CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The containment isolation valves specified in Table 3.6-2 shall be OPERABLE with isolation times as shown in Table 3.6-2.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one or more of the isolation valve(s) specified in Table 3.6-2 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or

b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or

c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or

d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1 The isolation valves specified in Table 3.6-2 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by performance of a cycling test and verification of isolation time.

SURVEILLANCE REQUIREMENTS (Continued)

4.6.3.2 Each isolation valve specified in Table 3.6-2 shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that on a containment isolation test signal, each isolation valve actuates to its isolation position.

b. Verifying that on a containment Radiation-High test signal, each containment purge valve actuates to its isolation position.

4.6.3.3 The isolation time of each power-operated or automatic valve of Table 3.6-2 shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-2 of Specification 3.6.3.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. After each closing of each penetration subject to Type B testing, except containment air locks, if opened following a Type A or B test, by leak rate testing the seal with gas at P_a, 44 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Specification 4.6.1.2d for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 L_a.

---

* Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

c. Digital computer channels - the exercising of the digital computer hardware using diagnostic programs and the injection of simulated process data into the channel to verify OPERABILITY including alarm and/or trip function.

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

a. All penetrations required to be closed during accident conditions are either:

1. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

2. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Table 3.6-2 of Specification 3.6.3.

b. All equipment hatches are closed and sealed,

c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,

d. The containment leakage rates are within the limits of Specification 3.6.1.2, and

e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CONTROLLED LEAKAGE

1.8 CONTROLLED LEAKAGE shall be the seal water flow supplied from the reactor coolant pump seals.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

	INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	ACTION
1.	Containment Pressure	2	1	29,30
2.	Reactor Coolant Outlet Temperature - T_{Hot} (Wide Range)	2	1	29,30
3.	Reactor Coolant Inlet Temperature - T_{Cold} (Wide Range)	2	1	29,30
4.	Reactor Coolant Pressure - Wide Range	2	1	29,30
5.	Pressurizer Water Level	2	1	29,30
6.	Steam Generator Pressure	2/steam generator	1/steam generator	29,30
7.	Steam Generator Water Level - Narrow Range	2/steam generator	1/steam generator	29,30
8.	Steam Generator Water Level - Wide Range	1/steam generator**	1/steam generator**	29,30
9.	Refueling Water Storage Pool Water Level	2	1	29,30
10.	Emergency Feedwater Flow Rate	1/steam generator**	1/steam generator**	29,30
11.	Reactor Cooling System Saturation Margin Monitor	2	1	29,30
12.	Safety Valve Position Indicator	1/valve	1/valve	29,30
13.	Containment Water Level (Narrow Range)	1***	1***	29,30
14.	Containment Water Level (Wide Range)	2	1	29,30
15.	Core Exit Thermocouples	4/core quadrant	2/core quadrant	29,30
16.	Containment Isolation Valve Position Indicators*	1/valve#	1/valve#	29,30
17.	Condensate Storage Pool Level	2	1	29,30
18.	Reactor Vessel Level Monitoring System	2****	1	31,32

#If the containment isolation valve is declared inoperable and the provisions of Specification 3.6.3 are complied with, position indicators may be inoperable; otherwise, comply with the provisions of Specification 3.3.3.6.

*Containment isolation valves listed in Table 3.6-2 (Category 1).

**These corresponding instruments may be substituted for each other.

***Operation may continue for up to 30 days with less than the Minimum Channels OPERABLE requirement.

****A channel is eight sensors in a probe. A channel is operable if four or more sensors, one or more in the upper

TABLE 3.6-2

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (CIAS)			
1	2MS-V670 (MS-120A)	Main Steam Drain	10
1	2MS-V671 (MS-119A)	Main Steam Drain	10
2	2MS-V663 (MS-120B)	Main Steam Drain	10
2	2MS-V664 (MS-119B)	Main Steam Drain	10
5	2BD-F603 (BD102A)	Steam Generator Blowdown	10
5	2BD-F604 (BD103A)	Steam Generator Blowdown	10
6	2BD-F605 (BD102B)	Steam Generator Blowdown	10
6	2BD-F606 (BD103B)	Steam Generator Blowdown	10
9	2IA-F601A/B (IA909)	Instrument Air	10
14	2NG-F604 (NG157)	Nitrogen Supply	5
26	2CH-F1518A/B (CVC109)	CVCS Letdown	10
26	1CH-F2501A/B (CVC103)	CVCS Letdown	10
28	2SL-F1504A/B (PSL107)	RCS Sample	10
28	2SL-F1501A/B (PSL105)	RCS Sample	10
29	2SL-F1505A/B (PSL204)	Pressurizer Surge Line Sample	10

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (Continued)			
29	2SL-F1502A/B (PSL203)	Pressurizer Surge Line Sample	10
30	2SL-F1506A/B (PSL304)	Pressurizer Sample	10
30	2SL-F1503A/B (PSL303)	Pressurizer Sample	10
31	2WM-F158A/B (GWM105)	Waste Gas Vent Header	7
31	2WM-F157A/B (GWM104)	Waste Gas Vent Header	7
33	2SI-E655 (SI-6011)	SIS Sampling	5
33	2SI-E654 (SI-6012)	SIS Sampling	5
42	2WM-F105A/B (SP106)	Containment Sump Pump Discharge	7
42	2WM-F104A/B (SP105)	Containment Sump Pump Discharge	7
43	2BM-F109A/B (BM110)	Reactor Drain Tank Outlet	7
43	2BM-F108A/B (BM109)	Reactor Drain Tank Outlet	7
44	2CH-F1512A/B (CVC401)	RCP Bleedoff	10
44	2CH-F1513A/B (RC606)	RCP Bleedoff	10
47	2HV-F254B (CAR201B)	CARS Exhaust	10
48	2HV-F253A (CAR201A)	CARS Exhaust	10
49	2CA-E605A (ARM110)	Containment Atmosphere Monitor	5

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (Continued)			
49	2CA-E604B (ARM109)	Containment Atmosphere Monitor	5
49	2CA-E606E (ARM103)	Containment Atmosphere Monitor	5
52	2SL-F602 (PSL406A)	Steam Generator Blowdown Sample	10
52	2SL-F601 (PSL404A)	Steam Generator Blowdown Sample	10
53	2HV-E634A (CVR401A)	Containment Vacuum Relief Instrument Line	5
59	2SI-F156lA/B (SI343)	SIT Drain to RWSP	10
60	2FP-F127 (FP601A)	Containment Fire Water Header	10
61	2FP-F129 (FP601B)	Containment Fire Water Header	10
65	2HV-E633B (CVR401B)	Containment Vacuum Relief Instrument Line	5
66	2HA-E609A (HRA110A)	Hydrogen Analyzer	5
66	2HA-E608A (HRA109A)	Hydrogen Analyzer	5
66	2HA-E610A (HRA126A)	Hydrogen Analyzer	5
67	2HA-E629B (HRA110B)	Hydrogen Analyzer	5
67	2HA-E628B (HRA109B)	Hydrogen Analyzer	5
67	2HA-E630B (HRA126B)	Hydrogen Analyzer	5

TABLE 3.6-2 (Continue

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (Continued)			
68	2SL-F604 (PSL406B)	Steam Generator Blowdown Sample	10
68	2SL-F603 (PSL404B)	Steam Generator Blowdown Sample	10
2. Containment Purge (CIAS/CPIS)			
10	2HV-B151A (CAP103)	Containment Purge Inlet	5
10	2HV-B152A (CAP104)	Containment Purge Inlet	5
11	2HV-B154B (CAP204)	Containment Purge Outlet	5
11	2HV-B153B (CAP203)	Containment Purge Outlet	5
47	2HV-F228A (CAR 200B)	Containment Pressure Exhaust	5
47	2HV-F229B (CAR 202B)	CARS Exhaust	5
3. Safety Injection Actuation Signal (SIAS)			
26	1CH-F2501A/B(CVC103)	CVCS letdown	10
32	2SI-L101A (SI 602A)	SI from SIS Sump	N.A.
33	2SI-L102B (SI 602B)	SI from SIS Sump	N.A.
4. Main Steam Isolation Signal (MSIS)			
1	2MS-V602A (MS 124A)	Main Steam	N.A.
1	2MS-F714 (SSL 301A)	Main Steam Sample	N.A.
2	2MS-V604B (MS 124B)	Main Steam	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
4. Main Steam Isolation Signal (MSIS) (Continued)			
2	2MS-F715 (SSL 301B)	Main Steam Sample	N.A.
3	2FW-V823A (FW 184A)	Main Feedwater	N.A.
3	2FW-V847B (EFW 229A)	Emergency Feedwater	N.A.
3	2FW-V848A (EFW 228A)	Emergency Feedwater	N.A.
3	2FW-V851B (EFW 224A)	Emergency Feedwater	N.A.
3	2FW-V852A (EFW 223A)	Emergency Feedwater	N.A.
4	2FW-V824B (FW 184B)	Main Feedwater	N.A.
4	2FW-V849A (EFW 229B)	Emergency Feedwater	N.A.
4	2FW-V850B (EFW 228B)	Emergency Feedwater	N.A.
4	2FW-V853A (EFW 224B)	Emergency Feedwater	N.A.
4	2FW-V854B (EFW 223B)	Emergency Feedwater	N.A.
5. Containment Spray Actuation Signal (CSAS)			
23	2CC-F146A/B (CC 641)	CCW to RCPs and CEDM Cooler	5
24	2CC-F147A/B (CC 713)	CCW from RCPs and CEDM Cooler	5
24	2CC-F243A/B (CC 710)	CCW from RCPs and CEDM Cooler	5

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual			
1	2MS-V768 (MS1244A)*	MSIV Bypass	N.A.
1	2MS-V697 (NG412A)	Main Steam N_2 Blanket	N.A.
1	2MS-V611A (MS401A)*	Steam to Emergency Steam Generator Feed Pump Turbine	N.A.
1	2MS-PM629A (MS116A)*	Atmospheric Steam Dump	N.A.
2	2MS-V698 (NG412B)	Main Steam N_2 Blanket	N.A.
2	2MS-V612B (MS401B)*	Steam to Emergency Steam Generator Feed Pump Turbine	N.A.
2	2MS-PM630B (MS116B)*	Atmospheric Steam Dump	N.A.
2	2MS-V710B (MS1244B)*	MSIV Bypass	N.A.
7	2DW-V609A/B (PMU151)*	Demineralized Water	N.A.
8	2SA-V601A/B (SA908)*	Station Air	N.A.
12	2HV-B157B (CVR 101)*	Vacuum Relief	N.A.
13	2HV-B156A (CVR 201)*	Vacuum Relief	N.A.
15	2CC-F157B2 (CC 807B)*	CCW to Containment Fan Cooler Units	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
5. Manual/Remote Manual (Continued)			
16	2CC-F161B2 (CC 823B)*	CCW from Containment Fan Cooler Units	N.A.
17	2CC-F158A1 (CC 823A)*	CCW from Containment Fan Cooler Units	N.A.
18	2CC-F154A1 (CC 807A)*	CCW to Containment Fan Cooler Units	N.A.
19	2CC-F159A2 (CC 822A)*	CCW from Containment Fan Cooler Units	N.A.
20	2CC-F155A2 (CC 808A)*	CCW to Containment Fan Cooler Units	N.A.
21	2CC-F156B1 (CC 808B)*	CCW to Containment Fan Cooler Units	N.A.
22	2CC-F160B1 (CC 822B)*	CCW from Containment Fan Cooler Units	N.A.
27	2CH-F1529A/B (CVC 209)*	CVCS Charging Line	N.A.
27	1CH-F250SA (CVC 216A)*	CVCS Auxiliary Spray	N.A.
27	1CH-F2505B (CVC 216B)*	CVCS Auxiliary Spray	N.A.
27	1CH-F2504B (CVC 218B)*	CVCS Charging Line	N.A.
27	1CH-F2503A (CVC 218A)*	CVCS Charging Line	N.A.

TABLE 3.6-2 (Contin

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
34A&B	2CS-F305A (CS 125A)*	Containment Spray	N.A.
34A&B	2CS-E608A (CS 129A)*	Containment Spray	N.A.
35A&B	2CS-F306B (CS 125B)*	Containment Spray	N.A.
35A&B	2CS-E609B (CS 129B)*	Containment Spray	N.A.
36	2SI-V1549A1 (SI 139B)*	SI from LPSI Pumps	N.A.
37	2SI-V1539B1 (SI 138B)*	SI from LPSI Pumps	N.A.
38	2SI-V1541A2 (SI 139A)*	SI from LPSI Pumps	N.A.
39	2SI-V1543B2 (SI 138A)*	SI from LPSI Pumps	N.A.
40	2SI-V326B (SI407B)*	Shutdown Cooling	N.A.
40	1SI-V1501B (SI405B)*	Shutdown Cooling	N.A.
41	2SI-V327A (SI407A)*	Shutdown Cooling	N.A.
41	1SI-V1503A (SI405A)*	Shutdown Cooling	N.A.
45	2HV-B187B (CAR101B)*	CARS Makeup	N.A.
45	2HV-B188A (CAR101A)*	CARS Makeup	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
48	2HV-B190A (CAR202A)*	CARS Exhaust	N.A.
51	2FS-V145A/B (FS405)*	Refueling Cavity Purification Inlet	N.A.
51	2FS-V144A/B (FS406)*	Refueling Cavity Purification Inlet	N.A.
53	2CA-V600 (CVR 301A)*	Instrument H&V	N.A.
55	2SI-V1550A1 (SI 225A)*	SIS from HPSI Loop 1A	N.A.
55	2SI-V1545B1 (SI 225B)*	SIS from HPSI Loop 1A	N.A.
56	2SI-V1546A2 (SI 226A)*	SIS from HPSI Loop 1B	N.A.
56	2SI-V1540B2 (SI 226B)*	SIS from HPSI Loop 1B	N.A.
57	2SI-V1542A3 (SI 227A)*	SIS from HPSI Loop 2A	N.A.
57	2SI-V1547B3 (SI 227B)*	SIS from HPSI Loop 2A	N.A.
58	2SI-V1548A4 (SI 228A)*	SIS from HPSI Loop 2B	N.A.
58	2SI-V1544B4 (SI 228B)*	SIS from HPSI Loop 2B	N.A.
59	2SI-V1570 (SI344)*	SIT Drain to PWSP	N.A.
62	2FS-V165A/B (FS416)	Refueling Cavity Drain	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
62	2FS-V164A/B (FS415)	Refueling Cavity Drain	N.A.
63	2SA-V114 (LRT109)	ILRT Connection	N.A.
63	2SA-V604 (LRT110)	ILRT Connection	N.A.
65	2SA-V609 (LRT202)	ILRT Test Connection	N.A.
65	2SA-V611 (LRT204)	ILRT Test Connection	N.A.
65	2SA-V610 (LRT201)	ILRT Test Connection	N.A.
65	2SA-V612 (LRT203)	ILRT Test Connection	N.A.
65	2SA-V620 (LRT2011)	ILRT Test Connection	N.A.
65	2SA-V621 (LRT 2031)	ILRT Test Connection	N.A.
65	2CA-V601 (CVR 301B)*	Instrument H&V	N.A.
69	2SI-V1556 (SI 506A)*	SI Hot Leg Injection	N.A.
70	2SI-V1559 (SI 506B)*	SI Hot Leg Injection	N.A.
71	2DW-V642 (CMU244)*	Demineralized Water	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
7. Other			
1	2NG-V621-1 (NG 411A)	For Steam Generator Nitrogen Blanket	N.A.
2	2NG-621-2 (NG 411B)	For Steam Generator Nitrogen Blanket	N.A.
7	2DW-V610 (PMU162)	Demineralized Water Check Valve	N.A.
8	2SA-V602A/B (SA909)	Station Air Check Valve	N.A.
9	2IA-V602A/B (IA910)	Instrument Air Check Valve	N.A.
12	2HV-B181B (CVR 102)	Vacuum Relief	N.A.
13	2HV-B180A (CVR 202)	Vacuum Relief	N.A.
14	2NG-V666 (NG158)	Containment N_2 Supply Check Valve	N.A.
23	2CC-V242A/B (CC644)	CCW to RCPS and CEDM Cooler Check Valve	N.A.
27	1CH-V2506 (CVC 219)	CVCS Charging Line	N.A.
34A&B	2CS-V103A (CS 128A)	Containment Spray	N.A.
35A&B	2CS-V104B (CS 128B)	Containment Spray	N.A.
36	1SI-V1517R11A (SI 143B)	SI from LPSI Pumps	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
7. Other (Continued)			
37	1SI-V1518RL1B (SI 142B)	SI from LPSI Pumps	N.A.
38	1SI-V1519RL2A (SI 143A)	SI from LPSI Pumps	N.A.
39	1SI-V1520RL2B (SI 142A)	SI from LPSI Pumps	N.A.
45	2HV-V185B (CAR102B)	CARS Makeup Check Valve	N.A.
46	2HV-V184A (CAR102A)	CARS Makeup Check Valve	N.A.
49	2CA-V607 (ARM104)	Containment Atmosphere Monitor Check Valve	N.A.
53	#3401	Containment Vacuum Relief Instrument Line Excess Flow Check Valve	N.A.
55	1SI-V1522RL1A (SI 241)	SIS from HPSI Loop 1A	N.A.
56	1SI-V1523RL1B (SI 242)	SIS from HPSI Loop 1B	N.A.
57	1SI-V1524RL2A (SI 243)	SIS from HPSI Loop 2A	N.A.
58	1SI-V1525RL2B (SI 244)	SIS from HPSI Loop 2B	N.A.
60	2FP-V128 (FP602A)	Containment Fire Water Header Check Valve	N.A.
61	2FP-V130 (FP602B)	Containment Fire Water Header Check Valve	N.A.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
7. Other (Continued)			
65	#3401	Containment Vacuum Relief Excess Flow Check Valve	N.A.
66	2HA-E637A (HRA128A)	Hydrogen Analyzer Check Valve	N.A.
67	2HA-E638B (HRA128B)	Hydrogen Analyzer Check Valve	N.A.
69	1SI-V2506 (SI 510A)	SI Hot Leg Injection	N.A.
70	1SI-V2508 (SI 510B)	SI Hot Leg Injection	N.A.
71	2DW-V643 (CMU245)	Demineralized Water Check Valve	N.A.

