

→(DRN 05-1013, Am. 103)

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 Offsite A.C. circuit voltage, as measured at the Waterford 3 Switchyard, shall be such that predicted post-trip offsite A.C. circuit voltage, as determined by the Grid Operator, will be sufficient to supply post-trip emergency loads.

APPLICABILITY: MODE 1

ACTIONS:

- a. When notified by the Grid Operator that predicted post-trip offsite A.C. circuit voltage will be less than 223kV, initiate a Condition Report and complete an offsite A.C. circuit operability determination within 12 hours.

SURVEILLANCE REQUIREMENTS:

None

←(DRN 05-1013, Am. 103)

→ (DRN 05-1013, Am. 103)

← (DRN 05-1013, Am. 103)

→(DRN 07-136, Am. 111)

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING/SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 Manufacturer's Recommended Inspections of the Emergency Diesel Generator

-----Note-----

Failure to meet the surveillance requirements do not impact the ability of the emergency diesel generator to perform its safety function.

APPLICABILITY: All MODES

ACTIONS:

- a. The provisions of TRM 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS:

- 4.8.1.2.1 At intervals of 4.5 years or less, subject the diesels to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.

←(DRN 07-136, Am. 111)

→ (DRN 07-136, Am. 111)

← (DRN 07-136, Am. 111)

→(DRN 02-1639)

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The rectifiers for the following Static Uninterruptible Power Supplies (SUPS) shall be OPERABLE.

- a. SUPS-3MA-S
- b. SUPS-3MB-S
- c. SUPS-3MC-S
- d. SUPS-3MD-S
- e. SUPS-3A-S
- f. SUPS-3B-S
- g. SUPS-3AB-S

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

→ (DRN 04-1191, Am. 91)

- a. With any of the above listed SUPS rectifiers inoperable and the associated SUPS is not being supplied from the bypass AC power, restore the rectifier to operable status or verify the two associated battery chargers are in service within 24 hours; otherwise, enter TRM LCO 3.0.3.

← (DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.8.3.1 No additional surveillance requirements other than those required by Technical Specifications 4.8.3.

← (DRN 02-1639)

→ (DRN 02-1639; 05-1013, 07-136, Am. 111)

3/4 8-3

AMENDMENT NO. ~~34, 67, 91, 103,~~

111

← (DRN 02-1639; 05-1013, 07-136, Am. 111)

The primary and backup Containment Penetration Conductor Overcurrent Protective Devices listed in Table 3.8-1 are the protective devices that are applicable to Technical Specification 3.8.4.1.

→(DRN 05-1013, 07-136, Am. 111)

3/4 8-4

AMENDMENT NO. ~~13, 103,~~
111

←(DRN 05-1013, 07-136, Am. 111)

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 REQ'D
BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TIME CURRENT CHARAC-TERISTIC	FUNC. TEST	CHANNEL CALIB.	INTEG. FUNC. TEST	
	DRAWING	TYPE	4.8.4.1.a.2	4.8.4.1.a.1.a	4.8.4.1.a.1.b	4.8.4.1.b
I 6.9 KV POWER FROM MEDIUM VOLTAGE SWITCHGEAR (NOTE I.3)						
1 REACTOR COOLANT PUMP 1A						
a Primary	289-11A1	Note I.1	Note I.2	10% per R	10% per R	every 60 M
RC EBKRIA-7A						1,2,3,4
RC ERELIA-7L						
RC ERELIA-7K						
RC ERELIA-7M						
RC ERELIA-7N						
b Backup						
→(DRN 04-2065, Am. 95)						
7KVEBKRIA-1						
RC EREL220-D	424-220	TD Relay 2	adjust to 4 sec	10% per R	10% per R	every 60 M
7KVERELIA-1E	289-11A1	Line 1	Note II.5	10% per R	10% per R	every 60 M
7KVERELIA-1F	289-11A1	Line 1	Note II.5	10% per R	10% per R	every 60 M
7KVERELIA-1G	289-11A1	Line 1	Note II.5	10% per R	10% per R	every 60 M
c Backup						
7KVEBKRIA-4						
RC EREL220-D	424-220	TD Relay 2	adjust to 4 sec	10% per R	10% per R	every 60 M
7KVERELIA-4E	289-11A1	Line 10	Note II.5	10% per R	10% per R	every 60 M
7KVERELIA-4F	289-11A1	Line 10	Note II.5	10% per R	10% per R	every 60 M
7KVERELIA-4G	289-11A1	Line 10	Note II.5	10% per R	10% per R	every 60 M
←(DRN 04-2065, Am. 95)						
2 REACTOR COOLANT PUMP 1B						
a Primary	289-12A1	Note I.1	Note I.2	10% per R	10% per R	every 60 M
RC EBKRIB-7A						1,2,3,4
RC ERELIB-7A						
RC ERELIB-7C						
RC ERELIB-7B						
RC ERELIB-7D						

