment will replace the current section 3.2/4.2, Instrumentation, for the Dresden Unit 2 and Unit 3 Technical Specifications. The specifications are replaced in its entirety with revised pages that combine the Unit 2 and Unit 3 specifications.

Delete the following pages:

DPR - 19	DPR - 25
3/4.2-1	3/4.2-1
3/4.2-2	3/4.2-2
3/4.2-3	3/4.2-3
3/4.2-4	3/4.2-4
3/4.2-5	3/4.2-5
3/4.2-6	3/4.2-6
3/4.2-7	3/4.2-7
3/4.2-8	3/4.2-8
3/4.2-9	3/4.2-9
3/4.2-9a	3/4.2-9a
3/4.2-10	3/4.2-10
3/4.2-11	3/4.2-11
3/4.2-12	3/4.2-12
3/4.2-12a	3/4.2-12a
3/4.2-13	3/4.2-13
3/4.2-14	3/4.2-14
3/4.2-15	3/4.2-15
3/4.2-16	3/4.2-16
3/4.2-17	3/4.2-17
3/4.2-18	3/4.2-18
3/4.2-19	3/4.2-19
3/4.2-20	3/4.2-20
3/4.2-21	3/4.2-21
3/4.2-22	3/4.2-22
3/4.2-23	3/4.2-23

DPR - 19	DPR - 25
3/4.2-23	3/4.2-23
3/4.2-24	3/4.2-24
3/4.2-25	3/4.2-25
3/4.2-26	3/4.2-26
3/4.2-28	3/4.2-28
3/4.2-29	3/4.2-29
3/4.2-30	3/4.2-30
3/4.2-31	3/4.2-31
3/4.2-32	3/4.2-32
B 3/4.2-33	B 3/4.2-33
B 3/4.2-34	B 3/4.2-34
B 3/4.2-35	B 3/4.2-35
B 3/4.2-36	B 3/4.2-36
B 3/4.2-37	B 3/4.2-37
B 3/4.2-38	B 3/4.2-38
B 3/4.2-39	B 3/4.2-39
B 3/4.2-40	B 3/4.2-40
B 3/4.2-41	B 3/4.2-41
B 3/4.2-42	B 3/4.2-42
B 3/4.2-43	B 3/4.2-43
B 3/4.2-44	B 3/4.2-44
B 3/4.2-45	B 3/4.2-45
B 3/4.2-46	B 3/4.2-46
B 3/4.2-47	B 3/4.2-47
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[illegible]

ATTACHMENT 5

**DRESDEN 2/3 DIFFERENCES
QUAD CITIES 1/2 DIFFERENCES**

Technical Specification 3/4.2

"INSTRUMENTATION"

ATTACHMENT 5

COMPARISON OF DRESDEN UNIT 2 AND UNIT 3 TECHNICAL SPECIFICATIONS FOR THE IDENTIFICATION OF TECHNICAL DIFFERENCES

SECTION 3.2/4.2 "PROTECTIVE INSTRUMENTATION"

Commonwealth Edison has conducted a comparison review of the Dresden Unit 2 and Unit 3 Technical Specifications to identify any technical differences in support of combining the Technical Specifications into one document. The intent of the review was not to identify any differences in presentation style (e.g. table formats, use of capital letters, etc.), punctuation or spelling errors, but rather to identify areas which the Technical Specifications are technically or administratively different.

The review of Section 3.2/4.2, Protective Instrumentation, revealed the following technical differences:

The functional test surveillance intervals for the HPCI isolation on main steam high flow and low reactor pressure are switched between Units 2 and 3 in Table 4.2.1. The surveillance frequencies are corrected in the proposed amendment.

The isolation condenser logic is described differently in the bases of the Units' specifications. In the proposed amendment, the description of the logic scheme is not included. STS bases describe the number of channels contained within each of the functions only.

ATTACHMENT 5

COMPARISON OF QUAD CITIES UNIT 1 AND UNIT 2 TECHNICAL SPECIFICATIONS FOR THE IDENTIFICATION OF TECHNICAL DIFFERENCES

SECTION 3.2/4.2 "PROTECTIVE INSTRUMENTATION"

Commonwealth Edison has conducted a comparison review of the Quad Cities Unit 1 and Unit 2 Technical Specifications to identify any technical differences in support of combining the Technical Specifications into one document. The intent of the review was not to identify any differences in presentation style (e.g. table formats, use of capital letters, etc.), punctuation or spelling errors, but rather to identify areas which the Technical Specifications are technically or administratively different.

The review of Section 3.2/4.2, Protective Instrumentation, revealed no technical differences.

ATTACHMENT 6

**SIGNIFICANT HAZARDS
CONSIDERATIONS AND
ENVIRONMENTAL ASSESSMENT
EVALUATION**

Technical Specification 3/4.2

"INSTRUMENTATION"

ATTACHMENT 6

Commonwealth Edison has evaluated this proposed amendment and determined that it involves no significant hazards consideration. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility, in accordance with the proposed amendment, would not:

- 1)
Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- 2)
Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- 3)
Involve a significant reduction in a margin of safety.