*May be opened on an intermittent basis under administrative control.

**The provisions of Specification 3.0.4 are not applicable.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through GDC 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with (1) zirconium-water reactions, (2) radiolytic decomposition of water, and (3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

3/4.6.5 VACUUM RELIEF VALVES

The OPERABILITY of the primary containment to annulus vacuum relief valves with a setpoint of less than or equal + 0.3 psid ensures that the containment internal pressure differential does not become more negative than the containment design limit for internal pressure differential of 0.65 psi. This situation would occur, for the worst case, if all containment heat removal systems (containment spray, containment cooling, and other HVAC systems) were inadvertently started with only one vacuum relief valve OPERABLE.

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. Less than or equal to L_a, 0.50 percent by weight of the containment air per 24 hours at P_a, 44 psig, or

2. Less than or equal to L_t, 0.25 percent by weight of the containment air per 24 hours at a reduced pressure of P_t, 22 psig.

b. A combined leakage rate of less than or equal to 0.60 L_a for all penetrations and valves subject to Type B and C tests as identified in Table 3.6-1, when pressurized to P_a.

c. A combined bypass leakage rate of less than or equal to 0.06 L_a for all penetrations identified in Table 3.6-1 as secondary containment bypass leakage paths when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding 0.75 L_a or 0.75 L_t, as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, or (c) with the combined bypass leakage rate exceeding 0.06 L_a, restore the overall integrated leakage rate to less than or equal to 0.75 L_a or less than or equal to 0.75 L_t, as applicable, and the combined leakage rate for all penetrations and valves subject to Type B and C tests to less than or equal to 0.60 L_a, and the bypass leakage rate to less than or equal to 0.06 L_a prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI N45.4-1972:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10 month intervals during

TABLE 3.6-1

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.	TEST TYPE
7	Demineralized Water	2DW-V609A/B (PMU 151) 2DW-V610 (PMU 152)	Bypass/Type C
8	Station Air	2SA-V610A/B (SA 908) 2SA-V602A/B (SA 909)	Bypass/Type C
9	Instrumen Air	2IA-F601A/B (IA 909) 2IA-V602A/B (IA 910)	Bypass/Type C
10	Containment Purge Inlet	2HV-B151A (CAP 103) 2HV-B152A (CAP 10	Type C
11	Containment Purge Exhaust	2HV-B154B (CAP 204) 2HV-B153B (CAP 203)	Type C
12	Containment Vacuum Relief	2HV-B157B (CVR 101) 2HV-B181B (CVR 102	Type C
13	Containment Vacuum Relief	2HV-B156A (CVR 201) 2HV-V181B (CVR 202)	Type C
14	Nitrogen Systems Supply to Reactor Bldg	2NG-F604 (NG 157) 2NG-V666 (NG 158)	Bypass/Type C
*23	CCW to RCPs and CEDM Cooler	2CC-F146A/B (CC-641) 2CC-V242A/B (CC-644)	Type C
*24	CCW to RCPs and CEDM Cooler	2CC-F147A/B (CC-713) 2CC-F243A/B (CC-710)	Type C
25	Fuel Transfer Containment & Fuel Handling Building		Bypass/Type B

*These penetrations shall be tested prior to STARTUP following first refueling outage.

TABLE 3.6- ontinued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
26	Chemical & Volume Control Letdown Line	2CH-F1518A/B 1CH-F2501A/B	(CVC 109) (CVC 103)	Bypass/Type C
28	Sampling Line from Reactor Coolant Line	2SL-F1504A/B 2SL-F1501A/B	(PSL 107) (PSL 105)	Bypass/Type C
29	Sampling Line from Pressurizer Surge Line	2SL-F1505A/B 2SL-F1502A/B	(PSL 204) (PSL 203)	Bypass/Type C
30	Sampling Line from Pressurizer Steam Space	2SL-F1506A/B 2SL-F1503A/B	(PSL 304) (PSL 303)	Bypass/Type C
31	Waste Management from Containment Vent Header	2WM-F158A/B 2WM-F157A/B	(GWM 105) (GWM 104)	Bypass/Type C
42	Containment Sump Pump Discharge/Post Accident Sample Return	2WM-F135A/B 2WM-F104A/B	(SP 106) (SP 105)	Bypass Type C
43	Boron Management Reactor Drain Tank Outlet	2BM-F109A/B 2BM-F108A/B	(BM 110) (BM 109)	Bypass/Type C
44	Chemical & Volume Control from Reactor Pump Controlled Bleedoff	2CH-F1512A/B 2CH-F1513A/B	(CVC 401) (RC 606)	Bypass/Type C
45	CARS Makeup to Containment	2HV-B187B 2HV-V185B	(CAR 101B) (CAR 102B)	Bypass/Type C
46	CARS Makeup to Containment	2HV-B188A 2HV-V184A	(CAR 101A) (CAR 102A)	Bypass/Type C
47	CARS Exhaust from Containment Containment Pressure Exhaust	2HV-F229B 2HV-F254B 2HV-F228A	(CAR 202B) (CAR 201B) (CAR 200B)	Bypass/Type C

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
48	CARS Exhaust from Containment	2HV-B190A 2HV-F253A	(CAR 202A) (CAR 201A)	Bypass/Type C
49	Containment Atmosphere Monitoring Inlet and Outlet	2CA-E605A 2CA-E604B 2CA-V607 2CA-E606A	(ARM 110) (ARM 109) (ARM 104) (ARM 103)	Type C
51	Refueling Cavity Purification Inlet	2FS-V145A/B 2FS-V144A/B	(FS 405) (FS 406)	Bypass/Type C
59	Safety Injection System from SI Tank to Refueling Water Storage Pool	2SI-V1570 2SI-V1561A/B	(SI 344) (SI 343)	Bypass/Type C
60	Fire Protection System to Reactor Building	2FP-F127 2FP-V128	(FP 601A) (FP 602A)	Bypass/Type C
61	Fire Protection System to Reactor Building	2FP-F129 2FP-V130	(FP 601B) (FP 602B)	Bypass/Type C
62	Water from Refueling Cavity to RWSP	2FS-V165A/B 2FS-V164A/B	(FS 416) (FS 415)	Bypass/Type C
63	Containment Leakage Rate Test Connection	2SA-V114 Blind Flange	(LRT 109) NA	Type C
65	Containment Leakage Rate Test Connection and Instrument H&V	2SA-V609 2SA-V611	(LRT 202) (LRT 204)	Type C
66	Hydrogen Analyzer Supply and Return	2HA-E609A 2HA-E608A 2HA-E610A 2HA-E637A	(HRA 110A) (HRA 109A) (HRA 126A) (HRA 128A)	Type C

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
67	Hydrogen Analyzer Supply and Return	2HA-E629B	(HRA 110B)	Type C
		2HA-E628B	(HRA 109B)	
		2HA-E630B	(HRA 126B)	
		2HA-E638B	(HRA 128B)	
71	Demineralized Water	2DW-V642	(CMU 244)	Bypass/Type C
		2DW-V643	(CMU 245)	
Escape Lock	NA	None		Bypass/Type B
Personnel Lock	NA	None		Type B
Electrical Penetrations	NA	All Primary Canisters except welded spares		Type B
Equipment Hatch	NA	None		Type B
Expansion Bellows 1, 2, 3, 4, 25, 32, 33, 43	Various	None		Type B

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses. This restriction, in conjunction with the leakage rate limitation, will limit the SITE BOUNDARY radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a or less than or equal to 0.75 L_t, as applicable during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance requirements for measuring leakage rates are consistent with the requirements of Appendix J of 10 CFR Part 50.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All containment penetration conductor overcurrent protective devices shown in Table 3.8-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8-1 inoperable:

1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and

2. Declare the affected system or component inoperable, and

3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 All containment penetration conductor overcurrent protective devices shown in Table 3.8-1 shall be demonstrated OPERABLE:

a. At least once per 18 months:

1. By verifying that the medium voltage (4-15 kV) circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers of each voltage level, and performing the following:

(a) A CHANNEL CALIBRATION of the associated protective relays, and

(b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed and as specified in Table 3.8-1.

SURVEILLANCE REQUIREMENTS (Continued)

(c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers, except as noted on Table 3.0-1, shall consist of injecting a current in excess of the breakers' nominal setpoint and measuring the response time. The measured response time will be compared to the manufacturer's data to ensure that it is less than or equal to a value specified by the manufacturer. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIR'D
I	**6.9 KV POWER FROM MEDIUM VOLTAGE SWITCHGEAR (NOTE I.3)**									
1	**REACTOR COOLANT PUMP 1A**									
	a Primary	289-11A1	Line 15, 16, 17	Note I.1	Note I.2	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	b Backup	424-220	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	c Backup	424-220	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
2	**REACTOR COOLANT PUMP 1B**									
	a Primary	289-12A1	Line 15, 16, 17	Note I.1	Note I.2	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	b Backup	424-230	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	c Backup	424-230	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
3	**REACTOR COOLANT PUMP 2A**									
	a Primary	289-11A1	Line 18, 19, 20	Note I.1	Note I.2	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	b Backup	424-240	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	c Backup	424-240	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
4	**REACTOR COOLANT PUMP 2B**									
	a Primary	289-12A1	Line 18, 19, 20	Note I.1	Note I.2	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	b Backup	424-250	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
	c Backup	424-250	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4

Items I.1 thru I.4 - Transfer Trip Relays provide Backup protection via Startup Transformer and Unit Auxiliary Transformer Breakers. Performing the INTEG FUNCT TEST satisfies CHAN CALIB

FSAR Figure 8.3-28 illustrates operation of primary and backup over-current protection

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	DISP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
II	**480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR (NOTE II.4)**									
1	**POLAR CRANE**									
	a Primary	289-20A1	Line 16	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary	289-20A2	Line 16	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-2686	TD Relay 2		adjust to 2 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
2	**CEDM COOLING UNIT E-16 (3A)**									
	a Primary*	289-20A1	Line 17	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-20A2	Line 17	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-1139	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
3	**CEDM COOLING UNIT E-16 (3C)**									
	a Primary*	289-20A3	Line 23	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-20A4	Line 23	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-1140	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
4	**CEDM COOLING UNIT E-16 (3B)**									
	a Primary*	289-21A1	Line 18	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-21A2	Line 18	Note II.1	Notes II.2, II.3	≥10% of Type R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-1140	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4

* Note II.4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
5	**CEDM COOLING UNIT E-16 (3D)**									
	a Primary*	289-21A3	Line 24	Note II 1	Notes II 2, II 3	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-21A4	Line 24	Note II 1	Notes II 2, II 3	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-1160	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
6	**PRESSURIZER HEATERS BACKUP BANK 1 (B-1)**									
	a Primary*	289-23A1	Line 4	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-23A2	Line 4	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-286	TD Relay 2		adjust to 0 6 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
7	**PRESSURIZER HEATERS BACKUP BANK 2 (B-2)**									
	a Primary*	289-23A1	Line 5	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-23A2	Line 5	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-286	TD Relay 2		adjust to 0 6 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
8	**PRESSURIZER HEATERS BACKUP BANK 3 (B-3)**									
	a Primary*	289-23A1	Line 6	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-23A2	Line 6	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-287	TD Relay 2		adjust to 0 6 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4

* Note II 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
9	**PRESSURIZER HEATERS BACKUP BANK 4 (B-4)**									
	a Primary*	289-26A1	Line 4	Note II 1	Notes II 2, II 5	≥10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-26A2	Line 4	Note II 1	Notes II 2, II 5	≥10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-288	TD Relay 2		adjust to 0.5 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
10	**PRESSURIZER HEATERS BACKUP BANK 5 (B-5)**									
	a Primary*	289-26A1	Line 5	Note II 1	Notes II 2, II 5	≥10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-26A2	Line 5	Note II 1	Notes II 2, II 5	≥10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-289	TD Relay 2		adjust to 0.5 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
11	**PRESSURIZER HEATERS BACKUP BANK 6 (B-6)**									
	a Primary*	289-26A1	Line 6	Note II 1	Notes II 2, II 5	≥10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-26A2	Line 6	Note II 1	Notes II 2, II 5	≥10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-290	TD Relay 2		adjust to 0.5 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4

Items II.6 thru II.11 -- The backup protection consists of Transfer Trip Relays activated by any one of the primary over-current protective relays illustrated on FSAR Figure 8.3-30.

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR D
12	**PRESSURIZER HEATERS PROPORTIONAL BANK 1 (P-1)**									
	a Primary	289-23A1	Line 8	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary	289-23A2	Line 8	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup		CHASE -SHAWMUT A50P200	Fuse		NA	NA	NA	NA	1, 2, 3, 4
	* Note II 4									
13	**PRESSURIZER HEATERS PROPORTIONAL BANK 2 (P-2)**									
	a Primary	289-24A1	Line 4	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary	289-24A2	Line 4	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup		CHASE -SHAWMUT A50P200	Fuse		NA	NA	NA	NA	1, 2, 3, 4

Items II 12 and II 13 -- The proportional heater local control panel houses the backup protection

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
BREAKER PROTECTION	DRAWING IDENTIFYING NUMBER OR DESCRIPTION		TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
III. 240 VOLTS CEDM POWER									
1 CEDM COILS (91 Circuits) (NOTES IV. 3 & IV. 4)									
a Primary	Sub-group Bus		Heinemann 40A	Heinemann Series AM, Curve 3	10% per R	NA	NA	S every 60 M	1, 2, 3, 4
b Primary	Hold Bus		Heinemann 30A	Heinemann Series AM, Curve 3	10% per R	NA	NA	S every 60 M	1, 2, 3, 4
c Backup	60 A International Rectifier Cat No SF25 x 60		Fuse	International Rectifier SF25 Series Curves	NA	NA	NA	NA	1, 2, 3, 4

240 V, 3 phase power feeds from the C-E Reactor Trip Switchgear to the CEDM Cabinets
The 91 circuits separate into sub-groups and hold busses One breaker and three fuses protect each sub-group/hold bus
These cabinets feed power to the CEDM Coils via #4 AWG & #8 AWG penetration conductors

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	MODES FOR WHICH SURV IS REQUIRED
IV. 480 VOLTS POWER FROM MCCs									
1 SAFETY INJECTION TANK 1A ISOLATION VALVE 1SI-V1585 TK 1A (SI-331A)									
a Primary	289-61 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-61	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
2 SAFETY INJECTION TANK 2A ISOLATION VALVE 1SI-V1587 TK 2A (SI-332A)									
a Primary	289-61 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-61	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
3 LP-311									
a Primary	289-62 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-62	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
4 RCS LOOP 2 SDC ISOLATION VALVE 1SI-V1604A (SI-401A)									
a Primary	289-63 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-63	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
5 CARS SUCTION VALVE 2HV-F253A (CAR-201A)									
a Primary	289-64 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-64	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
6 HYDRAULIC PUMP FOR VALVE 1SI-V1503A (SI-405A)									
a Primary	289-64 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-64	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	
7	**SAFETY INJECTION TANK 1B ISOLATION VALVE 1SI-V1506 TK 1B (SI-331B)**								
	a Primary	289-65 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-65	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
8	**SAFETY INJECTION TANK 2B ISOLATION VALVE 1SI-V1508 TK 2B (SI-332B)**								
	a Primary	289-65 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-65	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
9	**LP-310**								
	a Primary	289-66 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-66	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
10	**ECS LOOP 1 SDC ISOLATION VALVE 1SI-V1502B (SI-401B)**								
	a Primary	289-67 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-67	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
11	**CARS SUCTION VALVE 2HV-F264B (CAR-201B)**								
	a Primary	289-68 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-68	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
12	**HYDRAULIC PUMP FOR VALVE 1SI-V1501B (SI-405B)**								
	a Primary	289-68 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-68	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4