TABLE 3. 8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES			WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQ'D
BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACT. TERISTIC	FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	
b Backup							
→(DRN 04-2065, Am. 95)							
7KVEBKRI1B-1							
RC EREL230-D	424-230	TD Relay 2	adjust to 4 sec	NA	10% per R	10% per R	every 60 M
7KVEREL1B-1E	289-12A1	Line 1	Note I.5	NA	10% per R	10% per R	every 60 M
7KVEREL1B-1F	289-12A1	Line 1	Note II.5	NA	10% per R	10% per R	every 60 M
7KVEREL1B-1G	289-12A1	Line 1	Note II.5	NA	10% per R	10% per R	every 60 M
c Backup							
7KVEBKRI1B-4							
RC EREL230-D	424-230	TD Relay 2	adjust to 4 sec	NA	10% per R	10% per R	every 60 M
7KVEREL1B-4E	289-12A1	Line 10	Note II.5	NA	10% per R	10% per R	every 60 M
7KVEREL1B-4F	289-12A1	Line 10	Note II.5	NA	10% per R	10% per R	every 60 M
7KVEREL1B-4G	289-12A1	Line 10	Note II.5	NA	10% per R	10% per R	every 60 M
←(DRN 04-2065, Am. 95)							
3 REACTOR COOLANT PUMP 2A							
a Primary							
	289-11A1	Line 18,19,20	Note I.2	NA	10% per R	10% per R	every 60 M
RC EBKRIA-8A							
RC EREL1A-8A							
RC EREL1A-8C							
RC EREL1A-8B							
RC EREL1A-8D							
b Backup							
→(DRN 04-2065, Am. 95)							
7KVEBKRI1A-1							
RC EREL240-D	424-240	TD Relay 2	adjust to 4 sec	NA	10% per R	10% per R	every 60 M
7KVEREL1A-1E	289-11A1	Line 1	Note II.5	NA	10% per R	10% per R	every 60 M
7KVEREL1A-1F	289-11A1	Line 1	Note II.5	NA	10% per R	10% per R	every 60 M
7KVEREL1A-1G	289-11A1	Line 1	Note II.5	NA	10% per R	10% per R	every 60 M
←(DRN 04-2065, Am. 95)							

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

OVER-CURRENT PROTECTIVE DEVICES		WITHIN EACH VOLTAGE LEVEL (ROMAN)			INTEG. FUNC. TEST	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	FUNC. TEST 4.8.4.1.a.2			
c Backup							
→(DRN 04-2065, Am. 95)							
7KVEBKR1A-4							
RC EREL240-D	424-240		Adjust to 4 sec	NA	10% per R	Every 60 M	1,2,3,4
7KVEREL1A-4E	289-11A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1A-4F	289-11A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1A-4G	289-11A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
←(DRN 04-2065, Am. 95)							
4 REACTOR COOLANT PUMP 2B							
a Primary							
	289-12A1	Note I.1	Note I.2	NA	10% per R	every 60 M	1,2,3,4
RC EBKR1B-8A							
RC EREL1B-8A							
RC EREL1B-8C							
RC EREL1B-8B							
RC EREL1B-8D							
b Backup							
→(DRN 04-2065, Am. 95)							
7KVEBKR1B-1							
RC EREL250-D	424-250		adjust to 4 sec	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1B-1E	289-12A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1B-1F	289-12A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1B-1G	289-12A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
c Backup							
7KVEBKR1B-4							
RC EREL250-D	424-250		adjust to 4 sec	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1B-4E	289-12A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1B-4F	289-12A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
7KVEREL1B-4G	289-12A1	Note I.1	Note II.5	NA	10% per R	every 60 M	1,2,3,4
←(DRN 04-2065, Am. 95)							

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 CAL.

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

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
II 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR (NOTE II.6)									
a Primary	289-20A1	Line 16	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CRNEBKR31A-8A									
b Primary	289-20A2	Line 16	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CRNEREL31A-11C CRNEREL31A-11A CRNEREL31A-11B									
c Backup	424-2485	TD Relay 2		adjust to 2 sec	NA	10% per R	10% per R	every 60 M	1,2,3,4
CRNEREL2485 SSDEBKR3A-15									
2 CEDM COOLING UNIT E-16 (3A)									
a Primary*	289-20A1	Line 17	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31A-8B									
b Primary*	289-20A2	Line 17	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEREL31A-11C CDCEREL31A-11A CDCEREL31A-11B									

*Note II.4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
2 CEDM COOLING UNIT E-16 (3A) (Continued) 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
CDCEREL1139-3 SSDEBKR3A-15									
3 CEDM COOLING UNIT E-16 (3C) a Primary*	289-20A3	Line 23	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31A-9B									
b Primary*	289-20A4	Line 23	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEREL31A-11H CDCEREL31A-11F CDCEREL31A-11G									
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
CDCEREL1140-3 SSDEBKR3A-15									
4 CEDM COOLING UNIT E-16 (3B) a Primary*	289-21A1	Line 18	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-8B									

*Note II.4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES		IDENTIFYING NUMBER OR DESCRIPTION		TIME CURRENT CHARACTERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)		INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	TYPE	FUNC. TEST 4.8.4.1.a.2		CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
4 CEDM COOLING UNIT E-16 (3B) (Continued)								
b Primary*	289-21A2	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-11M								
CDCEBKR31B-11K								
CDCEBKR31B-11L								
→(DRN 05-90, Am. 105)								
c Backup	424-1141	TD Relay 2	adjust to 1 sec	NA	10% per R	10% per R	every 60 M	1,2,3,4
←(DRN 05-90, Am. 105)								
CDCEBKR31B-11I								
SSDEBKR3B-10								
5 CEDM COOLING UNIT E-16 (3D)								
a Primary*	289-21A3	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-9B								
b Primary*	289-21A4	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-11R								
CDCEBKR31B-11P								
CDCEBKR31B-11Q								
→(DRN 05-90, Am. 105)								
c Backup	424-1142	TD Relay 2	adjust to 1 sec	NA	10% per R	10% per R	every 60 M	1,2,3,4
←(DRN 05-90, Am. 105)								
CDCEBKR31B-11S								
SSDEBKR3B-10								