The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated because:

In general, the proposed changes represent the conversion of current requirement to a more generic format, or the addition of requirements which are based on the current safety analysis. Implementation of these changes will provide increased reliability of equipment assumed to operate in the current safety analysis, or provide continued assurance that specified parameters remain within their acceptance limits, and as such, will not significantly increase the probability or consequences of a previously evaluated accident.

Some of the proposed changes represent minor curtailments of the current requirements which are based on generic guidance or previously approved provisions for other stations. These proposed changes are consistent with the current safety analyses and have been previously determined to represent sufficient requirements for the assurance and reliability of equipment assumed to operate in the safety analysis, or provide continued assurance that specified parameters remain within their acceptance limits, and as such will not significantly increase the probability or consequences of a previously evaluated accident.

The plant instrumentation and associated actuation systems are not assumed in any safety analysis to initiate any accident sequence for both Dresden and Quad Cities Stations; therefore, the probability of any accident previously evaluated is not increased by the proposed changes. In addition, the proposed surveillance requirements for the proposed amendments to these systems are more prescriptive than the current requirements specified within the Technical Specifications. The additional surveillance requirements improve the reliability and availability of all affected systems and, therefore,

ATTACHMENT 6

reduce the consequences of any accident previously evaluated. The probability that the systems outlined within Section 3/4.2 of the proposed Technical Specifications will perform their intended function is increased by the additional surveillance requirements.

Create the possibility of a new or different kind of accident from any previously evaluated because:

In general, the proposed changes represent the conversion of current requirements to a more generic format, or the addition of requirements which are based on the current safety analysis. Others represent minor curtailments of the current requirements which are based on generic guidance or previously approved provisions for other stations. These changes do not involve revisions to the design of the station. Some of the changes may involve revision in the operation of the station; however, these provide additional restrictions which are in accordance with the current safety analysis, or are to provide for additional testing or surveillances which will not introduce new failure mechanisms beyond those already considered in the current safety analyses.

The proposed changes for Dresden and Quad Cities Station's Technical Specification Section 3/4.2 are based on STS guidelines or later operating BWR plants' NRC-accepted changes. These proposed changes have been reviewed for acceptability at the Dresden and Quad Cities Nuclear Power Stations considering similarity of system or component design versus the STS or later operating BWRs. No new modes of operation are introduced by the proposed changes, considering the acceptable operational modes in present specifications, the STS, or later operating BWRs. Surveillance requirements are changed to reflect improvements in technique, frequency of performance or operating experience at later plants. Proposed changes to action statements in many places add requirements that are not in the present technical specifications or adopt requirements that have been used successfully at other operating BWRs with designs similar to Dresden and Quad Cities. The proposed changes maintain at least the present level of operability. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

The plant instrumentation and associated actuation systems are not assumed in any safety analysis to initiate any accident sequence for both Dresden and Quad Cities Stations. In addition, the proposed surveillance requirements for plant instrumentation are more prescriptive than the current requirements specified within the Technical Specifications; therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

ATTACHMENT 6

Involve a significant reduction in the margin of safety because:

In general, the proposed changes represent the conversion of current requirements to a more generic format, or the addition of requirements which are based on the current safety analysis. Others represent minor curtailments of the current requirements which are based on generic guidance or previously approved provisions for other stations. Some of the later individual items may introduce minor reductions in the margin of safety when compared to the current requirements. However, other individual changes are the adoption of new requirements which will provide significant enhancement of the reliability of the equipment assumed to operate in the safety analysis, or provide enhanced assurance that specified parameters remain within their acceptance limits. These enhancements compensate for the individual minor reductions, such that taken together, the proposed changes will not significantly reduce the margin of safety.

The proposed changes to Technical Specification Section 3/4.2 implement present requirements, or the intent of present requirements in accordance with the guidelines set forth in the STS. The proposed changes are intended to improve readability, usability, and the understanding of technical specification requirements while maintaining acceptable levels of safe operation. The proposed changes have been evaluated and found to be acceptable for use at Dresden and Quad Cities based on system design, safety analysis requirements and operational performance. Since the proposed changes are based on NRC-accepted provisions at other operating plants that are applicable at Dresden and Quad Cities and maintain necessary levels of system, component or parameter readability, the proposed changes do not involve a significant reduction in the margin of safety.

The proposed amendment for Quad Cities Station will not reduce the availability of systems associated with plant instrumentation required to mitigate accident conditions; therefore, the proposed changes do not involve a significant reduction in the margin of safety.

ATTACHMENT 6

ENVIRONMENTAL ASSESSMENT STATEMENT APPLICABILITY REVIEW

Commonwealth Edison has evaluated the proposed amendment against the criteria for the identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.20. It has been determined that the proposed changes meet the criteria for a categorical exclusion as provided under 10 CFR 51.22 (c)(9). This conclusion has been determined because the changes requested do not pose significant hazards consideration or do not involve a significant increase in the amounts, and no significant changes in the types, of any effluent that may be released offsite. Additionally, this request does not involve a significant increase in individual or cumulative occupational radiation exposure. Therefore, the Environmental Assessment Statement is not applicable for these changes.