Table 3.6-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROUGH)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.6.4.1 a.2	CHAN CALIB 4.6.4.1 a.1.a	INTEG FUNCT TEST 4.6.4.1.a.1.b	IN.. & PREV MAINT 4.6.4.1.b	
13	Cont. 30KVA Transf. PDP 377A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
14	RCP 2A OIL LIFT PUMP A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
15	RCP 1A OIL LIFT PUMP A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
16	STEAM GENERATOR 1 VENT VALVE 2MS-V666 (MS-101A)									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
17	MOVABLE DETECTOR DRIVE MACHINE 1									
	THE MOVABLE DETECTOR DRIVE MACHINE 1 WAS DISCONNECTED.									
	BOTH THE BREAKER AND FUSE ARE SPARED.									
18	STEAM GENERATOR 2 VENT VALVE 2MS-V667 (MS-101B)									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
19	RCP 1B OIL LIFT PUMP A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
20	RCP 2B OIL LIFT PUMP A								
	a Primary	209-74 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-74	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
21	MOVABLE DETECTOR DRIVE MACHINE 2									
	THE MOVABLE DETECTOR DRIVE MACHINE 2 HAS BEEN DISCONNECTED.									
	BOTH THE BREAKER AND FUSE ARE SPARED.									
22	Comt. 3MVA Transf. PDP 370B									
	a Primary	209-76 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-76	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
23	H2 RECOMBINER POWER SUPPLY A									
	a Primary	209-77 Note IV.1	Breaker	FJ	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-77	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
24	REACTOR CAVITY COOLING SYSTEM FAN E-2 (3A)									
	a Primary	209-78 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-78	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
25	RADIATION REMOVAL UNIT E-21 (3A)									
	a Primary	209-79 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-79	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
26	**RCP 1A OIL LIFT PUMP B**								
	a Primary	289-78 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-78	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
27	**RCP 2A OIL LIFT PUMP B**								
	a Primary	289-78 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-78	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
28	**H2 RECOMBINER POWER SUPPLY B**								
	a Primary	289-80 Note IV 1	Breaker	FJ	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-80	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
29	**REACTOR CAVITY COOLING SYSTEM FAN S-2 (3B)**								
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
30	**RADIATION REMOVAL UNIT E-13 (3B)**								
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
31	**RCP 1B OIL LIFT PUMP B**								
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4
32	**RCP 2B OIL LIFT PUMP B**								
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M 1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA 1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
33	**MISSILE SHIELD TRUCK RECEPTACLE**									
a	Primary*									
b	Backup*									
	* Item IV 33 -- Primary breaker is locked-out in the open position during MODES 1, 2, 3, and 4 Therfore, non-OPERABLE primary or backup protection does not place the plant in an LCO									
34	**CONTAINMENT COOLING UNIT AH-1 (3A-SA)**									
a	Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b	Backup Note IV 6	289-20A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
c	Backup	289-20A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
35	**CONTAINMENT COOLING UNIT AH-1 (3C-SA)**									
a	Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b	Backup Note IV 6	289-20A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
c	Backup	289-20A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
36	**CONTAINMENT COOLING UNIT AH-1 (3B-SB)**									
a	Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b	Backup Note IV 6	289-21A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
c	Backup	289-21A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
37	**CONTAINMENT COOLING UNIT AH-1 (3D-SB)**									
	a Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup Note IV 5	289-21A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	289-21A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
38	**CONTAINMENT SUMP PUMP A**									
	a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
39	**LP-306**									
	a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
40	**LP-301**									
	a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
41	**LP-302**									
	a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
42	**LP-304**									
	a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
43	**CONTAINMENT ELEVATOR D**									
	a Primary	289-47	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-47	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
44	**REFUELING CAVITY DRAIN PUMP**									
	a Primary	289-48	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-48	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
45	**REFUELING EQUIPMENT**									
	a Primary	289-50	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-50	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
46	**REFUELING EQUIPMENT**									
	a Primary	289-48	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-48	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
47	**CONTAINMENT SUMP PUMP B**									
	a Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
48	**LP-303**									
	a Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
49	**LP-305**									
	a Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER C.? DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
60	1P-300									
	a Primary	289-69	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-69	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
61	1DC LOOP 1 VACUUM PRIMING PUMP									
	a Primary	289-65	Breaker	EF-3	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-63	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
62	1DC LOOP 2 VACUUM PRIMING PUMP									
	a Primary	289-67	Breaker	EF-3	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-67	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
63	1DP 365A RECEPTACLES									
	a Primary	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
64	1DP 364B RECEPTACLES									
	a Primary	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
V.	**208 VOLTS CONTROL POWER FROM PDPs OR MCCs**									
1	**RCP 1A HEATER**									
	a Primary	424-2269	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2269	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
2	**RCP 2A HEATER**									
	a Primary	424-2269	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2269	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
3	**RCP 1B HEATER**									
	a Primary	424-2270	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2270	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
4	**RCP 2B HEATER**									
	a Primary	424-2270	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2270	Breaker	TEB	Note V.2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
VI 120 VOLTS CONTROL POWER FROM PDPs OR MCCs										
1	**SOLENOID VALVE 1SI-F1551TK1A (SI-303A)**									
	a Primary	289-186	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
2	**SOLENOID VALVE 1SI-F1553TK2A (SI-304A)**									
	a Primary	289-186	Circuit 38	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 38	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
3	**SOLENOID VALVE 2CC-F243AB (CC-718)***									
	a Primary	289-108A	Circuit 4	Fuse FRN	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-108A	Circuit 4	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
4	**SOLENOID VALVE 2SI-F1561AB (SI-343)**									
	a Primary	289-186	Circuit 5	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 5	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
5	**SOLENOID VALVE 2SI-F605TK1A (NG-161A)**									
	a Primary	289-186	Circuit 16	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 16	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
6	**SOLENOID VALVE 2SI-F607TK2A (NG-162A)**									
	a Primary	289-186	Circuit 25	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 25	Fuse FRN		NA	NA	NA	NA	1 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
7	**SOLENOID VALVE 2SI-E634 (SI-323A)**									
	a Primary	289-186	Circuit 30	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
8	**SOLENOID VALVE 2SI-E638 (SI-324A)**									
	a Primary	289-186	Circuit 36	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 36	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
9	**SOLENOID VALVE 1CS-F1614AB (CVC-101)**									
	a Primary	289-147	Circuit 1	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
10	**SOLENOID VALVE 1SI-V2606 (SI-361)**									
	a Primary	289-147	Circuit 30	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
11	**SOLENOID VALVE 2SI-F1664TK1A (SI-387A)**									
	a Primary	289-186	Circuit 28	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 28	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
12	**CONTAINMENT PURGE ISOLAITON SOLENOID VALVES 2HV-B161A (CAP-103) & 2HV-B162A (CAP-104)**									
	a Primary	289-120	Circuit 26	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F1	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	IPSP & PREV MAINT 4 8 4 1 b	
13	**E2 ANALYZER VALVES A POWER**									
	a Primary	289-120	Circuit 7	Breaker EE	Note VI 2	10% of Type per R	NA	N/	S every 60 M	1, 2, 3, 4
	b Backup*	1564-2084	CB 2	Breaker P-15	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* Backup in Hydrogen Analyzer Panel, Breaker CB 2									
14	**CONTAINMENT SPRAY RIBER PUMP A SOLENOID VALVE 2CS-E608A (CS-129A)**									
	a Primary	289-120	Circuit 9	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
16	**SOLENOID VALVE 2SI-F1566TK2A (SI-308A)**									
	a Primary	289-186	Circuit 40	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 40	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
16	**SOLENOID VALVE 2SI-E633 (SI-323B)**									
	a Primary	289-186	Circuit 34	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 34	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
17	**SOLENOID VALVE 2SI-E635 (SI-326B)**									
	a Primary	289-186	Circuit 27	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
18	**SOLENOID VALVE FOR 1SI-1503A (SI-405A)**									
	a Primary	289-108a	Circuit 7	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	289-108A	Circuit 7	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

* Two fuses in-series, one each, + and - poles

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
19	**SOLENOID VALVE 2HV-8154A (CVR-201)**									
	a Primary	289-147	Circuit 14	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 14	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
20	**CONTAINMENT FAN COOLERS DAMPERS**									
	a Primary	289-120	Circuit 17	Breaker EE	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
21	**MOTOR HEATER LEADS AH-1 (3A-8A)**									
	a Primary	289-120	Circuit 13	Breaker EE	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
22	**MOTOR HEATER LEADS AH-1 (3C-8A)**									
	a Primary	289-120	Circuit 15	Breaker EE	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F5	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
23	**MOTOR HEATER LEADS E-16 (3A)***									
	a Primary	424-1139	Breaker	TED	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1139	Breaker	TED	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									
24	**MOTOR HEATER LEADS E-16 (3C)***									
	a Primary	424-1140	Breaker	TED	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1140	Breaker	TED	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER/ PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
26	**SOLENOID VALVE 2SI-F166ZTE1B (SI-303B)**									
	a Primary	289-187	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
26	**SOLENOID VALVE 2SI-F166ZTE2B (SI-304B)**									
	a Primary	289-187	Circuit 38	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 38	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
27	**SOLENOID VALVE 2WM-F157AB (GWM-104)**									
	a Primary	289-187	Circuit 7	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 7	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
28	**SOLENOID VALVE 2SI-F404TE1B (NG-141B)**									
	a Primary	289-187	Circuit 16	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 16	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
29	**SOLENOID VALVE 2SI-F408TE2B (NG-142B)**									
	a Primary	289-187	Circuit 25	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 25	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
30	**SOLENOID VALVE 2SI-E637 (SI-325B)**									
	a Primary	289-187	Circuit 30	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
31	**SOLENOID VALVE 2SI-E639 (SI-324B)**									
	a Primary	289-187	Circuit 27	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
32	**SOLENOID VALVE 2CH-F151SAB (RC-606)**									
	a Primary	289-187	Circuit 7	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 2	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
33	**SOLENOID VALVE 1CH-F2501AB (CVC-103)**									
	a Primary	289-148	Circuit 1	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
34	**SOLENOID VALVE 1SI-V2605 (SI-302)**									
	a Primary	289-148	Circuit 28	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 28	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
35	**SOLENOID VALVE 2BM-F108AB (BM-209)**									
	a Primary	289-187	Circuit 1	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
36	**CONTAINMENT PURGE ISOLATION SOLENOID VALVES 2HV-B154B (CAP-204) & 2HV-B153B (CAP-203)**									
	a Primary	289-121	Circuit 26	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
37	**SOLENOID VALVE 2HV-B157B (CVR-101)**									
	a Primary	289-148	Circuit 14	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 14	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODFS
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
38	**SOLENOID VALVE 2BD-F603 (BD-102A)**									
	a Primary	289-187	Circuit 6	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
39	**SOLENOID VALVE 2BD-F606 (BD-102B)**									
	a Primary	289-187	Circuit 8	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 8	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
40	**H2 ANALYZER VALVE B POWER***									
	a Primary	289-121	Circuit 7	Breaker EE	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	1564-2084	CB 2	Breaker P-15	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	* Backup in Hydrogen Analyzer Panel Breaker CB 2									
41	**CONTAINMENT SPRAY RISER PUMP B SOLENOID VALVE 2CS-E609B (CS-129B)**									
	a Primary	289-121	Circuit 9	Breaker EE	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-121A	F2	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
42	**CONTAINMENT SUMP ISOLATION VALVE 2WM-F101AB (SP-105)**									
	a Primary	289-187	Circuit 9	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 9	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
43	**SOLENOID VALVE 2SI-F156STK1B (SI-307B)**									
	a Primary	289-187	Circuit 28	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 28	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	
44	**SOLENOID VALVE 2SI-F1667TK2B (SI-308B)**									
	a Primary	289-187	Circuit 40	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 40	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
45	**SOLENOID VALVE 2SI-E632 (SI-326A)**									
	a Primary	289-187	Circuit 36	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 36	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
46	**SOLENOID VALVE 2SI-E634 (SI-326A)**									
	a Primary	289-187	Circuit 34	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 34	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
47	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F1601AB (PSL-106)**									
	a Primary	289-187	Circuit 29	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 29	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
48	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F1602AB (PSL-203)**									
	a Primary	289-187	Circuit 31	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
49	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F1603AB (PSL-303)**									
	a Primary	289-187	Circuit 33	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
50	**SOLENOID VALVES FOR 1SI-1501B (SI-405B)***									
	a Primary	289-109A	Circuit 9	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	289-109A	Circuit 9	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
51	**MOTOR HEATER LEADS AH-1 (3B-SB)**									
	a Primary	289-121	Circuit 13	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
52	**MOTOR HEATER LEADS AH-1 (3D-SB)**									
	a Primary	289-121	Circuit 15	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
53	**MOTOR HEATER LEADS E-16 (3B)***									
	a Primary	424-1141	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1141	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									
54	**MOTOR HEATER LEADS E-16 (3D)***									
	a Primary	424-1142	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1142	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
55	**CONTAINMENT FAN COOLERS DAMPERS**									
	a Primary	289-121	Circuit 17	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
56	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F601 (PSL-404A)**									
	a Primary	289-148A	Circuit 49	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 49	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
57	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F603 (PSL-404B)**									
	a Primary	289-148A	Circuit 45	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 45	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
58	**SAMPLE SYSTEM RECORDER PANEL**									
	a Primary	289-133	Circuit 35	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F12	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
59	**CONTAINMENT PURGE EXHAUST DAMPER SV-D22 (CAP-202) & SV-D23 (CAP-201)**									
	a Primary	289-133	Circuit 1	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F5	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
	c Primary	289-134	Circuit 1	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	d Backup	289-134A	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
60	**SOLENOID VALVE 2RC-F604 (RC-323)**									
	a Primary	289-133	Circuit 8	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.0.a.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	
61	**SOLENOID VALVE 7RC-F606 (RC-326)**									
	a Primary	289-133	Circuit 10	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
62	**SOLENOID VALVE 1CH-E2504B (CVC-218B)**									
	a Primary	289-148	Circuit 29	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 29	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
63	**SOLENOID VALVE 1CH-E2503A (CVC-213A)**									
	a Primary	289-147	Circuit 27	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
64	**SOLENOID VALVES 3CC-P1601A1 (CC-666A) & 3CC-P1606A1 (CC-679A)**									
	a Primary	289-150	Circuit 25	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-280	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
65	**SOLENOID VALVES 3CC-P1603A2 (CC-666A) & 3CC-P1607A2 (CC-680A)**									
	a Primary	289-150	Circuit 27	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-282	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
66	**RCP 1A INSTRUMENTATION AND ACCESSORIES***									
	a Primary	424-220	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-220	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4

* Two fuses in-series, one each, + and - poles

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER/ PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
67	**RCP 2A INSTRUMENTATION AND ACCESSORIES**									
	a Primary	424-240	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-240	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
68	**CRDM COOLER VALVES & DAMPERS**									
	a Primary	289-149	Circuit 14	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-1145	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
69	**CRDM COOLER UNITS INLET DAMPER**									
	a Primary	289-150	Circuit 20	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-1145	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
70	**SOLENOID VALVE 2CH-F151AB (RC-402)**									
	a Primary	289-150	Circuit 6	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-326	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
71	**SOLENOID VALVE 7BM-P237 (GWM-101)**									
	a Primary	289-135	Circuit 11	Breaker EE	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-401	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
72	**SOLENOID VALVE 6BI-F1643 (BI-342)**									
	a Primary	289-150	Circuit 1	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-699	F3	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER/ PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
73	**SOLENOID VALVES 3CC-P150281 (CC-665B) & 3CC-P150681 (CC-679B)**									
	a Primary	289-150	Circuit 26	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-281	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
74	**SOLENOID VALVES 3CC-P150482 (CC-666B) & 3CC-P150882 (CC-680B)**									
	a Primary	289-150	Circuit 28	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-283	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
75	**RCP 1B INSTRUMENTATION AND ACCESSORIES***									
	a Primary	424-230	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-230	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
76	**RCP 2B INSTRUMENTATION AND ACCESSORIES***									
	a Primary	424-250	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-250	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
77	**SOLENOID VALVE 2CA-E604B (ARM-109)**									
	a Primary	289-148	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
78	**SOLENOID VALVE 1CH-E2606A (CVC-216A)**									
	a Primary	289-147	Circuit 31	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIR'D
79	SOLENOID VALVE 1CH-E2566B (CVC-216B)									
	a Primary	289-148	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
80	SOLENOID VALVE 7WM-E677 (SP-102B)*									
	a Primary	5817-6368	CS 2	Breaker CH	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	5817-6368	Circuit M4	Breaker QO	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 15a breakers on Skid #4 (5817-6368)									
81	SOLENOID VALVES 2RC-2557A (RC-3184), 2RC-2559A (RC-1815), 2RC-2561A (RC-3186)									
	a Primary	289-212	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F2	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
82	SOLENOID VALVES 2RC-2558B (RC-3183), 2RC-2560B (RC-1814), 2RC-2562B (RC-1817)									
	a Primary	289-213	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F1	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
83	SPACE HEATER 1SI-V1566TK1A (SI-371A)									
	THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED.									
84	LIMIT SWITCH & INDICATING LIGHTS 1SI-V1566TK1A (SI-371A)									
	a Primary	289-147	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING NUMBER OR DESCRIPTION	IDENTIFYING NUMBER	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SUEV IS REQUIRED
85	SPACE HEATER 1SI-V1507TK2A (SI-332A)									
		THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED.								
86	LIMIT SWITCH INDICATING LIGHTS 1SI-V1507TK2A (SI-332A)									
	a Primary	289-147	Circuit 8	Breaker CD	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 8	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
87	RCP 1A SPEED SENSOR									
	a Primary	289-126	Circuit 5	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-126A	F6	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
88	RCP 2A SPEED SENSOR									
	a Primary	289-126	Circuit 7	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-126A	F5	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
89	RADIATION REMOVAL UNIT E-13 (3A) THERMISTOR									
	a Primary	289-133	Circuit 24	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
90	CONTAINMENT COOLING UNIT CONDENSING POT FLOW DETECTOR									
	a Primary	289-169	Circuit 3	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-829	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIR'D
91	**PRESSURIZER SPRAY VALVES 1RC-F1601A (RC-301A) & 1RC-F1602B (RC-301B)**									
	a Primary	209-1A6	Circuit 6	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2A6	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
92	**MOVABLE INCORE DETECTOR DRIVE MACHINE #1 CONTROL**									
	THE MOVABLE INCORE DETECTOR DRIVE MACHINE #1 CONTROL HAS BEEN DISCONNECTED.									
	BOTH THE BREAKER AND FUSE ARE SPARED.									
93	**MOVABLE INCORE DETECTOR SWITCHING DEVICE**									
	THE MOVABLE INCORE DETECTOR SWITCHING DEVICE HAS BEEN DISCONNECTED.									
	BOTH THE BREAKER AND THE FUSE HAVE BEEN SPARED.									
94	**REFUELING MACHINE CONTROL**									
	a Primary	8017-4241	Fuse	TRS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	8017-4241	Fuse	KTN/KTNR		NA	NA	NA	NA	1, 2, 3, 4
95	**SPACE HEATER 1SI-V1504TF1B (SI-331B)**									
	THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED.									
96	**LIMIT SWITCH & INDICATING LIGHTS 1SI-V1504TE1B (SI-331B)**									
	a Primary	209-1A8	Circuit 6	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-1A8A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
103	CONTAINMENT AIR LOCKS DOOR POSITION INDICATOR									
	a Primary	209-148	Circuit 33	Breaker CD	Note VI 2	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	209-148A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
104	POSITION INDICATOR 2WM-F100AB (WM-104)									
	a Primary	209-133	Circuit 36	Breaker EE	Note VI 2	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	424-600 & 608	Circuit 2	Fuse NON		NA	NA	NA	NA	1, 2, 3, 4
105	POSITION INDICATOR 2WM-F107AB (GWM-104)									
	a Primary	209-133	Circuit 35	Breaker EE	Note VI 2	10% of Type per R	NA	NA	1 every 60 M	1, 2, 3, 4
	b Backup	424-600 & 608	Circuit 19	Fuse NON		NA	NA	NA	NA	1, 2, 3, 4
106	MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL									
	THE MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL HAS BEEN DISCONNECTED. BOTH THE FUSE AND THE BREAKER HAVE BEEN SPARED.									
107	CHDM COOLING UNITS VIBRATION SWITCHES*									
	a Primary	209-116A 424-771 & 2020	Fuse	FB		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	209-116A 424-771 & 2020	Fuse	FB		NA	NA	NA	NA	1, 2, 3, 4

* Two fused breakers, one each, + and - poles.