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES		WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURVIVAL IS REQUIRED	
BREAKER PROTECT./AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TIME CURRENT CHARACTERISTIC	FUNC. TEST	CHANNEL CALIB.		INSP & PREV. MAINT.
	DRAWING	TYPE	4.8.4.1.a.2	4.8.4.1.a.1.a	4.8.4.1.b	
6 PRESSURIZER HEATERS BACKUP BANK 1 (B-1)						
a Primary*	289-23A1 Line 4	Note II.1	10% of Type per R	NA	every 60 M	1,2,3,4
RC EBKR32A-4C						
*Note II.4						
b Primary*	289-23A2 Line 4	Note II.1	10% of Type per R	NA	every 60 M	1,2,3,4
RC EREL32A-7S						
RC EREL32A-7T						
RC EREL32A-7U						
c Backup	424-285 TD relay 2	adjust to 0.5 sec	NA	10% per R	every 60 M	1,2,3,4
RC EREL285-E						
SSDEBKR3A-8						
7 PRESSURIZER HEATERS BACKUP BANK 2 (B-2)						
a Primary*	289-23A1 Line 5	Note II.1	10% of Type per R	NA	every 60 M	1,2,3,4
RC EBKR32A-4D						
b Primary*	289-23A2 Line 5	Note II.1	10% of Type per R	NA	every 60 M	1,2,3,4
RC EREL32A-7A						
RC EREL32A-7B						
RC EREL32A-7C						
c Backup	424-286 TD Relay 2	adjust to 0.5 sec	NA	10% per R	every 60 M	1,2,3,4
RC EREL286-E						
SSDEBKR3A-8						

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
8 PRESSURIZER HEATERS BACKUP BANK 3 (B-3) a Primary*	289-23A1	Line 6	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR32A-5A	*Note II.4								
b Primary*	289-23A2	Line 6	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EREL32A-7G RC EREL32A-7H RC EREL32A-7I									
c Backup	424-287	TD Relay 2		adjust to 0.5 sec	NA	10% per R	10% per R	every 60 M	1,2,3,4
RC EREL287-E SSDEBKR3A-8									
9 PRESSURIZER HEATERS BACKUP BANK 4 (B-4) a Primary*	289-24A1	Line 4	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR32B-4C									
b Primary*	289-24A2	Line 4	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EREL32B-7M RC EREL32B-7N RC EREL32B-7O									
c Backup	424-288	TD Relay 2		adjust to 0.5 sec	NA	10% per R	10% per R	every 60 M	1,2,3,4
RC EREL288-E SSDEBKR3B-9									

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
10 PRESSURIZER HEATERS BACKUP BANK 5 (B-5) a Primary*	289-24A1	Line 5	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR32B-4D	*Note II.4								
b Primary*	289-24A2	Line 5	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EREL32B-7S RC EREL32B-7T RC EREL32B-7U									
c Backup	424-289	TD Relay 2		adjust to 0.5	NA	10% per R	10% per R	every 60 M	1,2,3,4
RC EREL289-E SSDEBKR3B-9									
11 PRESSURIZER HEATERS BACKUP BANK 6 (B-6)									
a Primary *	289-24A1	Line 6	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR32B-5A									
b Primary*	289-24A2	Line 6	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EREL32B-7G RC EREL32B-7H RC EREL32B-7I									

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.
Note II.4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	
11 PRESSURIZER HEATERS BACKUP BANK 6 (B-6)(Continued)								
c Backup	424-290	TD Relay 2		adjust to 0.5 sec	NA	10% per R	10% per R	every 60 M 1,2,3,4
RC EREL290-E SSDEBKR3B-9								
12 PRESSURIZER HEATERS PROPORTIONAL BANK 1 (P-1)								
a Primary	289-23A1	Line 8	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M 1,2,3,4
RC EBKR32A-5C								
b Primary	289-23A2	Line 8	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M 1,2,3,4
RC EREL32A-7M RC EREL32A-7N RC EREL32A-7O								
c Backup Fuses		CHASE- SHAWMUT A50P200	Fuse		NA	NA	NA	1,2,3,4
13 PRESSURIZER HEATERS PROPORTIONAL BANK 2 (P-2)								
a Primary	289-24A1	Line 8	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M 1,2,3,4
RC EBKR32B-5C								
b Primary	289-24A2	Line 8	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	every 60 M 1,2,3,4
←(DRN 05-90, Am. 105) RC EREL32B-7A RC EREL32B-7B RC EREL32B-7C								