ATTACHMENT 7

**GENERIC LETTER 87-09
IMPLEMENTATION**

Technical Specification 3/4.2

"INSTRUMENTATION"

ATTACHMENT 7

APPLICATION OF GENERIC LETTER 87-09 REVISION TO PROPOSED SPECIFICATION 3.0.D

The Dresden/Quad Cities Technical Specification Upgrade Program has implemented the recommendations of Generic Letter 87-09. Included in these recommendations was a revision to Standard Technical Specification 3.0.4 for which these stations had no corresponding restriction. Under the proposed Specification, entry into an operational mode or other specified condition is permitted under compliance with the Action requirements. Indicated below is the method of implementation for this recommendation for each Action requirement in this package.

PROPOSED TECH SPEC	ACTION	APPL. MODEs	CONT. OPS IN APP. COND?	CAT	CLARIFICATION
3.2.A	1	1-3&*	UNLIMITED	OK	No mode change required
	2	1-3&*	UNLIMITED	OK	No mode change required
	3	1-3&*	UNLIMITED	OK	No mode change required
	20	1-3	NA	NO	Shutdown required
	21	1-3	UNLIMITED	OK	Could stay in Applicable Modes
	22	1	NA	NO	Must exit Applicable Mode
	23	1-3	UNLIMITED	OK	No mode change required
	24	1-3&*	UNLIMITED	OK	No mode change required
3.2.B	1	1-5	UNLIMITED	OK	No mode change required
	2	1-5	UNLIMITED	OK	No mode change required
	3	1-5	72h/7d	NO	Must exit Applicable Mode
	30	1-5	UNLIMITED	OK	No mode change required
	31	1-3	UNLIMITED	OK	No mode change required
	32	4-5	UNLIMITED	OK	No mode change required
	33	1-5	UNLIMITED	OK	No mode change required
	34	1-3	UNLIMITED	OK	No mode change required
	35	1-3	UNLIMITED	OK	No mode change required
	36	1-5	UNLIMITED	OK	No mode change required
3.2.C	1	1	UNLIMITED	OK	No mode change required
	2	1	14 days	NO	Must exit Applicable Mode

* During CORE ALTERATIONS or operations with a potential for draining the reactor vessel

**ATTACHMENT 7
GL 87-09 Matrix**

PROPOSED TECH SPEC	ACTION	APPL. MODEs	CONT. OPS IN APP. COND?	CAT	CLARIFICATION
3.2.C	3	1	UNLIMITED	OK	No mode change required
	4	1	7 hrs	NO	Must exit Applicable Mode
	5	1	1 hr	NO	Must exit Applicable Mode
3.2.D	1	1-3	UNLIMITED	OK	No mode change required
	2	1-3	UNLIMITED	OK	No mode change required
	40	1-3	UNLIMITED	OK	No mode change required
	41	1-3	UNLIMITED	OK	No mode change required
	42	1-3	UNLIMITED	OK	No mode change required
3.2.E	1	1,2,5	UNLIMITED	OK	No mode change required
	2	1,2,5	UNLIMITED	OK	No mode change required
	50	1	UNLIMITED	OK	No mode change required
	51	1,2,5	UNLIMITED	OK	No mode change required
	52	1,2,5	UNLIMITED	OK	No mode change required
3.2.F	-	1-3	UNLIMITED	OK	No mode change required
	60.a	1,2	30 days	NO	Must exit Applicable Mode
	60.b	1,2	48 hr	NO	Must exit Applicable Mode
	61	1-3	UNLIMITED	OK	No mode change required
	62.a	1,2	30 days	NO	Must exit Applicable Mode
	62.b	1,2	30 days	NO	Must exit Applicable Mode
	62.c	1,2	7 days	NO	Must exit Applicable Mode
	63.a	1,2	CSD < 72 hrs	OK	No restriction on Mode changes
	63.a	1,2	CSD > 72 hrs	NO	Specifically prohibits startup
	63.b	1,2	30 DAYS	NO	Must exit Applicable Mode
3.2.G	1	2	4 hrs	NO	Must exit Applicable Mode
	2	3,4	UNLIMITED	OK	No mode change required
3.2.H	1	#	UNLIMITED	OK	No mode change required

During offgas holdup system operations

ATTACHMENT 7
GL 87-09 Matrix

PROPOSED TECH SPEC	ACTION	APPL. MODEs	CONT. OPS IN APP. COND?	CAT	CLARIFICATION
3.2.H	2	#	UNLIMITED	OK	No mode change required
	3	#	UNLIMITED	OK	No mode change required
	70	#	UNLIMITED	OK	No mode change required
3.2.I	-	1-3	UNLIMITED	OK	No mode change required
	80	1-3	UNLIMITED	OK	No mode change required

During offgas holdup system operations