TABLE 3.8-1 (Continued)

NOTES

I. 6.9 kV POWER FROM MEDIUM VOLTAGE SWITCHGEAT

I.1) Refer to drawing LOU-1564-B-289 sheet and line numbers as indicated.

I.2) Refer to G.E. curve in GEI-68751A and GEI-19959 instruction books for IAC 66M3A and IAC57 relays.

I.3) Relay testings to be performed in accordance with vendor's relay calibration procedures.

TABLE 3.8-1 (Continued)

NOTES (Continued)

II. 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR

II.1) Refer to drawing LOU-1564-B-289 sheet and line numbers as indicated.

II.2) Refer to G.E. curve GES-6032A for ECS programmer.

II.3) Refer to G.E. curve in GEI-19959 instruction book for IAC57 relays.

II.4) Primary breaker is equipped with two sets of protective devices.

II.5) Refer to G.E. curve GES-7005A for IAC77 relays.

II.6) Relay and programmer testing to be performed in accordance with vendor's calibration procedures.

TABLE 3.8-1 (Continued)

NOTES (Continued)

IV. VOLTS POWER FROM MCCs

IV.1) Refer to drawing LOU-1564-B-289 sheet numbers as indicated. Circuit breakers with adjustable instantaneous magnetic trip element are set on the basis of two times the motor locked rotor current. For static loads the setpoint is the minimum available.

IV.2) Refer to the appropriate curves as follows:

EF, EH - ITE/Gould TD8087
EF3 - ITE/Gould Instantaneous Trip
FJ Breaker - ITE/Gould TD4948
JL Breaker - ITE/Gould TD4950
TED Breaker - GE GES-6114A

IV.3) Circuit breaker testing to be performed in accordance with vendor's molded case breaker calibration procedures.

IV.4) Fuse testing to be performed in accordance with vendor's nondestructive resistance test procedures.

IV.5) Backup breaker is equipped with two sets of protective devices.

IV.6) Refer to G.E. curve GES-6032A for ECS programmer.

IV.7) Refer to G.E. curve GES-7004A for IAC66T relays.

IV.8) Relay and programmer testing to be performed in accordance with vendor's calibration procedures.

IV.9) Equivalent breakers and fuses may be substituted for the types specified.

TABLE 3.8-1 (Continued)

NOTES (Continued)

V. 208 VOLTS AND 120 VOLTS CONTROL POWER FROM PDPs or MCCs

V.1) For trip setpoint, refer to drawing LOU-1564-B-289 sheet numbers as indicated.

V.2) Below is listing of molded case breakers by type giving the curve number for time-current characteristic:

TYPE	MANUFACTURER	CURVE NO.
EE, EF	ITE	TD 4947
CD	Heineman	CD, CE, CF
TEB	GE	GES-6122B, 6122
TED	GE	GES-6119C
AM	Heineman	AM
QO	Square D	630-2
CH	Cutler Hammer	Safety Breaker Curve

V.3) Equivalent breakers and fuses may be substituted for the types specified.

TABLE 3.8-1 (Continued)

NOTES (Continued)

VI. 120 VOLTS CONTROL POWER FROM PDPs or MCCs

VI.1) For trip setpoint, refer to drawing LOU-1564-B-289 sheet numbers as indicated.

VI.2) Below is listing of molded case breakers by type giving the curve number for time-current characteristic:

TYPE	MANUFACTURER	CURVE NO.
EE, EF	ITE	TD 4947
CD	Heineman	CD, CE, CF
TEB	GE	GES-6122B, 6122
TED	GE	GES-6119C
AM	Heineman	AM
QO	Square D	630-2
CH	Cutler Hammer	Safety Breaker Curve

VI.3) Equivalent breakers and fuses may be substituted for the types specified.

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND BYPASS DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection and bypass devices, integral with the motor starter, of each valve listed in Table 3.8-2 shall be OPERABLE.

APPLICABILITY: Whenever the motor operated valve is required to be OPERABLE.

ACTION:

With one or more of the thermal overload protection and/or bypass devices inoperable, declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) for the affected valve(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2 The above required thermal overload protection and bypass devices shall be demonstrated OPERABLE.

a. At least once per 18 months, by the performance of a CHANNEL FUNCTIONAL TEST of the bypass circuitry for those thermal overload devices which are either:

   1. Continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, or

   2. Normally in force during plant operation and bypassed under accident conditions.

b. At least once per 18 months by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of:

   1. All thermal overload devices which are not bypassed, such that each nonbypassed device is calibrated at least once per 6 years.

   2. All thermal overload devices which are continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, and thermal overload devices normally in force and bypassed under accident conditions such that each thermal overload is calibrated and each valve is cycled through at least one complete cycle of full travel with the motor-operator when the thermal overload is OPERABLE and not bypassed, at least once per 6 years.

TABLE 3.8-2

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION AND/OR BYPASS DEVICES

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1541A2 (SI-139A)	LPSI Flow Control	Yes
2SI-V1543B2 (SI-138A)	LPSI Flow Control	Yes
2SI-V1550A1 (SI-225A)	HPSI Flow Control	Yes
2SI-V1542A3 (SI-227A)	HPSI Flow Control	Yes
3CH-V112A/B (BAM-133)	Reactor Makeup Bypass	Yes
2SI-V1546A2 (SI-226A)	HPSI Flow Control	Yes
2SI-V1548A4 (SI-228A)	HPSI Flow Control	Yes
1SI-V1504A (SI-401A)	RCS Loop 2 Shutdown Cooling Isolation	No
1SI-V1505TK1A (SI-331A)	Safety Inj. Tank 1A Isolation	Yes
1SI-V1507TK2A (SI-332A)	Safety Inj. Tank 2A Isolation	Yes
2HV-B156A (SBV-110A)	SBVS A Train Outlet	Yes
2HV-B160A (SBV-101A)	SBVS A Train Inlet	Yes
2HV-B162A (SBV-114A)	SBVS A Exhaust	Yes
2HV-B164A (SBV-113A)	SBVS A Recirc.	Yes
3HV-B196A (HVC-201A)	Control Room Em. Filter Unit North	Yes
3HV-B201A (HVC-203A)	Control Room Em. Filter Unit South	Yes

TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
3HV-B198A (HVC-202A)	Control Room Em. Filter Unit North	Yes
3HV-B203A (HVC-204A)	Control Room Em. Filter Unit South	Yes
2SI-V327A (SI-407A)	RCS Loop 2 Shutdown Cooling Isolation	No
2SI-FM318A (SI-415A)	Shutdown Cooling Flow Control	No
2SI-V809A (SI-121A)	SI Pumps A Min. Flow Isol.	Yes
2HV-F253A (CAR-201A)	CARS Suction	Yes
2SI-V1549A1 (SI-139B)	LPSI Flow Control	Yes
2SI-V1539B1 (SI-138B)	LPSI Flow Control	Yes
2SI-V1545B1 (SI-225B)	HPSI Flow Control	Yes
2SI-V1547B3 (SI-227B)	HPSI Flow Control	Yes
3CH-V107B (BAM113B)	Boric Acid Gravity Feed	Yes
2SI-V802B (SI-120B)	SI Pumps B Min. Flow Isol.	Yes
2SI-V1540B2 (SI-226B)	HPSI Flow Control	Yes
1SI-V1502B (SI-401B)	RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1506TK1B (SI-331B)	Safety Inj. Tank 1B Isolation	Yes
1SI-V1508TK2B (SI-332B)	Safety Inj. Tank 2B Isolation	Yes
2HV-B159B (SBV-110B)	SBVS B Train Outlet	Yes
2HV-B161B (SBV-101B)	SBVS B Train Inlet	Yes
2HV-B163B (SBV-114B)	SBVS B Exhaust	Yes
2HV-B165B (SBV-113B)	SBVS B Recirc.	Yes

TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
3HV-B197B (HVC-201B)	Control Room Em. Filter Unit North	Yes
3HV-B200B (HVC-203B)	Control Room Em. Filter Unit South	Yes
2CH-V123A/B (CVC-183)	Volume Control Tank Disch.	Yes
3HV-B199B (HVC-202B)	Control Room Em. Filter Unit North	Yes
3HV-B202B (HVC-204B)	Control Room Em. Filter Unit South	Yes
2SI-V326B (SI-407B)	RCS Loop 1 Shutdown Cooling Isolation	No
2SI-FM349B (SI-415B)	Shutdown Cooling Flow Control	No
2SI-V1544B4 (SI-228B)	HPSI Flow Control	Yes
2HV-F2548 (CAR-201B)	CARS Suction	Yes
2SI-V810A (SI-120A)	S.I. Pumps A Min. Flow Isol.	Yes
3CH-V106A (BAM-113A)	Boric Acid Gravity Feed	Yes
2SI-V801-B (SI-121B)	S.I. Pumps B Min. Flow Isol.	Yes
2HV-B167A (CAR-204A)	CARS Disch.	Yes
3HV-B206A (HVR-313A)	CVAS A Train Outlet	Yes
3HV-3208A (HVR-304A)	CVAS A Train Inlet	Yes
2MS-V670 (MS-120A)	Steam Line 1 Upstream Normal Drain	No
2MS-V671 (MS-119A)	Steam Line 1 Upstream Emerg. Drain	No

TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1534 (SI-219A)	HPSI Hdr. A Orifice Bypass	No
2SI-V1556 (SI-506A)	Hot Leg Injection	No
2SI-V1557 (SI-502A)	Hot Leg Injection	No
2HV-B168B (CAR-204B)	CARS Disch.	Yes
3HV-B207B (HVR-313B)	CVAS B Train Outlet	Yes
3HV-B209B (HVR-304B)	CVAS B Train Inlet	Yes
2MS-V663 (MS-120B)	Steam Line 2 Upstream Normal Drain	No
2MS-V664 (MS-119B)	Steam Line 2 Upstream Emerg. Drain	No
2SI-V811B (SI-219B)	HPSI Hdr. B Orifice Bypass	No
2SI-V1558 (SI-502B)	Hot Leg Injection	No
2SI-V1559 (SI-506B)	Hot Leg Injection	No
- (MS-416)	Emerg. Feed Water Pump Turbine Stop	No
1SI-V1501B (SI-405B)	Hyd. Pump Motor RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1503A (SI-405A)	Hyd. Pump Motor RCS Loop 2 Shutdown Cooling Isolation	No

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The Surveillance Requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The OPERABILITY of the motor-operated valves thermal overload protection and/or bypass devices ensures that these devices will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the OPERABILITY of these devices are in accordance with Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.

ATTACHMENT B

NPF-38-122

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

INSERT

LIMITING CONDITION FOR OPERATION

EACH

REMOVE

3.6.3 The containment isolation valves specified in Table 3.6-2 shall be OPERABLE with isolation times as shown in Table 3.6-2.

*

INSERT

REMOVE

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

REMOVE

With one or more of the isolation valve(s) specified in Table 3.6-2 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or

b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or

c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or

d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

INSERT

EACH CONTAINMENT

SURVEILLANCE REQUIREMENTS

REMOVE

4.6.3.1 The isolation valves specified in Table 3.6-2 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by performance of a cycling test and verification of isolation time.

ADD

THE PROVISIONS OF SPECIFICATION 3.0.4 DO NOT APPLY.

*LOCKED OR SEALED CLOSED VALVES MAY BE OPENED ON AN INTERMITTENT BASIS UNDER ADMINISTRATIVE CONTROL.

SURVEILLANCE REQUIREMENTS (Continued)

INSERT — CONTAINMENT

4.6.3.2 Each isolation valve specified in Table 3.6-2 (REMOVE) shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that on a containment isolation test signal, each isolation valve actuates to its isolation position.

b. Verifying that on a containment Radiation-High test signal, each containment purge valve actuates to its isolation position.

REMOVE — Table 3.6-2

4.6.3.3 The isolation time of each power-operated or automatic valve of (REMOVE) specification 4.0.5.

INSERT — CONTAINMENT ISOLATION

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

c. Digital computer channels - the exercising of the digital computer hardware using diagnostic programs and the injection of simulated process data into the channel to verify OPERABILITY including alarm and/or trip function.

INSERT: FOR VALVES THAT ARE OPEN UNDER ADMINSTRATIVE CONTROL AS PERMITTED BY

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

a. All penetrations required to be closed during accident conditions are either:

1. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

2. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except as provided in Table 3.6-2 of Specification 3.6.

REMOVE

REMOVE

b. All equipment hatches are closed and sealed.

c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,

d. The containment leakage rates are within the limits of Specification 3.6.1.2, and

e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CONTROLLED LEAKAGE

1.8 CONTROLLED LEAKAGE shall be the seal water flow supplied from the reactor coolant pump seals.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

INSERT

FOR VALVES THAT ARE OPEN UNDER ADMINISTRATIVE CONTROL AS PERMITTED BY

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-2 of Specification 3.6.3.

REMOVE

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. After each closing of each penetration subject to Type B testing, except containment air locks, if opened following a Type A or B test, by leak rate testing the seal with gas at P_a, 44 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Specification 4.6.1.2d for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 L_a.

* Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	ACTION
1. Containment Pressure	2	1	29,30
2. Reactor Coolant Outlet Temperature - T_{Hot} (Wide Range)	2	1	29,30
3. Reactor Coolant Inlet Temperature - T_{Cold} (Wide Range)	2	1	29,30
4. Reactor Coolant Pressure - Wide Range	2	1	29,30
5. Pressurizer Water Level	2	1	29,30
6. Steam Generator Pressure	2/steam generator	1/steam generator	29,30
7. Steam Generator Water Level - Narrow Range	2/steam generator	1/steam generator	29,30
8. Steam Generator Water Level - Wide Range	1/steam generator**	1/steam generator**	29,30
9. Refueling Water Storage Pool Water Level	2	1	29,30
10. Emergency Feedwater Flow Rate	1/steam generator**	1/steam generator**	29,30
11. Reactor Cooling System Saturation Margin Monitor	2	1	29,30
12. Safety Valve Position Indicator	1/valve	1/valve	29,30
13. Containment Water Level (Narrow Range)	1***	1***	29,30
14. Containment Water Level (Wide Range)	2	1	29,30
15. Core Exit Thermocouples	4/core quadrant	2/core quadrant	29,30
16. Containment Isolation Valve Position Indicators*	1/valve#	1/valve#	29,30
17. Condensate Storage Pool Level	2	1	29,30
18. Reactor Vessel Level Monitoring System	2****	1	31,32

INSERT — GOVERNED BY SPECIFICATION 3.6.3.

#If the containment isolation valve is declared inoperable and the provisions of Specification 3.6.3 are complied with, position indicators may be inoperable; otherwise, comply with the provisions of Specification 3.3.3.6.