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

TABLE 3. 8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER or OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST	CHANNEL CALIB.	INTEG. FUNC. TEST	
13 PRESSURIZER HEATERS PROPORTIONAL BANK 2 (P-2)(Continued)								
c Backup		CHASE- SHAWMUT	Fuse		NA	NA	NA	1,2,3,4
Fuses		A50P200						
III 240 VOLTS CEDM POWER (NOTES IV.3 & IV.4)								
1 CEDM COILS (91 Circuits)								
a Primary		Subgroup Bus	Heine- mann 40	Heinemann Series AM, Curve 3	10% per R	NA	every 60 M	1,2,3,4
CEDEBKR2438 AC2								
CEDEBKR2438 BC2								
CEDEBKR2438 CC2								
CEDEBKR2438 DC2								
CEDEBKR2438 EC2								
CEDEBKR2438 FC2								
CEDEBKR2438 GC2								
CEDEBKR2438 HC2								
CEDEBKR2438 IC2								
CEDEBKR2438 JC2								
CEDEBKR2438 AC3								
CEDEBKR2438 BC3								
CEDEBKR2438 CC3								
CEDEBKR2438 DC3								
CEDEBKR2438 EC3								
CEDEBKR2438 FC3								
CEDEBKR2438 GC3								
CEDEBKR2438 HC3								
CEDEBKR2438 IC3								
CEDEBKR2438 JC3								

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	
1 CEDM COILS (91 Circuits) Continued								
a Primary		Subgroup Bus	Heine- mann 40	Heinemann Series AM, Curve3	10% per R	NA	NA	every 60 M 1,2,3,4
CEDEBKR9218-D CEDEBKR9218-C CEDEBKR9218-A CEDEBKR9218-B								
b Primary		Hold Bus	Heine- mann 30	Heinemann Series AM, Curve3	10% per R	NA	NA	every 60 M 1,2,3,4
CEDEBKR2909-A CEDEBKR2909-B								
c Backup Fuses	60A		Fuse	Fast Acting Semiconductor Fuse	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 subgroups and hold buses. One breaker and three fuses protect
each subgroup/hold bus. These cabinets feed power to the CEDM Coils via #4 AWG & #8 AWG penetration conductors.

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>		<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>		
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>		<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	
<u>DRAWING</u>	<u>TYPE</u>	<u>TEST 4.8.4.1.a.1.b</u>	<u>CHAR. TEST 4.8.4.1.a.1.b</u>	<u>INTEG. TEST 4.8.4.1.a.1.b</u>			
IV 480 VOLTS POWER FROM MCCs							
1 SAFETY INJECTION TANK 1A ISOLATION VALVE SI MVAAA331-A (ISI-V1505 TK 1A)							
a Primary	289-61 Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
SI EBKR311A-8H	Note IV.1						
b Backup	289-61 Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4
2 SAFETY INJECTION TANK 2A ISOLATION VALVE SI MVAAA332-A (ISI-V1507 TK 2A)							
a Primary	289-61 Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
SI EBKR311A-8M	Note IV.1						
b Backup	289-61 Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4
3 LP-311							
a Primary	289-62 Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
LTNEBKR311A-12ML	Note IV.1						
b Backup	289-62 Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4
4 RCS LOOP 2 SDC ISOLATION VALVE SI MVAAA401A (ISI-V1504A)							
a Primary	289-63 Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
SI EBKR311A-8D	Note IV.1						
b Backup	289-63 Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)		INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1 a.1.a		
5 CARS SUCTION VALVE CARMVAAA201-A (2HV-F253A) a Primary	289-64	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
CAR EBKR311A-15M	Note IV.1							
b Backup	289-64	Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4
→(EC-935, Am. 117)								
←(EC-935, Am. 117)								
7 SAFETY INJECTION TANK 1B ISOLATION VALVE SIMVAAA331-B (ISI-V1506 TK 1B) a Primary	289-65	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
SI EBKR311B-8H	Note IV.1							
b Backup	289-65	Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4
8 SAFETY INJECTION TANK 2B ISOLATION VALVE SIMVAAA332-B (ISI-V1508 TK 2B) a Primary	289-65	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	every 60 M	1,2,3,4
SI EBKR311B-8M	Note IV.1							
b Backup	289-65	Fuse	TRS	Note IV.4	NA	NA	NA	1,2,3,4 1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
9 LP-310 a Primary	289-66	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR311B-7ML	Note IV.1								
b Backup	289-66	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
10 RCS LOOP 1 SDC ISOLATION VALVE SI MVAAA401-B (1SI-V1502B)									
a Primary	289-67	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR311B-8D	Note IV.1								
b Backup	289-67	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
11 CARS SUCTION VALVE CARMVAAA201-B (2HV-F254B))									
a Primary	289-68	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CAR EBKR311B-15M	Note IV.1								
b Backup	289-68	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4

→(EC-935, Am. 117)

←(EC-935, Am. 117)

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
→ (EC-41803, Am. 126) 13 CONT. 30KVA TRANSF. PDP 377A a Primary	289-71	Breaker	HFD	Note IV.2,IV.3	10% of Type	NA	NA	every 60 M	1,2,3,4
← (EC-41803, Am. 126)					per R				
LVD EBKR312A-12MR	Note IV.1								
b Backup	289-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
14 RCP 2A OIL LIFT PUMP A									
a Primary	289-71	Breaker	EF	Note IV.2,IV.3	10% of Type	NA	NA	every 60 M	1,2,3,4
	Note IV.1				per R				
RC EBKR312A-9H									
b Backup	289-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
15 RCP 1A OIL LIFT PUMP A									
a Primary	289-71	Breaker	EF	Note IV.2,IV.3	10% of Type	NA	NA	every 60 M	1,2,3,4
	Note IV.1				per R				
RC EBKR312A-9E									
b Backup	289-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
16 STEAM GENERATOR 1 VENT VALVE MS MVAAA101-A (2MS-V668)									

The motor operator is abandoned in place.
Breakers/cables are spared.