*Containment isolation valves listed in Table 3.6-2 (Category 1). — REMOVE

**These corresponding instruments may be substituted for each other.

****

TABLE 3.6-2

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (CIAS)			
1	2MS-V670 (MS-120A)	Main Steam Drain	10
1	2MS-V671 (MS-119A)	Main Steam Drain	10
2	2MS-V663 (MS-120B)	Main Steam Drain	10
2	2MS-V664 (MS-119B)	Main Steam Drain	10
5	2BD-F603 (BD102A)	Steam Generator Blowdown	10
5	2BD-F604 (BD103A)	Steam Generator Blowdown	10
6	2BD-F605 (BD102B)	Steam Generator Blowdown	10
6	2BD-F606 (BD103B)	Steam Generator Blowdown	10
9	21A-F601A/B (IA909)	Instrument Air	10
14	2NG-F604 (NG157)	Nitrogen Supply	5
26	2CH-F1518A/B (CVC109)	CVCS Letdown	10
26	1CH-F2501A/B (CVC103)	CVCS Letdown	10
28	2SL-F1504A/B (PSL107)	RCS Sample	10
28	2SL-F1501A/B (PSL105)	RCS Sample	10
29	2SL-F1505A/B (PSL204)	Pressurizer Surge Line Sample	10

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (Continued)			
29	2SL-F1502A/B (PSL203)	Pressurizer Surge Line Sample	10
30	2SL-F1506A/B (PSL304)	Pressurizer Sample	10
30	2SL-F1503A/B (PSL303)	Pressurizer Sample	10
31	2WM-F158A/B (GWM105)	Waste Gas Vent Header	7
31	2WM-F157A/B (GWM104)	Waste Gas Vent Header	7
33	2SI-E655 (SI-6011)	SIS Sampling	5
33	2SI-E654 (SI-6012)	SIS Sampling	5
42	2WM-F105A/B (SP106)	Containment Sump Pump Discharge	7
42	2WM-F104A/B (SP105)	Containment Sump Pump Discharge	7
43	2BM-F109A/B (BM110)	Reactor Drain Tank Outlet	7
43	2BM-F108A/B (BM109)	Reactor Drain Tank Outlet	7
44	2CH-F1512A/B (CVC401)	RCP Bleedoff	10
44	2CH-F1513A/B (RC606)	RCP Bleedoff	10
47	2HV-F254B (CAR201B)	CARS Exhaust	10
48	2HV-F253A (CAR201A)	CARS Exhaust	10
49	2CA-E605A (ARM110)	Containment Atmosphere Monitor	5

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (Continued)			
49	2CA-E604B (ARM109)	Containment Atmosphere Monitor	5
49	2CA-E606E (ARM103)	Containment Atmosphere Monitor	5
52	2SL-F602 (PSL406A)	Steam Generator Blowdown Sample	10
52	2SL-F601 (PSL404A)	Steam Generator Blowdown Sample	10
53	2HV-E634A (CVR401A)	Containment Vacuum Relief Instrument Line	5
59	2SI-F156[illegible]/B (SI343)	SIT Drain to RWSP	10
60	2FP-F127 (FP601A)	Containment Fire Water Header	10
61	2FP-F129 (FP601B)	Containment Fire Water Header	10
65	2HV-E633B (CVR401B)	Containment Vacuum Relief Instrument Line	5
66	2HA-E609A (HRA110A)	Hydrogen Analyzer	5
66	2HA-E608A (HRA109A)	Hydrogen Analyzer	5
66	2HA-E610A (HRA126A)	Hydrogen Analyzer	5
67	2HA-E629B (HRA110B)	Hydrogen Analyzer	5
67	2HA-E628B (HRA109B)	Hydrogen Analyzer	5
67	2HA-E630B (HRA126B)	Hydrogen Analyzer	5

DELETE

TABLE 3.6-2 (Continue

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
1. Containment Isolation (Continued)			
38	2SI-F604 (PSL4068)	Steam Generator Blowdown Sample	10
68	2SI-F603 (PSL404B)	Steam Generator Blowdown Sample	10
2. Containment Purge (CIAS/CPIS)			
10	2HV-B151A (CAP103)	Containment Purge Inlet	5
10	2HV-B152A (CAP104)	Containment Purge Inlet	5
11	2HV-B154B (CAP204)	Containment Purge Outlet	5
11	2HV-B153B (CAP203)	Containment Purge Outlet	5
47	2HV-F228A (CAR 200B)	Containment Pressure Exhaust	5
47	2HV-F229B (CAR 202B)	CARS Exhaust	5
3. Safety Injection Actuation Signal (SIAS)			
26	1CH-F2501A/B(CVC103)	CVCS Letdown	10
32	2SI-L101A (SI 602A)	SI from SIS Sump	N.A.
33	2SI-L102B (SI 602B)	SI from SIS Sump	N.A.
4. Main Steam Isolation Signal (MSIS)			
1	2MS-V602A (MS 124A)	Main Steam	N.A.
1	2MS-F714 (SSL 301A)	Main Steam Sample	N.A.
2	2MS-V604B (MS 124B)	Main Steam	N.A.

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
4. Main Steam Isolation Signal (MSIS) (Continued)			
2	2MS-F715 (SSL 301B)	Main Steam Sample	N.A.
3	2FW-V823A (FW 184A)	Main Feedwater	N.A.
3	2FW-V847B (EFW 229A)	Emergency Feedwater	N.A.
3	2FW-V848A (EFW 228A)	Emergency Feedwater	N.A.
3	2FW-V851B (EFW 224A)	Emergency Feedwater	N.A.
3	2FW-V852A (EFW 223A)	Emergency Feedwater	N.A.
4	2FW-V824B (FW 184B)	Main Feedwater	N.A.
4	2FW-V849A (EFW 229B)	Emergency Feedwater	N.A.
4	2FW-V850B (EFW 228B)	Emergency Feedwater	N.A.
4	2FW-V853A (EFW 224B)	Emergency Feedwater	N.A.
4	2FW-V854B (EFW 223B)	Emergency Feedwater	N.A.
5. Contain Spray Actuation Signal (CSAS)			
23	2CC-F146A/B (CC 641)	CCW to RCPs and CEDM Cooler	5
24	2CC-F147A/B (CC 713)	CCW from RCPs and CEDM Cooler	5
24	2CC-F243A/B (CC 710)	CCW from RCPs and CEDM Cooler	5

DELETED

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual			
1	2MS-V768 (MS1244A)*	MSIV Bypass	N.A.
1	2MS-V697 (NG412A)	Main Steam N_2 Blanket	N.A.
1	2MS-V611A (MS401A)*	Steam to Emergency Steam Generator Feed Pump Turbine	N.A.
1	2MS-PM629A (MS116A)*	Atmospheric Steam Dump	N.A.
2	2MS-V698 (NG412B)	Main Steam N_2 Blanket	N.A.
2	2MS-V612B (MS401B)*	Steam to Emergency Steam Generator Feed Pump Turbine	N.A.
2	2MS-PM630B (MS116B)*	Atmospheric Steam Dump	N.A.
2	2MS-V710B (MS1244B)*	MSIV Bypass	N.A.
7	2DW-V609A/B (PMU151)*	Demineralized Water	N.A.
8	2SA-V601A/B (SA908)*	Station Air	N.A.
12	2HV-B157B (CVR 102)*	Vacuum Relief	N.A.
13	2HV-B156A (CVR 201)*	Vacuum Relief	N.A.
15	2CC-F157B2 (CC 807B)*	CCW to Containment Fan Cooler Units	N.A.

DELETE

TABLE 3.5-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
16	2CC-F158B2 (CC 823B)*	CCW from Containment Fan Cooler Units	N.A.
17	2CC-F158A1 (CC 823A)*	CCW from Containment Fan Cooler Units	N.A.
18	2CC-F154A1 (CC 807A)*	CCW to Containment Fan Cooler Units	N.A.
19	2CC-F159A2 (CC 822A)*	CCW from Containment Fan Cooler Units	N.A.
20	2CC-F155A2 (CC 808A)*	CCW to Containment Fan Cooler Units	N.A.
21	2CC-F156B1 (CC 808B)*	CCW to Containment Fan Cooler Units	N.A.
22	2CC-F160B1 (CC 822B)*	CCW from Containment Fan Cooler Units	N.A.
27	2CH-F1529A/B (CVC 209)*	CVCS Charging Line	N.A.
27	1CH-F2505A (CVC 216A)*	CVCS Auxiliary Spray	N.A.
27	1CH-F2505B (CVC 216B)*	CVCS Auxiliary Spray	N.A.
27	1CH-F2504B (CVC 218B)*	CVCS Charging Line	N.A.
27	1CH-F2503A (CVC 218A)*	CVCS Charging Line	N.A.

DELETE

TABLE 3.6-2 (Contin

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
34A&B	2CS-F305A (CS 125A)*	Containment Spray	N.A.
34A&B	2CS-E608A (CS 129A)*	Containment Spray	N.A.
35A&B	2CS-F306B (CS 125B)*	Containment Spray	N.A.
35A&B	2CS-E609B (CS 129B)*	Containment Spray	N.A.
36	2SI-V1549A1 (SI 139B)*	SI from LPSI Pumps	N.A.
37	2SI-V1539B1 (SI 138B)*	SI from LPSI Pumps	N.A.
38	2SI-V1541A2 (SI 139A)*	SI from LPSI Pumps	N.A.
39	2SI-V1543B2 (SI 138A)*	SI from LPSI Pumps	N.A.
40	2SI-V326B (SI407B)*	Shutdown Cooling	N.A.
40	1SI-V1501B (SI405B)*	Shutdown Cooling	N.A.
41	2SI-V327A (SI407A)*	Shutdown Cooling	N.A.
41	1SI-V1503A (SI405A)*	Shutdown Cooling	N.A.
45	2HV-B187B (CAR101B)*	CARS Makeup	N.A.
46	2HV-B188A (CAR101A)*	CARS Makeup	N.A.

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
48	2HV-B190A (CAR202A)*	CARS Exhaust	N.A.
51	2FS-V145A/B (FS405)*	Refueling Cavity Purification Inlet	N.A.
51	2FS-V144A/B (FS406)*	Refueling Cavity Purification Inlet	N.A.
53	2CA-V600 (CVR 301A)*	Instrument H&V	N.A.
55	2SI-V1550A1 (SI 225A)*	SIS from HPSI Loop 1A	N.A.
55	2SI-V1545B1 (SI 225B)*	SIS from HPSI Loop 1A	N.A.
56	2SI-V1546A2 (SI 226A)*	SIS from HPSI Loop 1B	N.A.
56	2SI-V1540B2 (SI 226B)*	SIS from HPSI Loop 1B	N.A.
57	2SI-V1542A3 (SI 227A)*	SIS from HPSI Loop 2A	N.A.
57	2SI-V1547B3 (SI 227B)*	SIS from HPSI Loop 2A	N.A.
58	2SI-V1548A4 (SI 228A)*	SIS from HPSI Loop 2B	N.A.
58	2SI-V1544B4 (SI 228B)*	SIS from HPSI Loop 2B	N.A.
59	2SI-V1570 (SI344)*	SIT Drain to RWSP	N.A.
62	2FS-V165A/B (FS416)	Refueling Cavity Drain	N.A.

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
6. Manual/Remote Manual (Continued)			
62	2FS-V164A/B (FS415)	Refueling Cavity Drain	N.A.
63	2SA-V114 (LRT109)	ILRT Connection	N.A.
63	2SA-V604 (LRT110)	ILRT Connection	N.A.
65	2SA-V609 (LRT202)	ILRT Test Connection	N.A.
65	2SA-V611 (LRT204)	ILRT Test Connection	N.A.
65	2SA-V610 (LRT201)	ILRT Test Connection	N.A.
65	2SA-V612 (LRT203)	ILRT Test Connection	N.A.
65	2SA-V620 (LRT2011)	ILRT Test Connection	N.A.
65	2SA-V621 (LRT 2031)	ILRT Test Connection	N.A.
65	2SA-V601 (CVR 3018)*	Instrument H&V	N.A.
69	2SI-V1556 (SI 506A)*	SI Hot Leg Injection	N.A.
70	2SI-V1559 (SI 506B)*	SI Hot Leg Injection	N.A.
71	2DW-V642 (CMU244)*	Demineralized Water	N.A

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
7. Other			
1	2NG-V621-1 (NG 411A)	For Steam Generator Nitrogen Blanket	N.A.
2	2NG-621-2 (NG 411B)	For Steam Generator Nitrogen Blanket	N.A.
7	2DW-V610 (PMU162)	Demineralized Water Check Valve	N.A.
8	2SA-V602A/B (SA909)	Station Air Check Valve	N.A.
9	2IA-V602A/B (IA910)	Instrument Air Check Valve	N.A.
12	2HV-B181B (CVR 102)	Vacuum Relief	N.A.
13	2HV-B180A (CVR 202)	Vacuum Relief	N.A.
14	2NG-V666 (NG158)	Containment N_2 Supply Check Valve	N.A.
23	2CC-V242A/B (CC644)	CCW to RCPS and CEDM Cooler Check Valve	N.A.
27	1CH-V2506 (CVC 219)	CVCS Charging Line	N.A.
34A&B	2CS-V103A (CS 128A)	Containment Spray	N.A.
35A&B	2CS-V104B (CS 128B)	Containment Spray	N.A.
36	1SI-V1517RL1A (SI 143B)	SI from LPSI Pumps	N.A.

DELETE

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
7. Other (Continued)			
37	1SI-V1518RL1B (SI 142B)	SI from LPSI Pumps	N.A.
38	1SI-V1519RL2A (SI 143A)	SI from LPSI Pumps	N.A.
39	1SI-V1520RL2B (SI 142A)	SI from LPSI Pumps	N.A.
45	2HV-V185B (CAR102B)	CARS Makeup Check Valve	N.A.
46	2HV-V184A (CAR102A)	CARS Makeup Check Valve	N.A.
49	2CA-V607 (ARM104)	Containment Atmosphere Monitor Check Valve	N.A.
53	#3401	Containment Vacuum Relief Instrument Line Excess Flow Check Valve	N.A.
55	1SI-V1522RL1A (SI 241)	SIS from HPSI Loop 1A	N.A.
56	1SI-V1523RL1B (SI 242)	SIS from HPSI Loop 1B	N.A.
57	1SI-V1524RL2A (SI 243)	SIS from HPSI Loop 2A	N.A.
58	1SI-V1525RL2B (SI 244)	SIS from HPSI Loop 2B	N.A.
60	2FP-V128 (FP602A)	Containment Fire Water Header Check Valve	N.A.
61	2FP-V130 (FP602B)	Containment Fire Water Header Check Valve	N.A.

DELETE

TABLE 3.6-2 (Continued)

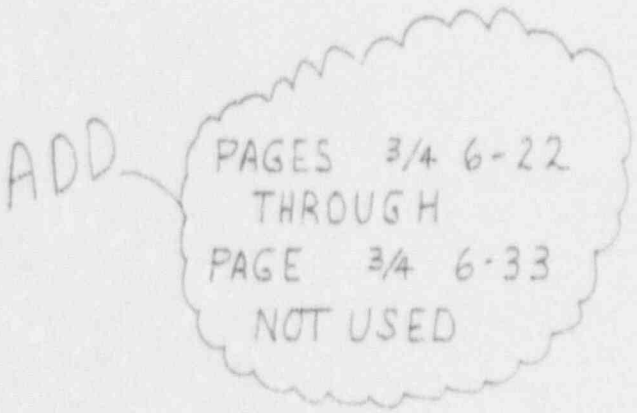
CONTAINMENT ISOLATION VALVES**

PENETRATION NUMBER	VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
7. Other (Continued)			
65	#3401	Containment Vacuum Relief Excess Flow Check Valve	N.A.
66	2HA-E637A (HRA128A)	Hydrogen Analyzer Check Valve	N.A.
67	2HA-E638B (HRA128B)	Hydrogen Analyzer Check Valve	N.A.
69	1SI-V2506 (SI 510A)	SI Hot Leg Injection	N.A.
70	1SI-V2508 (SI 510B)	SI Hot Leg Injection	N.A.
71	2DW-V643 (CMU245)	Demineralized Water Check Valve	N.A.

*May be opened on an intermittent basis under administrative control.

**The provisions of Specification 3.0.4 are not applicable.

DELETE


ADD
PAGES 3/4 6-22
THROUGH
PAGE 3/4 6-33
NOT USED

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through GDC 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with (1) zirconium-water reactions, (2) radiolytic decomposition of water, and (3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

3/4.6.5 VACUUM RELIEF VALVES

The OPERABILITY of the primary containment to annulus vacuum relief valves with a setpoint of less than or equal + 0.3 psid ensures that the containment internal pressure differential does not become more negative than the containment design limit for internal pressure differential of 0.65 psi. This situation would occur, for the worst case, if all containment heat removal systems (containment spray, containment cooling, and other HVAC systems) were inadvertantly started with only one vacuum relief valve OPERABLE.

ADD

The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

"CONTAINMENT ISOLATION VALVES" PREVIOUSLY TABLE 3.6-2, HAVE BEEN INCORPORATED INTO PLANT PROCEDURE UNT-005-026

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. Less than or equal to L_a, 0.50 percent by weight of the containment air per 24 hours at P_a, 44 psig, or

2. Less than or equal to L_t, 0.25 percent by weight of the containment air per 24 hours at a reduced pressure of P_t, 22 psig.

b. A combined leakage rate of less than or equal to 0.60 L_a for all penetrations and valves subject to Type B and C tests, as identified in Table 3.6-1, when pressurized to P_a.

REMOVE

REMOVE

c. A combined bypass leakage rate of less than or equal to 0.06 L_a for all penetrations identified in Table 3.6-1 as secondary containment bypass leakage paths when pressurized to P_a.

REMOVE

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

INSERT

THAT ARE

With either (a) the measured overall integrated containment leakage rate exceeding 0.75 L_a or 0.75 L_t, as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, or (c) with the combined bypass leakage rate exceeding 0.06 L_a, restore the overall integrated leakage rate to less than or equal to 0.75 L_a or less than or equal to 0.75 L_t, as applicable, and the combined leakage rate for all penetrations and valves subject to Type B and C tests to less than or equal to 0.60 L_a, and the bypass leakage rate to less than or equal to 0.06 L_a prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI N45.4-1972:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10 month intervals during

DELETE

TABLE 3.6-1

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.	TEST TYPE
7	Demineralized Water	2DW-V609A/B (PMU 151) 2DW-V610 (PMU 152)	Bypass/Type C
8	Station Air	2SA-V610A/B (SA 908) 2SA-V602A/B (SA 909)	Bypass/Type C
9	Instrument Air	2IA-F601A/B (IA 909) 2IA-V602A/B (IA 910)	Bypass/Type C
10	Containment Purge Inlet	2HV-B151A (CAP 103) 2HV-B152A (CAP 104)	Type C
11	Containment Purge Exhaust	2HV-B154B (CAP 204) 2HV-B153B (CAP 203)	Type C
12	Containment Vacuum Relief	2HV-B157B (CVR 101) 2HV-B181B (CVR 102	Type C
13	Containment Vacuum Relief	2HV-B156A (CVR 201) 2HV-V181B (CVR 202)	Type C
14	Nitrogen Systems Supply to Reactor Bldg	2NG-F604 (NG 157) 2NG-V666 (NG 158)	Bypass/Type C
*23	CCW to RCPs and CEDM Cooler	2CC-F146A/B (CC-641) 2CC-V242A/B (CC-644)	Type C
*24	CCW to RCPs and CEDM Cooler	2CC-F147A/B (CC-713) 2CC-F243A/B (CC-710)	Type C
25	Fuel Transfer Containment & Fuel Handling Building		Bypass/Type B

*These penetrations shall be tested prior to STARTUP following first refueling outage.

TABLE 3.6- ontinued)

DELETE

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
26	Chemical & Volume Control Letdown Line	2CH-F1518A/B 1CH-F2501A/B	(CVC 109) (CVC 103)	Bypass/Type C
28	Sampling Line from Reactor Coolant Line	2SL-F1504A/B 2SL-F1501A/B	(PSL 107) (PSL 105)	Bypass/Type C
29	Sampling Line from Pressurizer Surge Line	2SL-F1505A/B 2SL-F1502A/B	(PSL 204) (PSL 203)	Bypass/Type C
30	Sampling Line from Pressurizer Steam Space	2SL-F1506A/B 2SL-F1503A/B	(PSL 304) (PSL 303)	Bypass/Type C
31	Waste Management from Containment Vent Header	2WM-F158A/B 2WM-F157A/B	(GWM 105) (GWM 104)	Bypass/Type C
42	Containment Sump Pump Discharge/Post Accident Sample Return	2WM-F105A/B 2WM-F104A/B	(SP 106) (SP 105)	Bypass Type C
43	Boron Management Reactor Drain Tank Outlet	2BM-F109A/B 2BM-F108A/B	(BM 110) (BM 109)	Bypass/Type C
44	Chemical & Volume Control from Reactor Pump Controlled Bleedoff	2CH-F1512A/B 2CH-F1513A/B	(CVC 401) (RC 606)	Bypass/Type C
45	CARS Makeup to Containment	2HV-B187B 2HV-V185B	(CAR 101B) (CAR 102B)	Bypass/Type C
46	CARS Makeup to Containment	2HV-B188A 2HV-V184A	(CAR 101A) (CAR 102A)	Bypass/Type C
47	CARS Exhaust from Containment Containment Pressure Exhaust	2HV-F229B 2HV-F254B 2HV-F228A	(CAR 202B) (CAR 201B) (CAR 200B)	Bypass/Type C

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

DELETE

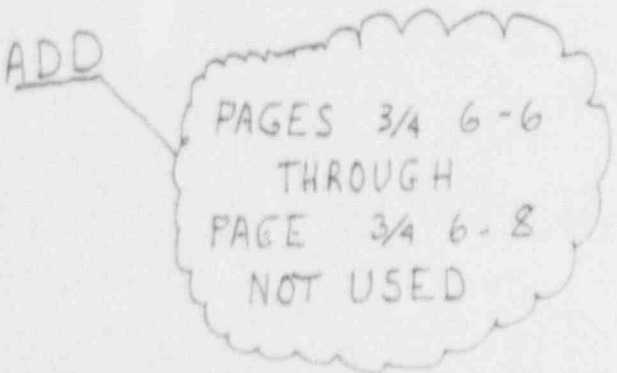
PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
48	CARS Exhaust from Containment	2HV-B190A 2HV-F253A	(CAR 202A) (CAR 201A)	Bypass/Type C
49	Containment Atmosphere Monitoring Inlet and Outlet	2CA-E605A 2CA-E604B 2CA-V607 2CA-E606A	(ARM 110) (ARM 109) (ARM 104) (ARM 103)	Type C
51	Refueling Cavity Purification Inlet	2FS-V145A/B 2FS-V144A/B	(FS 405) (FS 406)	Bypass/Type C
59	Safety Injection System from SI Tank to Refueling Water Storage Pool	2SI-V1570 2SI-V1561A/B	(SI 344) (SI 343)	Bypass/Type C
60	Fire Protection System to Reactor Building	2FP-F127 2FP-V128	(FP 601A) (FP 602A)	Bypass/Type C
61	Fire Protection System to Reactor Building	2FP-F129 2FP-V130	(FP 601B) (FP 602B)	Bypass/Type C
62	Water from Refueling Cavity to RWSP	2FS-V165A/B 2FS-V164A/B	(FS 416) (FS 415)	Bypass/Type C
63	Containment Leakage Rate Test Connection	2SA-V114 Blind Flange	(LRT 109) NA	Type C
65	Containment Leakage Rate Test Connection and Instrument H&V	2SA-V609 2SA-V611	(LRT 202) (LRT 204)	Type C
66	Hydrogen Analyzer Supply and Return	2HA-E609A 2HA-E608A 2HA-E610A 2HA-E637A	(HRA 110A) (HRA 109A) (HRA 126A) (HRA 128A)	Type C

TABLE 3.6-1 (Continued)

CONTAINMENT LEAKAGE PATHS

PENETRATION NO.	SYSTEM NAME	VALVE TAG NO.		TEST TYPE
67	Hydrogen Analyzer Supply and Return	2HA-E629B 2HA-E628B 2HA-E630B 2HA-E638B	(HRA 110B) (HRA 109B) (HRA 126B) (HRA 128B)	Type C
71	Demineralized Water	2DW-V642 2DW-V643	(CMU 244) (CMU 245)	Bypass/Type C
Escape Lock	NA	None		Bypass/Type B
Personnel Lock	NA	None		Type B
Electrical Penetrations	NA	All Primary Canisters except welded spares		Type B
Equipment Hatch	NA	None		Type B
Expansion Bellows 1, 2, 3, 4, 25, 32, 33, 43	Various	None		Type B

DELETE


ADD
PAGES 3/4 6-6
THROUGH
PAGE 3/4 6-8
NOT USED

3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses. This restriction, in conjunction with the leakage rate limitation, will limit the SITE BOUNDARY radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a or less than or equal to 0.75 L_t, as applicable during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance requirements for measuring leakage rates are consistent with the requirements of Appendix J of 10 CFR Part 50.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

ADD

SECONDARY CONTAINMENT BYPASS LEAKAGE PATHS PREVIOUSLY TABLE 3.6-1 HAVE BEEN INCORPORATED INTO PLANT PROCEDURE UNT-005-026

ADD — THE SCOPE OF THESE PROTECTIVE DEVICES EXCLUDES THOSE CIRCUITS FOR WHICH CREDIBLE FAULT CURRENTS WOULD NOT EXCEED THE ELECTRICAL PENETRATION DESIGN RATING.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

REMOVE — PRIMARY AND BACKUP — INSERT

3.8.4.1 All containment penetration conductor overcurrent protective devices shown in Table 3.8-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

INSERT — ASSOCIATED WITH EACH CONTAINMENT ELECTRICAL PENETRATION CIRCUIT

a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8-1 inoperable: — REMOVE

1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and

2. Declare the affected system or component inoperable, and

3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS — INSERT

REMOVE — THE ABOVE NOTED PRIMARY AND BACKUP

4.8.4.1 All containment penetration conductor overcurrent protective devices shown in Table 3.8-1 shall be demonstrated OPERABLE:

a. At least once per 18 months:

1. By verifying that the medium voltage (4-15 kV) circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers of each voltage level, and performing the followin

(a) A CHANNEL CALIBRATION of the associated protective relays, and

(b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed and as specified in Table 3.8-1.

INSERT (c) — REMOVE

SURVEILLANCE REQUIREMENTS (Continued)

(c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

REMOVE

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers, except as noted on Table 3.8-1, shall consist of injecting a current in excess of the breakers' nominal setpoint and measuring the response time. The measured response time will be compared to the manufacturer's data to ensure that it is less than or equal to a value specified by the manufacturer. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

INSERT — FOR THOSE BREAKERS WITH EXTERNAL PROTECTIVE RELAYS*

ADD

* TESTING OF THESE CIRCUIT BREAKERS (ie. THE 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR) SHALL BE PERFORMED IN ACCORDANCE WITH THE VENDOR'S CALIBRATION PROCEDURES.

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
1	**6.9 KV POWER FROM MEDIUM VOLTAGE SWITCHGEAR (NOTE 1.3)**									
1	**REACTOR COOLANT PUMP 1A**									
	a Primary	289-11A1	Line 15, 16, 17	Note 1.1	Note 1.2	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	b Backup	424-220	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	c Backup	424-220	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
2	**REACTOR COOLANT PUMP 1B**									
	a Primary	289-12A1	Line 15, 16, 17	Note 1.1	Note 1.2	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	b Backup	424-230	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	c Backup	424-230	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
3	**REACTOR COOLANT PUMP 2A**									
	a Primary	289-11A1	Line 18, 19, 20	Note 1.1	Note 1.2	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	b Backup	424-240	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	c Backup	424-240	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
4	**REACTOR COOLANT PUMP 2B**									
	a Primary	289-12A1	Line 18, 19, 20	Note 1.1	Note 1.2	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	b Backup	424-250	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
	c Backup	424-250	TD Relay 2		adjust to 4 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4

Items 1.1 thru 1.4 - Transfer Trip Relays provide Backup protection via Startup Transformer and Unit Auxiliary Transformer Breakers. Performing the INTEG FUNCT TEST satisfies CHAN CALIB

FSAR Figure 8.3-28 illustrates operation of primary and backup over-current protection.

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
II 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR (NOTE II 6)									
1 POLAR CRANE									
a Primary	289-20A1	Line 1[illegible]	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary	289-20A2	Line [illegible]	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
c Backup	424-2486	TD Relay 2		adjust to 2 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
2 CEDM COOLING UNIT E-16 (3A)									
a Primary*	289-20A1	Line 17	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary*	289-20A2	Line 17	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
c Backup	424-1139	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
3 CEDM COOLING UNIT E-16 (3C)									
a Primary*	289-20A3	Line 23	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary*	289-20A4	Line 23	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
c Backup	424-1140	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
4 CEDM COOLING UNIT E-16 (3B)									
a Primary*	289-21A1	Line 18	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary*	289-21A2	Line 18	Note II 1	Notes II 2, II 3	≥10% of Type R per R	NA	NA	≤ every 60 M	1, 2, 3, 4
c Backup	424-1140	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4

* Note II 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	
6	**CEDM COOLING UNIT E-16 (3D)**									
	a Primary*	289-21A3	Line 24	Note II 1	Notes II 2, II 3	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Primary*	289-21A4	Line 24	Note II 1	Notes II 2, II 3	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	c Backup	424-1147	TD Relay 2		adjust to 1 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
6	**PRESSURIZER HEATERS BACKUP BANK 1 (B-1)**									
	a Primary*	289-23A1	Line 4	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Primary*	289-23A2	Line 4	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	c Backup	424-286	TD Relay 2		adjust to 0 6 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
7	**PRESSURIZER HEATERS BACKUP BANK 2 (B-2)**									
	a Primary*	289-23A1	Line 5	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Primary*	289-23A2	Line 5	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	c Backup	424-286	TD Relay 2		adjust to 0 6 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4
8	**PRESSURIZER HEATERS BACKUP BANK 3 (B-3)**									
	a Primary*	289-23A1	Line 6	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Primary*	289-23A2	Line 6	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	c Backup	424-287	TD Relay 2		adjust to 0 6 sec	NA	≥10% per R	≥10% per R	≤ every 60 M	1, 2, 3, 4

* Note II 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
9	**PRESSURIZER HEATERS BACKUP BANK 4 (B-4)**									
	a Primary*	289-24A1	Line 4	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-24A2	Line 4	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-288	TD Relay 2		adjust to 0.6 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
10	**PRESSURIZER HEATERS BACKUP BANK 5 (B-5)**									
	a Primary*	289-24A1	Line 5	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-24A2	Line 5	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-289	TD Relay 2		adjust to 0.6 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4
11	**PRESSURIZER HEATERS BACKUP BANK 6 (B-6)**									
	a Primary*	289-24A1	Line 6	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary*	289-24A2	Line 6	Note II 1	Notes II 2, II 6	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	424-290	TD Relay 2		adjust to 0.6 sec	NA	≥10% per R	≥10% per R	S every 60 M	1, 2, 3, 4

Items II.6 thru II.11 -- The backup protection consists of Transfer Trip Relays activated by any one of the primary over-current protective relays illustrated on FSAR Figure 8.3-30.

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
12	**PRESSURIZER HEATERS PROPORTIONAL BANK 1 (P-1)**									
	a Primary	289-23A1	Line 8	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary	289-23A2	Line 8	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup		CHASE -SHAWMUT A60P200	Fuse		NA	NA	NA	NA	1, 2, 3, 4
	* Note II 4									
13	**PRESSURIZER HEATERS PROPORTIONAL BANK 2 (P-2)**									
	a Primary	289-24A1	Line 4	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Primary	289-24A2	Line 4	Note II 1	Notes II 2, II 5	≥10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup		CHASE -SHAWMUT A60P200	Fuse		NA	NA	NA	NA	1, 2, 3, 4

Items II 12 and II 13 -- The proportional heater local control panel houses the backup protection

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
III. 240 VOLTS CEDM POWER									
1 CEDM COILS (91 Circuits) (NOTES IV.3 & IV.4)									
a Primary		Sub-group Bus	Heinemann 40A	Heinemann Series AM, Curve 3	10% per R	NA	NA	S every 60 M	1, 2, 3, 4
b Primary		H 4 Bus	Heinemann 30A	Heinemann Series AM, Curve 3	10% per R	NA	NA	S every 60 M	1, 2, 3, 4
c Backup		60 A International Rectifier Cat No SF26 x 60	Fuse	International Rectifier SF26 Series Curves	NA	NA	NA	NA	1, 2, 3, 4

240 V, 3 phase power feeds from the C-E Reactor Trip Switchgear to the CEDM Cabinets
The 91 circuits separate into sub-groups and hold busses One breaker and three fuses protect each sub-group/hold bus
These cabinets feed power to the CEDM Coils via #4 AWG & #8 AWG penetration conductors