17 MOVABLE DETECTOR DRIVE MACHINE 1

THE MOVABLE DETECTOR DRIVE MACHINE 1 WAS DISCONNECTED.
BOTH THE BREAKER AND FUSE ARE SPARED. (MINI EBKR312A-12ML)

TABLE 3. 8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES			WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D
BREAKER PROTEC./AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TIME CHARACTERISTIC	FUNC. TEST	CHANNEL CALIB.	INSP & PREV. MAINT.	
DRAWING	DESCRIPTION	TYPE	4.8.4.1.a.2	4.8.4.1.a.1.a	4.8.4.1.b	
18 STEAM GENERATOR 2 VENT VALVE MS MVAAA101-B (2MS-V667)						
The motor operator is abandoned in place. Breakers/cables are spared.						
19 RCP 1B OIL LIFT PUMP A → (EC-15976, Am. 126) a Primary ← (EC-15976, Am. 126)	Breaker	HFD	Note IV.2,IV.3	10% of Type per R	NA	every 60 M
RC EBKR312B-9E	Note IV.1					
b Backup	289-74	Fuse	TR	TR	TR	TR
20 RCP 2B OIL LIFT PUMP A a Primary	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	every 60 M
RC EBKR312B-9H	Note IV.1					
b Backup	289-74	Fuse	TR	TR	TR	TR
21 MOVABLE DETECTOR DRIVE MACHINE 2						
THE MOVABLE DETECTOR DRIVE MACHINE 2 WAS DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED.(MINI EBKR312B-12ML)						
22 CONT. 30KVA TRANSF. PDP 378B a Primary	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	every 60 M
LVD EBKR312B-12MR	Note IV.1					
b Backup	289-75	Fuse	TR	TR	TR	TR

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
<u>DRAWING</u>	<u>TYPE</u>		<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
23 H2 RECOMBINER POWER SUPPLY A							
a Primary	Breaker	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
HRAEBKR313A-3M	Note IV.1						
b Backup	Fuse	NOTE IV.4	NA	NA	NA	NA	1,2,3,4
24 REACTOR CAVITY COOLING SYSTEM FAN S-2 (3A)							
a Primary	Breaker	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RCCEBKR313A-12M	Note IV.1						
b Backup	Fuse	Note IV.4	NA	NA	NA	NA	1,2,3,4
25 RADIATION REMOVAL UNIT E-13 (3A)							
a Primary	Breaker	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
ARREBKR313A-12E	Note IV.1						
b Backup	Fuse	Note IV.4	NA	NA	NA	NA	1,2,3,4
26 RCP 1A OIL LIFT PUMP B							
a Primary	Breaker	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR313A-10J	Note IV.1						
b Backup	Fuse	Note IV.4	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>		<u>IDENTIFYING NUMBER OR DESCRIPTION</u>		<u>TYPE</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	<u>MODES FOR WHICH SURV IS REQ'D</u>
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>DESCRIPTION</u>				<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>		
27 RCP 2A OIL LIFT PUMP B a Primary	289-78	Breaker		EF	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR313A-10M	Note IV.1									
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	Breaker		FJ	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
HRAEBKR313B-3M	Note IV.1									
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) → (EC-15976, Am. 126) a Primary ← (EC-15976, Am. 126)	289-81	Breaker		HFD	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RCCEBKR313B-12M	Note IV.1									
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	Breaker		EF	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
ARREBKR313B-12E	Note IV.1									
b Backup	289-81	Fuse		TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURV IS REQ'D</u>		
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARAC-TERISTIC</u>	<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>		<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>	<u>INSP & PREV. MAINT. 4.8.4.1.b.</u>
31 RCP 1B OIL LIFT PUMP B a Primary	289-81	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR313B-10J	Note IV.1								
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	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR313B-10M	Note IV.1								
b Backup	289-81	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
33 MISSILE SHIELD TRUCK RECEPTACLE a Primary*									
CRNEBKR316B-3BR									
b Backup*									
*ITEM IV.33 - Primary breaker is locked out in the open position during MODES 1,2,3,4. Therefore, non OPERABLE primary or backup protection does not place the plant in an LCO									
>(EC-22965, Am. 122)									
34 CONTAINMENT COOLING UNIT AH-1 (3A-SA) a Primary	289-97	Breaker	JD	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
<(EC-22965, Am. 122)									
CCSEBKR317A-2M									
b Backup	289-20A1	Breaker	ECS	Note IV.6, IV.7,IV.8	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SSDEBKR31A 7A	Note IV.5								
c Backup	289-20A2	Relay	IAC66T	Note IV.6,IV.7,IV.8	10% of Type per R	NA	NA	every 60 M	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>
<u>BREAKER PROTEC./AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>	<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	
35 CONTAINMENT COOLING UNIT AH-1 (3C-SA) a Primary CCSEBKR317A-3M	Breaker	JL	Note IV.2,IV.3	NA	NA	every 60 M	1,2,3,4
	Breaker	ECS	Note IV.6,IV.7&IV.8	NA	NA	every 60 M	1,2,3,4
	Note IV.5						
b Backup SSDEBKR31A 7A	Relay	IAC66T	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Breaker	JL	Note IV.2,IV.3	NA	NA	every 60 M	1,2,3,4
	Note IV.5						
36 CONTAINMENT COOLING UNIT AH-1 (3B-SB) a Primary CCSEBKR317B-3M	Breaker	ECS	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Relay	IAC66T	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Note IV.5						
b Backup SSDEBKR31B 7A	Relay	IAC66T	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Breaker	JL	Note IV.2,IV.3	NA	NA	every 60 M	1,2,3,4
	Note IV.5						
37 CONTAINMENT COOLING UNIT AH-1 (3D-SB) a Primary CCSEBKR317B-2M	Relay	IAC66T	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Breaker	JL	Note IV.2,IV.3	NA	NA	every 60 M	1,2,3,4
	Note IV.5						
b Backup SSDEBKR31B 7A	Relay	ECS	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Breaker	IAC66T	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Note IV.5						
c Backup SSDEBKR31B 7A	Relay	IAC66T	Note IV.6,IV.7,IV.8	NA	NA	every 60 M	1,2,3,4
	Breaker	JL	Note IV.2,IV.3	NA	NA	every 60 M	1,2,3,4
	Note IV.5						