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
IV. 480 VOLTS POWER FROM MCCs										
1	**SAFETY INJECTION TANK 1A ISOLATION VALVE 1SI-V1585 TK 1A (SI-331A)**									
	a Primary	289-61 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-61	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
2	**SAFETY INJECTION TANK 2A ISOLATION VALVE 1SI-V1587 TK 2A (SI-332A)**									
	a Primary	289-61 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-61	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
3	**LP-311**									
	a Primary	289-62 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-62	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
4	**RCS LOOP 2 SDC ISOLATION VALVE 1SI-V1604A (SI-401A)**									
	a Primary	289-63 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-63	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
5	**CARS SUCTION VALVE 2HV-F253A (CAR-201A)**									
	a Primary	289-64 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-64	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
6	**HYDRAULIC PUMP FOR VALVE 1SI-V1603A (SI-405A)**									
	a Primary	289-64 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-64	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN.)				MODES
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIR'D
7	**SAFETY INJECTION TANK 1B ISOLATION VALVE 1SI-V1506 TK 1B (SI-331B)**									
	a Primary	289-66 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-66	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
8	**SAFETY INJECTION TANK 2B ISOLATION VALVE 1SI-V1508 TK 2B (SI-332B)**									
	a Primary	289-66 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-66	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
9	**LP-310**									
	a Primary	289-66 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-66	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
10	**RCS LOOP 1 SDC ISOLATION VALVE 1SI-V1562B (SI-401B)**									
	a Primary	289-67 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-67	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
11	**CARS SUCTION VALVE 2HV-F256B (CAR-201B)**									
	a Primary	289-68 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-68	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
12	**HYDRAULIC PUMP FOR VALVE 1SI-V1501B (SI-406B)**									
	a Primary	289-68 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-68	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
13	Cont. 30KVA Transf. PDP 3??A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
14	RCP 2A OIL LIFT PUMP A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
15	RCP 1A OIL LIFT PUMP A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
16	STEAM GENERATOR 1 VENT VALVE 2MS-V468 (MS-101A)									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
17	MOVABLE DETECTOR DRIVE MACHINE 1									
	THE MOVABLE DETECTOR DRIVE MACHINE 1 WAS DISCONNECTED.									
	BOTH THE BREAKER AND FUSE ARE SPARED.									
18	STEAM GENERATOR 2 VENT VALVE 2MS-V469 (MS-101B)									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
19	RCP 1B OIL LIFT PUMP A									
	a Primary	209-71 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
20	RCP 2B OIL LIFT PUMP A								
	a Primary	209-76 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-76	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
21	MOVABLE DETECTOR DRIVE MACHINE 2								
	THE MOVABLE DETECTOR DRIVE MACHINE 2 HAS BEEN DISCONNECTED.								
	BOTH THE BREAKER AND FUSE ARE SPARED.								
22	Cont. 30KVA Transf. FDP 3788								
	a Primary	209-73 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-76	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
23	H2 RECOMBINER POWER SUPPLY A								
	a Primary	209-77 Note IV.1	Breaker	FJ	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-77	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
24	REACTOR CAVITY COOLING SYSTEM FAN E-2 (3A)								
	a Primary	209-78 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-78	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
25	RADIATION REMOVAL UNIT E-12 (3A)								
	a Primary	209-79 Note IV.1	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-79	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN	EACH VOLTAGE LEVEL (ROMAN)			
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	MODES FOR WHICH SURV IS REQUIR D
26	**RCP 1A OIL LIFT PUMP B**									
	a Primary	289-78 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-78	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
27	**RCP 2A OIL LIFT PUMP B**									
	a Primary	289-78 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-78	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
28	**H2 RECOMBINER POWER SUPPLY B**									
	a Primary	289-80 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-80	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
29	**REACTOR CAVITY COOLING SYSTEM FAN S-2 (3B)**									
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-31	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
30	**RADIATION REMOVAL UNIT E-13 (3B)**									
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
31	**RCP 1B OIL LIFT PUMP B**									
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
32	**RCP 2B OIL LIFT PUMP B**									
	a Primary	289-81 Note IV 1	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-81	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
33	**MISSILE SHIELD TRUCK RECEPTACLE**									
	a Primary*									
	b Backup*									
	* Item IV 33 -- Primary breaker is locked-out in the open position during MODES 1, 2, 3, and 4 Therfore, non-OPERABLE primary or backup protection does not place the plant in an LCO									
34	**CONTAINMENT COOLING UNIT AH-1 (3A-SA)**									
	a Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup Note IV 6	289-20A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	289-20A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
35	**CONTAINMENT COOLING UNIT AH-1 (3C-SA)**									
	a Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup Note IV 6	289-20A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	289-20A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
36	**CONTAINMENT COOLING UNIT AH-1 (3B-SB)**									
	a Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup Note IV 6	289-21A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	c Backup	289-21A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
37 CONTAINMENT COOLING UNIT AH-1 (3D-8B)									
a Primary	289-97	Breaker	JL	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup Note IV 6	289-21A1	Breaker	ECS	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
c Backup	289-21A2	Relay	IAC66T	Notes IV 6, & IV 7, IV 8	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
38 CONTAINMENT SUMP PUMP A									
a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
39 LP-306									
a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
40 LP-301									
a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
41 LP-302									
a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
42 LP-304									
a Primary	289-45	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-45	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

DELETE

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
43	**CONTAINMENT ELEVATOR D**									
	a. Primary	289-47	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-47	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
44	**REFUELING CAVITY DRAIN PUMP**									
	a. Primary	289-48	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-48	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
45	**REFUELING EQUIPMENT**									
	a. Primary	289-50	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-50	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
46	**REFUELING EQUIPMENT**									
	a. Primary	289-48	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-48	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
47	**CONTAINMENT SUMP PUMP B**									
	a. Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
48	**LP-303**									
	a. Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
49	**LP-306**									
	a. Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
50 1P-300									
a Primary	289-49	Breaker	EF	Notes IV 2 & IV 3	10% of Type R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-49	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
51 SDC LOOP 1 VACUUM PRIMING PUMP									
a Primary	289-46	Breaker	EF-3	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-43	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
52 SDC LOOP 2 VACUUM PRIMING PUMP									
a Primary	289-47	Breaker	EF-3	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-47	Fuse	TRS	Note IV 4	NA	NA	NA	NA	1, 2, 3, 4
53 FDP 346A RECEPTACLES									
a Primary	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
54 FDP 346B RECEPTACLES									
a Primary	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-104	Breaker	TED	Notes IV 2 & IV 3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	
V.	**208 VOLTS CONTROL POWER FROM PDPs OR MCCs**									
1	**RCP 1A HEATER**									
	a Primary	424-2269	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2269	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
2	**RCP 2A HEATER**									
	a Primary	424-2269	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2269	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
3	**RCP 1B HEATER**									
	a Primary	424-2270	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2270	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
4	**RCP 2B HEATER**									
	a Primary	424-2270	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-2270	Breaker	TEB	Note V 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
VI 120 VOLTS CONTROL POWER FROM PDPs OR MCCs										
1	**SOLENOID VALVE 1SI-F1551TK1A (SI-303A)**									
	a Primary	289-186	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
2	**SOLENOID VALVE 1SI-F1553TK2A (SI-304A)**									
	a Primary	289-186	Circuit 38	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 38	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
3	**SOLENOID VALVE 2CC-F243AB (CC-710)***									
	a Primary	289-108A	Circuit 4	Fuse FRN	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-108A	Circuit 4	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
4	**SOLENOID VALVE 2SI-F1561AB (SI-343)**									
	a Primary	289-186	Circuit 5	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 5	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
5	**SOLENOID VALVE 2SI-F605TK1A (NG-141A)**									
	a Primary	289-186	Circuit 16	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 16	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
6	**SOLENOID VALVE 2SI-F607TK2A (NG-142A)**									
	a Primary	289-186	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
7	**SOLENOID VALVE 2SI-E634 (SI-323A)**									
	a Primary	289-186	Circuit 30	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
8	**SOLENOID VALVE 2SI-E638 (SI-324A)**									
	a Primary	289-186	Circuit 36	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 36	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
9	**SOLENOID VALVE 1CH-F1616AB (CVC-131)**									
	a Primary	289-147	Circuit 1	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
10	**SOLENOID VALVE 1SI-V2604 (SI-301)**									
	a Primary	289-147	Circuit 30	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
11	**SOLENOID VALVE 2SI-F1664TK1A (SI-307A)**									
	a Primary	289-186	Circuit 28	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 28	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
12	**CONTAINMENT PURGE ISOLAITON SOLENOID VALVES 2HV-B151A (CAP-103) & 2HV-B152A (CAP-104)**									
	a Primary	289-120	Circuit 26	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F1	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIR'D
13	**H2 ANALYZER VALVES A POWER**									
	a Primary	289-120	Circuit 7	Breaker EE	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup*	1564-2084	CB 2	Breaker P-16	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	* Backup in Hydrogen Analyzer Panel, Breaker CB 2									
14	**CONTAINMENT SPRAY RISER PUMP A SOLENOID VALVE 2CS-E608A (CS-129A)**									
	a Primary	289-120	Circuit 9	Breaker EE	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	259-120A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
15	**SOLENOID VALVE 2SI-F1644TK2A (SI-308A)**									
	a Primary	289-186	Circuit 40	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 40	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
16	**SOLENOID VALVE 2SI-E633 (SI-323B)**									
	a Primary	289-186	Circuit 34	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 34	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
17	**SOLENOID VALVE 2SI-E635 (SI-326B)**									
	a Primary	289-186	Circuit 27	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
18	**SOLENOID VALVE FOR 1SI-1603A (SI-405A)**									
	a Primary	289-108a	Circuit 7	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	289-108A	Circuit 7	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
19	**SOLENOID VALVE 2HV-8166A (CVR-20_)**									
	a. Primary	289-147	Circuit 14	Breaker CD	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-147A	Circuit 14	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
20	**CONTAINMENT FAN COOLERS DAMPERS**									
	a. Primary	289-120	Circuit 17	Breaker EE	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-120A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
21	**MOTOR HEATER LEADS AH-1 (3A-BA)**									
	a. Primary	289-120	Circuit 13	Breaker EE	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-120A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
22	**MOTOR HEATER LEADS AH-1 (3C-BA)**									
	a. Primary	289-120	Circuit 15	Breaker EE	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	289-120A	F5	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
23	**MOTOR HEATER LEADS E-16 (3A)***									
	a. Primary	424-1139	Breaker	TED	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	424-1139	Breaker	TED	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									
24	**MOTOR HEATER LEADS E-16 (3C)***									
	a. Primary	424-1140	Breaker	TED	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b. Backup	424-1140	Breaker	TED	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIR'D
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	
26	**SOLENOID VALVE 2SI-F1552TK1B (SI-303B)**									
	a Primary	289-187	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
26	**SOLENOID VALVE 2SI-F1554TK2B (SI-304B)**									
	a Primary	289-187	Circuit 38	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 38	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
27	**SOLENOID VALVE 2WM-F157AB (GWM-104)**									
	a Primary	289-187	Circuit 7	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 7	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
28	**SOLENOID VALVE 2SI-F606TK1B (NG-161B)**									
	a Primary	289-187	Circuit 16	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 16	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
29	**SOLENOID VALVE 2SI-F608TK2B (NG-162B)**									
	a Primary	289-187	Circuit 25	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 25	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
30	**SOLENOID VALVE 2SI-E437 (SI-326B)**									
	a Primary	289-187	Circuit 30	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
31	**SOLENOID VALVE 2SI-E439 (SI-324B)**									
	a Primary	289-187	Circuit 27	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
32 SOLENOID VALVE 2CH-F151SAB (EC-406)									
a Primary	289-187	Circuit 2	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-187A	Circuit 2	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
33 SOLENOID VALVE 1CH-F250IAB (CVC-103)									
a Primary	289-148	Circuit 1	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-148A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
34 SOLENOID VALVE 1SI-V2505 (SI-302)									
a Primary	289-148	Circuit 28	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-148A	Circuit 28	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
35 SOLENOID VALVE 2BM-F108AB (BM-109)									
a Primary	289-187	Circuit 1	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-187A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
36 CONTAINMENT PURGE ISOLATION SOLENOID VALVES 2HV-B164B (CAP-204) & 2HV-B153B (CAP-203)									
a Primary	289-121	Circuit 26	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-121A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
37 SOLENOID VALVE 2HV-B157B (CVE-101)									
a Primary	289-148	Circuit 14	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	289-148A	Circuit 14	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
38	**SOLENOID VALVE 2BD-F603 (BD-102A)**									
	a Primary	289-187	Circuit 6	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
39	**SOLENOID VALVE 2BD-F605 (BD-102B)**									
	a Primary	289-187	Circuit 8	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 8	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
40	**H2 ANALYZER VALVE B POWER***									
	a Primary	289-121	Circuit 7	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	1564-2084	CB 2	Breaker P-15	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* Backup in Hydrogen Analyzer Panel Breaker CB 2									
41	**CONTAINMENT SPRAY RISER PUMP B SOLENOID VALVE 2CS-E609B (CS-129B)**									
	a Primary	289-121	Circuit 9	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F2	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
42	**CONTANMENT SUMP ISOLATION VALVE 2WM-F104AB (SP-105)**									
	a Primary	289-187	Circuit 9	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 9	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
43	**SOLENOID VALVE 2SI-F1665TK1B (SI-307B)**									
	a Primary	289-187	Circuit 28	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 28	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	
44	**SOLENOID VALVE 2SI-F1667TK2B (SI-306B)**									
	a Primary	289-187	Circuit 40	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 40	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
45	**SOLENOID VALVE 2SI-E632 (SI-325A)**									
	a Primary	289-187	Circuit 36	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 36	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
46	**SOLENOID VALVE 2SI-E634 (SI-326A)**									
	a Primary	289-187	Circuit 34	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 34	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
47	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F1601AB (PSL-106)**									
	a Primary	289-187	Circuit 29	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 29	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
48	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F1602AB (PSL-203)**									
	a Primary	289-187	Circuit 31	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
49	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F1603AB (PSL-303)**									
	a Primary	289-187	Circuit 33	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
60	**SOLENOID VALVES FOR 1SI-1501B (SI-405B)***									
	a Primary	289-109A	Circuit 9	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	289-109A	Circuit 9	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-serier, one each, + and - poles									
61	**MOTOR HEATER LEADS AH-1 (3B-SB)**									
	a Primary	289-121	Circuit 13	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
62	**MOTOR HEATER LEADS AH-1 (3D-SB)**									
	a Primary	289-121	Circuit 15	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
63	**MOTOR HEATER LEADS E-16 (3B)***									
	a Primary	424-1141	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1141	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									
64	**MOTOR HEATER LEADS E-16 (3D)***									
	a Primary	424-1142	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1142	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 120/208V SWGR heater bus, double breaker protection									

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN	EACH VOLTAGE LEVEL (ROMAN)			MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
66	**CONTAINMENT FAN COOLERS DAMPERS**									
	a Primary	289-121	Circuit 17	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F5	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
66	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F601 (PSL-404A)**									
	a Primary	289-148A	Circuit 49	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	28 148A	Circuit 49	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
67	**SAMPLE SYSTEM SOLENOID VALVE 2SL-F603 (PSL-404B)**									
	a Primary	289-148A	Circuit 45	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 45	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
68	**SAMPLE SYSTEM RECORDER PANEL**									
	a Primary	289-133	Circuit 35	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F12	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
69	**CONTAINMENT PURGE EXHAUST DAMPER SV-D22 (CAP-202) & SV-D23 (CAP-201)**									
	a Primary	289-133	Circuit 1	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F5	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
	c Primary	289-134	Circuit 1	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	d Backup	289-134A	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
60	**SOLENOID VALVE 2RC-F604 (RC-323)**									
	a Primary	289-133	Circuit 8	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	FOR WHICH SURV IS REQUIRED
61	**SOLENOID VALVE 7EC-F696 (RC-325)**									
	a Primary	289-133	Circuit 10	Breaker EE	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
62	**SOLENOID VALVE 1CH-F2604B (CVC-218B)**									
	a Primary	289-148	Circuit 29	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 29	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
63	**SOLENOID VALVE 1CH-E2603A (CVC-218A)**									
	a Primary	289-147	Circuit 27	Breaker CD	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
64	**SOLENOID VALVES 3CC-P1601A1 (CC-665A) & 3CC-P1605A1 (CC-679A)**									
	a Primary	289-160	Circuit 25	Breaker TEB	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-280	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
65	**SOLENOID VALVES 3CC-P1603A2 (CC-666A) & 3CC-P1607A2 (CC-638A)**									
	a Primary	289-160	Circuit 27	Breaker TEB	Note VI 2	10% of Type R per	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-282	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
66	**RCP 1A INSTRUMENTATION AND ACCESSORIES***									
	a Primary	424-220	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-220	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4

* Two fuses in-series, one each, + and - poles

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				
	BREAKER PROTECTION	DRAWING NUMBER OR DESCRIPTION	IDENTIFYING NUMBER	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4 8 4 1 a 2	CHAN CALIB 4 8 4 1 a 1 a	INTEG FUNCT TEST 4 8 4 1 a 1 b	INSP & PREV MAINT 4 8 4 1 b	MODES FOR WHICH SURV IS REQUIRED
67	**RCP 2A INSTRUMENTATION AND ACCESSORIES**									
	a Primary	424-240	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-240	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	* Two fuses in-series, one each, + and - poles									
68	**CEDM COOLER VALVES & DAMPERS**									
	a Primary	289-149	Circuit 14	Breaker TEB	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1160	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
69	**CEDM COOLER UNITS INLET DAMPER**									
	a Primary	289-150	Circuit 20	Breaker TEB	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-1166	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
70	**SOLENOID VALVE 2CH-F151AB (RC-402)**									
	a Primary	289-150	Circuit 6	Breaker TEB	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-326	F2	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
71	**SOLENOID VALVE 7BM-P237 (CWM-101)**									
	a Primary	289-136	Circuit 11	Breaker EE	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-401	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
72	**SOLENOID VALVE 8SI-F1843 (SI-342)**									
	a Primary	289-150	Circuit 1	Breaker TEB	Note VI 2	10% of Type R per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-499	F3	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
	BREAKER/ PROTECTION	DRAWING NUMBER OR DESCRIPTION	IDENTIFYING NUMBER	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1 a.1.b	INSP & PREV MAINT 4.8.4.1.b	
73	**SOLENOID VALVES 3CC-P1502B1 (CC-446B) & 3CC-P1504B1 (CC-479B)**									
	a Primary	289-150	Circuit 26	Breaker TEB	Note VI 2	10% of Type per R NA	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-281	F2	Fuse ATM			NA	NA	NA	1, 2, 3, 4
74	**SOLENOID VALVES 3CC-P1504B2 (CC-466B) & 3CC-P1503B2 (CC-480B)**									
	a Primary	289-150	Circuit 28	Breaker TEB	Note VI 2	10% of Type per R NA	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-283	F2	Fuse ATM			NA	NA	NA	1, 2, 3, 4
75	**RCP 1B INSTRUMENTATION AND ACCESSORIES***					NA	NA	NA	NA	1, 2, 3, 4
	a Primary	424-230	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-230	Fuse	OTS						
	* Two fuses in-series, one each, + and - poles									
76	**RCP 2B INSTRUMENTATION AND ACCESSORIES***					NA	NA	NA	NA	1, 2, 3, 4
	a Primary	424-250	Fuse	OTS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	424-250	Fuse	OTS						
	* Two fuses in-series, one each, + and - poles									
77	**SOLENOID VALVE 2CA-E4604B (AERM-109)**									
	a Primary	289-148	Circuit 26	Breaker CD	Note VI 2	10% of Type per R NA	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 26	Fuse FRN			NA	NA	NA	1, 2, 3, 4
78	**SOLENOID VALVE 1CE-E2505A (CVC-216A)**									
	a Primary	289-147	Circuit 31	Breaker CD	Note VI 2	10% of Type per R NA	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 31	Fuse FRN			NA	NA	NA	1, 2, 3, 4