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
38 CONTAINMENT SUMP PUMP A a Primary	289-45	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SP EBBKR213A-4J									
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	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR213A-11FR									
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	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR213A-11CL									
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	Note IV.2,IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR213A-11CR									
b Backup	289-45	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>		
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>		<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>	<u>INSP & PREV. MAINT. 4.8.4.1.b</u>
42 LP-304 a Primary	289-45	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR213A-11FL									
b Backup	289-45	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
43 CONTAINMENT ELEVATOR D a Primary	289-47	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
ELVEBKR213B-12CL									
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	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
FS EBKR213B-11J									
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	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
FHSEBKR213B-12CR									
b Backup	289-50	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
46 REFUELING EQUIPMENT a Primary	289-48	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
FHS EBKR213B-12FL									
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	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SP EBKR213B-4J									
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	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR213B-11CR									
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	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
LTNEBKR213B-11FL									
b Backup	289-49	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u> BREAKER PROTEC./ AFFECTED COMPONENTS	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARAC- TERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURV IS REQ'D</u>		
					<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>		<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	
50 LP-300 a Primary	289-49	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4	
LTNEBKR213B-11CL										
b Backup	289-49	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4	
51 SDC LOOP 2 VACUUM PRIMING PUMP										
a Primary	289-45	Breaker	EF-3	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4	
SIEBKR213A-8H										
b Backup	289-43	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4	
52 SDC LOOP 1 VACUUM PRIMING PUMP										
a Primary	289-47	Breaker	EF-3	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4	
SIEBKR213B-5J										
b Backup	289-47	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4	
53 PDP 365A RECEPTACLES										
a Primary	289-104	Breaker	TED	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4	
SSDEBKR65A-7										

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u> BREAKER PROTEC./ AFFECTED COMPONENTS	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARAC- TERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	<u>MODES FOR WHICH SURV IS REQ'D</u>
					<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>		
53 PDP 365A RECEPTACLES (Continued) b Backup	289-104	Breaker	TED	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SSDEBKR65A-7A									
54 PDP 366B RECEPTACLES a Primary	289-104	Breaker	TED	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SSDEBKR66B-7									
b Backup	289-104	Breaker	TED	Note IV.2, IV.3	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SSDEBKR66B-7A									

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	<u>MODES FOR WHICH SURV IS REQ'D</u>
				<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>		
V 208 VOLTS CONTROL POWER FROM PDPs OR MCCs								
1 RCP 1A HEATER								
a Primary	424-2269	Breaker	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKRIA-7B								
b Backup	424-2269	Breaker	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKRIA-7C								
2 RCP 2A HEATER								
a Primary	424-2269	Breaker	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKRIA-8B								
b Backup	424-2269	Breaker	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKRIA-8C								
3 RCP 1B HEATER								
a Primary	424-2270	Breaker	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR1B-7B								
b Backup	424-2270	Breaker	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR1B-7C								

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST	CHANNEL CALIB.	INTEG. FUNC. TEST		
4 RCP 2B HEATER a Primary	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR1B-8B									
b Backup	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RCEBKR1B-8C									
VI 120 VOLTS CONTROL POWER FROM PDPs OR MCCs									
1 SI TANK 1A LEAKAGE DRAIN SOLENOID VALVE SI ISV0303-A (ISI-F1551TK1A)									
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
SI EBKR94A-26									
b Backup	289-186A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1,2,3,4
2 SI TANK 2A LEAKAGE DRAIN SOLENOID VALVE SI ISV0304-A (ISI-F1553TK2A)									
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
SI EBKR94A-38									
b Backup	289-186A	Circuit 38	Fuse FRN		NA	NA	NA	NA	1,2,3,4
3 COMPONENT COOLING WATER FROM RCP'S ISOL. SOLENOID VALVE CC ISV0710 (2CC-F243A/B)*									
a Primary NO BKR	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

TABLE 3.8-1 (cont'd)

CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
4 CONT ISOL FROM SI TANK DRAIN TO RWSP SOLENOID VALVE SI ISV0343 (2SI-F1561A/B) a Primary	289-186	Circuit 5	Breaker	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR94A-5									
b Backup	289-186A	Circuit 5	Fuse FRN		NA	NA	NA	NA	1,2,3,4
5 SI TANK 1A NITROGEN SUPPLY SOLENOID VALVE NG ISV0161-A (2SI-F605TK1A) a Primary	289-186	Circuit 16	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
NG EBKR94A-16									
b Backup	289-186A	Circuit 16	Fuse FRN		NA	NA	NA	NA	1,2,3,4
6 SI TANK 2A NITROGEN SUPPLY SOLENOID VALVE NG ISV0162-A (2SI-F607TK2A) a Primary	289-186	Circuit 25	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
NG EBKR94A-25									
b Backup	289-186A	Circuit 25	Fuse FRN		NA	NA	NA	NA	1,2,3,4
7 SI TANK 1A VENT SOLENOID VALVE SI ISV0323-A (2SI-E636) a Primary	289-186	Circuit 30	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR94A-30									
b Backup	289-186A	Circuit 30	Fuse FRN		NA	NA	NA	NA	1,2,3,4
289-186A									

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARAC-TERISTIC</u>	<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>		<u>INSP & PREV. MAINT. 4.8.4.1.b</u>
8 SI TANK 2A VENT SOLENOID VALVE SI ISV0324-A (2SI-E638) a Primary	289-186 Circuit 36 Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR94A-36							
b Backup	289-186A Circuit 36 Fuse FRN		NA	NA	NA	NA	1,2,3,4
9 LETDOWN STOP VALVE SOLENOID VALVE CVCISV0101 (1CH-F1516A/B) a Primary	289-147 Circuit 1 Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVC EBKR90A-1							
b Backup	289-147A Circuit 1 Fuse FRN		NA	NA	NA	NA	1,2,3,4
10 RCS LOOP 1 HOT LEG INJECTION DRAIN SOLENOID VALVE SI ISV0301 (1SI-V2504) a Primary	289-147 Circuit 30 Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR90A-30							
b Backup	289-147A Circuit 30 Fuse FRN		NA	NA	NA	NA	1,2,3,4
11 SI TANK 1A FILL/DRAIN SOLENOID VALVE SI ISV0307-A (2SI-F1564TK1A) a Primary	289-186 Circuit 28 Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR94A-28							
b Backup	289-186A Circuit 28 Fuse FRN		NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		INSP & PREV. MAINT. 4.8.4.1.b
12 CONTAINMENT PURGE ISOLATION SOLENOID VALVES CAPISV0103, CAPISV0103-2, CAPISV0104, & CAPISV0104-2 (2HV-B151A & 2HV-B152A)									
a Primary	289-120	Circuit 26	Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CAP EBKR60A-26									
b Backup	289-120A	F1	Fuse TRS		NA	NA	NA	NA	1,2,3,4
13 H2 ANALYZER PANEL SYSTEM A									
a Primary	289-120	Circuit 32	Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
↳(DRN 05-90, Am. 105)									
HRA EBKR60A-32									
b Backup	289-120a	F18	Fuse FNM		NA	NA	NA	NA	1,2,3,4
↳(DRN 05-90, Am. 105)									
↳(DRN 04-182, Am. 87)									
c Primary	289-120	Circuit 7	Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
↳(DRN 05-90, Am. 105)									
HRA EBKR60A-7									
d Backup	289-120a	F17	Fuse FNM		NA	NA	NA	NA	1,2,3,4
↳(DRN 05-90, Am. 105)									
↳(DRN 04-182, Am. 87)									

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D
				FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	
14 CONTAINMENT SPRAY RISER LEVEL PUMP A TEST SOLENOID VALVE CS ISV0129-A (2CS-E608A) a Primary	289-120 Circuit 9	Breaker EE	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
CS EBKR60A-9							
b Backup	289-120A	F3 Fuse TRS		NA	NA	NA	NA 1,2,3,4
15 SI TANK 2A FILL/DRAIN SOLENOID VALVE SI ISV0308-A(2SI-F1566TK2A) a Primary	289-186 Circuit 40	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
SI EBKR94A-40							
b Backup	289-186A	Circuit 40 Fuse FRN		NA	NA	NA	NA 1,2,3,4
16 SI TANK 1B VENT SOLENOID VALVE SI ISV0323-B (2SI-E633) a Primary	289-186 Circuit 34	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
SI EBKR94A-34							
b Backup	289-186A	Circuit 34 Fuse FRN		NA	NA	NA	NA 1,2,3,4
17 SI TANK 2B VENT SOLENOID VALVE SI ISV0326-B (2SI-E635) a Primary	289-186 Circuit 27	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
SI EBKR94A-27							
b Backup	289-186A	Circuit 27 Fuse FRN		NA	NA	NA	NA 1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>		<u>IDENTIFYING NUMBER OR DESCRIPTION</u>		<u>TIME CURRENT CHARACTERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT.</u>	<u>MODES FOR WHICH SURV IS REQ'D</u>
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>TYPE</u>	<u>TYPE</u>		<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>	<u>4.8.4.1.b</u>	
					<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>		
18 RCS LOOP 2 SDC ISOLATION VALVE SI MVA4405-A SOLENOID VALVES (ISI-V1503A)* a Primary NO BKR	289-108A	Fuse FRN	Circuit 7		NA	NA	NA	NA	1,2,3,4
b Backup	289-108A	Fuse FRN	Circuit 7		NA	NA	NA	NA	1,2,3,4
19 CONTAINMENT VACUUM RELIEF SOLENOID VALVE CVRISV0201 (2HV-B156A) a Primary	289-147	Breaker CD	Circuit 14	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVR EBKR90A-14									
b Backup	289-147A	Fuse FRN	Circuit 14		NA	NA	NA	NA	1,2,3,4
20 CONTAINMENT FAN COOLERS SYS A VALVES a Primary	289-120	Breaker EE	Circuit 17	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR60A-17									
b Backup	289-120A	Fuse TRS	F6		NA	NA	NA	NA	1,2,3,4