DELETE

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN	EACH VOLTAGE LEVEL (ROUTINE)			MODES
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
79	**SOLENOID VALVE 1CH-E2606B (CVC-216B)**									
	a Primary	289-148	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
80	**SOLENOID VALVE 7WS6-E677 (SP-102B)***									
	a Primary	5817-6348	CB 2	Breaker CH	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	5817-6348	Circuit H4	Breaker QO	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	* 15a breakers on Skid #4 (5817-6348)									
81	**SOLENOID VALVES 2RC-2557A (RC-3194), 2RC-2559A (RC-1015), 2RC-2561A (RC-3186)**									
	a Primary	289-212	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-120A	F2	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
82	**SOLENOID VALVES 2RC-2564B (RC-3183), 2RC-2560B (RC-1014), 2RC-2562B (RC-1017)**									
	a Primary	289-213	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-121A	F1	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
83	**SPACE HEATER 1SI-V1606TX1A (SI-331A)**									
	THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED.									
84	**LIMIT SWITCH & INDICATING LIGHTS 1SI-V1606TX1A (SI-331A)**									
	a Primary	289-147	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3 8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
85	SPACE HEATER 1SI-V150?TK2A (SI-332A)									
	THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED.									
86	LIMIT SWITCH & INDICATING LIGHTS 1SI-V150?TK2A (SI-332A)									
	a Primary	289-147	Circuit 8	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-147A	Circuit 8	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
87	RCP 1A SPEED SENSOR									
	a Primary	289-126	Circuit 6	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-126A	F6	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
88	RCP 2A SPEED SENSOR									
	a Primary	289-126	Circuit 7	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-126A	F5	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
89	RADIATION REMOVAL UNIT E-13 (3A) THERMISTOR									
	a Primary	289-133	Circuit 24	Breaker EE	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	289-133A	F6	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
90	CONTAINMENT COOLING UNIT CONDENSING POT FLOW DETECTOR									
	a Primary	289-169	Circuit 3	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	424-829	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

	OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES
	BREAKER PROTECTION	DRAWING NUMBER	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.1.b	INSP & PREV MAINT 4.8.4.1.b	FOR WHICH SURV IS REQUIRED
91	PRESSURIZER SPRAY VALVES 1RC-F1501A (RC-301A) & 1RC-F1502B (RC-301B)									
	a Primary	209-150	Circuit 4	Breaker TEB	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	426-244	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
92	MOVABLE INCORE DETECTOR DRIVE MACHINE #1 CONTROL									
	THE MOVABLE INCORE DETECTOR DRIVE MACHINE #1 CONTROL HAS BEEN DISCONNECTED									
	BOTH THE BREAKER AND FUSE ARE SPARED.									
93	MOVABLE INCORE DETECTOR SWITCHING DEVICE									
	THE MOVABLE INCORE DETECTOR SWITCHING DEVICE HAS BEEN DISCONNECTED.									
	BOTH THE BREAKER AND THE FUSE HAVE BEEN SPARED.									
94	REFUELING MACHINE CONTROL									
	a Primary	6017-4241	Fuse	TRS		NA	NA	NA	NA	1, 2, 3, 4
	b Backup	6017-4241	Fuse	KTN/KTNR		NA	NA	NA	NA	1, 2, 3, 4
95	SPACE HEATER 1SI-V1504TF1B (SI-331B)									
	THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP.									
	BOTH THE BREAKER AND FUSE ARE SPARED.									
96	LIMIT SWITCH & INDICATING LIGHTS 1SI-V1504TK1B (SI-331B)									
	a Primary	209-148	Circuit 6	Breaker CD	Note VI 2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
	b Backup	209-148A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4

DELETE

Table 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQUIRED
BREAKER PROTECTION	DRAWING NUMBER OR DESCRIPTION	IDENTIFYING NUMBER	TYPE	TIME CURRENT CHARACTERISTIC	FUNCT TEST 4.8.4.1 a.2	CHAN CALIB 4.8.4.1 a.1.a	INTEG FUNCT TEST 4.8.4.1.a.2.b	INSP & PREV MAINT 4.8.4.1.b	
189 CONTAINMENT AIR LOCKS DOOR POSITION INDICATOR									
a Primary	209-148	Circuit 33	Breaker CD	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	209-148A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
194 POSITION INDICATOR 2BM-P190AB (BM-109)									
a Primary	209-133	Circuit 34	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	424-680 & 686	Circuit 2	Fuse NON		NA	NA	NA	NA	1, 2, 3, 4
195 POSITION INDICATOR 2WM-P187AB (BWM-106)									
a Primary	209-133	Circuit 33	Breaker EE	Note VI.2	10% of Type per R	NA	NA	S every 60 M	1, 2, 3, 4
b Backup	424-680 & 686	Circuit 19	Fuse NON		NA	NA	NA	NA	1, 2, 3, 4
196 MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL									
THE MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL HAS BEEN DISCONNECTED. BOTH THE FUSE AND THE BREAKER HAVE BEEN SPARED.									
197 CRDM COOLING UNITS VIBRATION SWITCHES*									
a Primary	209-110A 424-771 & 2020	Fuse	FL		NA	NA	NA	NA	1, 2, 3, 4
b Backup	209-110A 424-771 & 2020	Fuse	FB		NA	NA	NA	NA	1, 2, 3, 4

* Two fused breakers, one each, + and - poles.

DELETE

TABLE 3.8-1 (Continued)

NOTES

I. 6.9 kV POWER FROM MEDIUM VOLTAGE SWITCHGEAT

I.1) Refer to drawing LOU-1564-B-289 sheet and line numbers as indicated.

I.2) Refer to G.E. curve in GEI-68751A and GEI-19959 instruction books for IAC 66M3A and IAC57 relays.

I.3) Relay testings to be performed in accordance with vendor's relay calibration procedures.

DELETE

TABLE 3.8-1 (Continued)

NOTES (Continued)

II. 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR

II.1) Refer to drawing LOU-1564-B-289 sheet and line numbers as indicated.

II.2) Refer to G.E. curve GES-6032A for ECS programmer.

II.3) Refer to G.E. curve in GEI-19959 instruction book for IAC57 relays.

II.4) Primary breaker is equipped with two sets of protective devices.

II.5) Refer to G.E. curve [illegible] for IAC77 relays.

II.6) Relay and prog[illegible] to be performed in accordance with vendor's calibration proc[illegible]

DELETE

TABLE 3.8-1 (Continued)

NOTES (Continued)

IV. VOLTS POWER FROM MCCs

IV.1) Refer to drawing LOU-1564-B-289 sheet numbers as indicated. Circuit breakers with adjustable instantaneous magnetic trip element are set on the basis of two times the motor locked rotor current. For static loads the setpoint is the minimum available.

IV.2) Refer to the appropriate curves as follows:

EF, EH - ITE/Gould TD8087
EF3 - ITE/Gould Instantaneous Trip
FJ Breaker - ITE/Gould TD4948
JL Breaker - ITE/Gould TD4950
TED Breaker - GE GES-6114A

IV.3) Circuit breaker testing to be performed in accordance with vendor's molded case breaker calibration procedures.

IV.4) Fuse testing to be performed in accordance with vendor's nondestructive resistance test procedures.

IV.5) Backup breaker is equipped with two sets of protective devices.

IV.6) Refer to G.E. curve GES-6032A for ECS programmer.

IV.7) Refer to G.E. curve GES-7004A for IAC66T relays.

IV.8) Relay and programmer testing to be performed in accordance with vendor's calibration procedures.

IV.9) Equivalent breakers and fuses may be substituted for the types specified.

DELETE

TABLE 3.8-1 (Continued)

NOTES (Continued)

V. 208 VOLTS AND 120 VOLTS CONTROL POWER FROM PDPs or MCCs

V.1) For trip setpoint, refer to drawing LOU-1564-B-289 sheet numbers as indicated.

V.2) Below is listing of molded case breakers by type giving the curve number for time-current characteristic:

TYPE	MANUFACTURER	CURVE NO.
EE, EF	ITE	TD 4947
CD	Heineman	CD, CE, CF
TEB	GE	GES-6122B, 6122
TED	GE	GES-6119C
AM	Heineman	AM
QO	Square D	630-2
CH	Cutler Hammer	Safety Breaker Curve

V.3) Equivalent breakers and fuses may be substituted for the types specified.

DELETE

TABLE 3.8-1 (Continued)

NOTES (Continued)

VI. 120 VOLTS CONTROL POWER FROM PDPs or MCCs

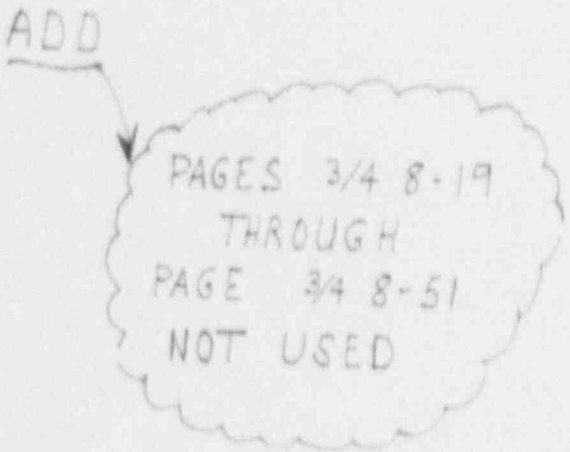
VI.1) For trip setpoint, refer to drawing LOU-1564-B-289 sheet numbers as indicated.

VI.2) Below is listing of molded case breakers by type giving the curve number for time-current characteristic:

TYPE	MANUFACTURER	CURVE NO.
EE, EF	ITE	TD 4947
CD	Heineman	CD, CE, CF
TEB	GE	GES-6122B, 6122
TED	GE	GES-6119C
AM	Heineman	AM
QO	Square D	630-2
CH	Cutler Hammer	Safety Breaker Curve

VI.3) Equivalent breakers and fuses may be substituted for the types specified.

DELETE


ADD
PAGES 3/4 8-19
THROUGH
PAGE 3/4 8-51
NOT USED

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND BYPASS DEVICES

LIMITING CONDITION FOR OPERATION

INSERT — (USED IN SAFETY SYSTEMS,

3.8.4.2 The thermal overload protection and bypass devices, integral with the motor starter, of each valve listed in Table 3.8-2 shall be OPERABLE.

— REMOVE

APPLICABILITY: Whenever the motor operated valve is required to be OPERABLE.

ACTION:

With one or more of the thermal overload protection and/or bypass devices inoperable, declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) for the affected valve(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2 The above required thermal overload protection and bypass devices shall be demonstrated OPERABLE.

a. At least once per 18 months, by the performance of a CHANNEL FUNCTIONAL TEST of the bypass circuitry for those thermal overload devices which are either:

   1. Continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, or

   2. Normally in force during plant operation and bypassed under accident conditions.

b. At least once per 18 months by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of:

   1. All thermal overload devices which are not bypassed, such that each nonbypassed device is calibrated at least once per 6 years.

   2. All thermal overload devices which are continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, and thermal overload devices normally in force and bypassed under accident conditions such that each thermal overload is calibrated and each valve is cycled through at least one complete cycle of full travel with the motor-operator when the thermal overload is OPERABLE and not bypassed, at least once per 6 years.

TABLE 3.8-2

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION AND/OR BYPASS DEVICES

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1541A2 (SI-139A)	LPSI Flow Control	Yes
2SI-V1543B2 (SI-138A)	LPSI Flow Control	Yes
2SI-V1550A1 (SI-225A)	HPSI Flow Control	Yes
2SI-V1542A3 (SI-227A)	HPSI Flow Control	Yes
3CH-V112A/B (BAM-133)	Reactor Makeup Bypass	Yes
2SI-V1546A2 (SI-226A)	HPSI Flow Control	Yes
2SI-V1548A4 (SI-228A)	HPSI Flow Control	Yes
1SI-V1504A (SI-401A)	RCS Loop 2 Shutdown Cooling Isolation	No
1SI-V1505TK1A (SI-331A)	Safety Inj. Tank 1A Isolation	Yes
1SI-V1507TK2A (SI-332A)	Safety Inj. Tank 2A Isolation	Yes
2HV-B158A (SBV-110A)	SBVS A Train Outlet	Yes
2HV-B160A (SBV-101A)	SBVS A Train Inlet	Yes
2HV-B162A (SBV-114A)	SBVS A Exhaust	Yes
2HV-B164A (SBV-113A)	SBVS A Recirc.	Yes
3HV-B196A (HVC-201A)	Control Room Em. Filter Unit N. th	Yes
3HV-B201A (HVC-203A)	Control Room Em. Filter Unit South	Yes

DELETE

TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
3HV-B198A (HVC-202A)	Control Room Em. Filter Unit North	Yes
3HV-B203A (HVC-204A)	Control Room Em. Filter Unit South	Yes
2SI-V327A (SI-407A)	RCS Loop 2 Shutdown Cooling Isolation	No
2SI-FM318A (SI-415A)	Shutdown Cooling Flow Control	No
2SI-V809A (SI-121A)	SI Pumps A Min. Flow Isol.	Yes
2HV-F253A (CAR-201A)	CARS Suction	Yes
2SI-V1549A1 (SI-139B)	LPSI Flow Control	Yes
2SI-V1539B1 (SI-138B)	LPSI Flow Control	Yes
2SI-V1545B1 (SI-225B)	HPSI Flow Control	Yes
2SI-V1547B3 (SI-227B)	HPSI Flow Control	Yes
3CH-V107B (BAM113B)	Boric Acid Gravity Feed	Yes
2SI-V802B (SI-120B)	SI Pumps B Min. Flow Isol.	Yes
2SI-V1540B2 (SI-226B)	HPSI Flow Control	Yes
1SI-V1502B (SI-401B)	RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1506TK1B (SI-331B)	Safety Inj. Tank 1B Isolation	Yes
1SI-V1508TK2B (SI-332B)	Safety Inj. Tank 2B Isolation	Yes
2HV-B159B (SBV-110B)	SBVS B Train Outlet	Yes
2HV-B161B (SBV-101B)	SBVS B Train Inlet	Yes
2HV-B163B (SBV-114B)	SBVS B Exhaust	Yes
2HV-B165B (SBV-113B)	SBVS B Recirc.	Yes

DELETE

TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
3HV-B197B (HVC-201B)	Control Room Em. Filter Unit North	Yes
3HV-B200B (HVC-203B)	Control Room Em. Filter Unit South	Yes
2CH-V123A/B (CVC-183)	Volume Control Tank Disch	Yes
3HV-B199B (HVC-202B)	Control Room Em. Filter Unit North	Yes
3HV-B202B (HVC-204B)	Control Room Em. Filter Unit South	Yes
2SI-V326B (SI-407B)	RCS Loop 1 Shutdown Cooling Isolation	No
2SI-FM349B (SI-415B)	Shutdown Cooling Flow Control	No
2SI-V1544B4 (SI-228B)	HPSI Flow Control	Yes
2HV-F254B (CAR-201B)	CARS Suction	Yes
2SI-V810A (SI-120A)	S.I. Pumps A Min. Flow Isol.	Yes
3CH-V106A (BAM-113A)	Boric Acid Gravity Feed	Yes
2SI-V801-B (SI-121B)	S.I. Pumps B Min. Flow Isol.	Yes
2HV-B167A (CAR-204A)	CARS Disch.	Yes
3HV-B206A (HVR-313A)	CVAS A Train Outlet	Yes
3HV-B208A (HVR-304A)	CVAS A Train Inlet	Yes
2MS-V670 (MS-120A)	Steam Line 1 Upstream Normal Drain	No
2MS-V671 (MS-119A)	Steam Line 1 Upstream Emerg. Drain	No

DELETE

TABLE 3.8-2 (Continued)

VALVE NUMBER	FUNCTION	BYPASS DEVICE (YES/NO)
2SI-V1534 (SI-219A)	HPSI Hdr. A Orifice Bypass	No
2SI-V1556 (SI-506A)	Hot Leg Injection	No
2SI-V1557 (SI-502A)	Hot Leg Injection	No
2HV-B168B (CAR-204B)	CARS Disch.	Yes
3HV-B207B (HVR-313B)	CVAS B Train Outlet	Yes
3HV-B209B (HVR-304B)	CVAS B Train Inlet	Yes
2MS-V663 (MS-120B)	Steam Line 2 Upstream Normal Drain	No
2MS-V664 (MS-119B)	Steam Line 2 Upstream Emerg. Drain	No
2SI-V811B (SI-219B)	HPSI Hdr. B Orifice Bypass	No
2SI-V1558 (SI-502B)	Hot Leg Injection	No
2SI-V1559 (SI-506B)	Hot Leg Injection	No
- (MS-416)	Emerg. Feed Water Pump Turbine Stop	No
1SI-V1501B (SI-405B)	Hyd. Pump Motor RCS Loop 1 Shutdown Cooling Isolation	No
1SI-V1503A (SI-405A)	Hyd. Pump Motor RCS Loop 2 Shutdown Cooling Isolation	No

DELETE

ADD

PAGES 3/4 8-54
THROUGH
PAGE 3/4 8-56
NOT USED

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The Surveillance Requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The OPERABILITY of the motor-operated valves thermal overload protection and/or bypass devices ensures that these devices will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the OPERABILITY of these devices are in accordance with Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.

ADD "CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES" AND "MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND/OR BYPASS DEVICES" PREVIOUSLY TABLES 3.8-1 AND 3.8-2, HAVE BEEN INCORPORATED INTO PLANT PROCEDURE UNT-005-026

LIST OF TABLES (Continued)

DELETE

LIST OF TABLES (Continued)

DELETE