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

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	DRAWING	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
21 CONTAINMENT FAN COOLER AH-1(3A-SA) MOTOR SPACE HEATER a Primary	289-120 Circuit 13		Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR60A-13									
b Backup	289-120A	F4	Fuse TRS		NA	NA	NA	NA	1,2,3,4
22 CONTAINMENT FAN COOLER AH-1(3C-SA) MOTOR SPACE HEATER a Primary	289-120 Circuit 15		Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR60A-15									
b Backup	289-120A	F5	Fuse TRS		NA	NA	NA	NA	1,2,3,4
23 CEDM COOLING UNIT E-16(3A) MOTOR SPACE HEATER* a Primary	424-1139 Breaker		TED	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDC EBKR31A-31									
b Backup	424-1139	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31A-32									

*120/280V SWGR heater bus, double breaker protection.

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>	<u>IDENTIFYING</u>		<u>TIME</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURV IS REQ'D</u>
	<u>BREAKER</u>	<u>NUMBER OR DESCRIPTION</u>		<u>CURRENT CHARACT- ERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	
<u>PROTEC./</u>	<u>DRAWING</u>	<u>TYPE</u>		<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>
<u>COMPONENTS</u>							
24 CEDM COOLING UNIT E-16(3C) MOTOR SPACE HEATER*							
a Primary	424-1140	Breaker	Note VI.2	10% of Type per R	NA	NA	every 60 M
CDCEBKR31A-33							1,2,3,4
b Backup	424-1140	Breaker	Note VI.2	10% of Type per R	NA	NA	every 60 M
CDCEBKR31A-34							1,2,3,4
25 SI TANK 1B LEAKAGE DRAIN SOLENOID VALVE SI ISV0303-B (2SI-F1552TK1B)							
a Primary	289-187	Circuit 26 Breaker	Note VI.2	10% of Type per R	NA	NA	every 60 M
SI EBKR95B-26							1,2,3,4
b Backup	289-187A	Circuit 26		NA	NA	NA	NA
26 SI TANK 2B LEAKAGE DRAIN SOLENOID VALVE SI ISV0304-B (1SI-F1554TK2B)							
a Primary	289-187	Circuit 38 Breaker	Note VI.2	10% of Type per R	NA	NA	every 60 M
SI EBKR95B-38							1,2,3,4
b Backup	289-187A	Circuit 38		NA	NA	NA	NA

*120/208V SWGR heater bus, double breaker protection.

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURV IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARAC- TERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
	<u>DRAWING</u>	<u>TYPE</u>	<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
27 WASTE GAS CONT. ISOLATION VALVE SOLENOID VALVE GWMISV0104 (2WM-F157AB) a Primary	289-187 Circuit 7	Breaker CD	10% of Type per R	NA	NA	every 60 M	1,2,3,4
GWMEBKR95B-7							
b Backup	289-187A Circuit 7	Fuse FRN	NA	NA	NA	NA	1,2,3,4
28 SI TANK 1B NITROGEN SUPPLY SOLENOID VALVE NG ISV0161-B (2SI-F606TK1B) a Primary	289-187 Circuit 16	Breaker CD	10% of Type per R	NA	NA	every 60 M	1,2,3,4
NG EBKR95B-16							
b Backup	289-187A Circuit 16	Fuse FRN	NA	NA	NA	NA	1,2,3,4
29 SI TANK 2B NITROGEN SUPPLY SOLENOID VALVE NG ISV0162-B (2SI-F608TK2B) a Primary	289-187 Circuit 25	Breaker CD	10% of Type per R	NA	NA	every 60 M	1,2,3,4
NG EBKR95B-25							
b Backup	289-187A Circuit 25	Fuse FRN	NA	NA	NA	NA	1,2,3,4
30 SI TANK 1B VENT SOLENOID VALVE SI ISV0325-B (2SI-E637) a Primary	289-187 Circuit 30	Breaker CD	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR95B-30							
b Backup	289-187A Circuit 30	Fuse FRN	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>				<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
					<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
31 SI TANK 2B VENT SOLENOID VALVE SI ISV0324-B (2SI-E639) a Primary	289-187	Circuit 27	Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR95B-27									
b Backup	289-187A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1,2,3,4
32 RCP BLEED OFF CONT. ISOL. SOLENOID VALVE RC ISV0606 (2CH-F1513A/B) a Primary	289--187	Circuit 2	Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR95B-2									
b Backup	289-187A	Circuit 2	Fuse FRN		NA	NA	NA	NA	1,2,3,4
33 LETDOWN CONT. ISOL. VALVE SOLENOID VALVE CVCISV0103 (1CH-F2501 A/B) a Primary	289-148	Circuit 1	Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVC EBKR91B-1									
b Backup	289-148A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>	<u>INSP & PREV. MAINT.</u>	
<u>DRAWING</u>	<u>TYPE</u>	<u>TERMINAL</u>	<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
34 RCS LOOP 2 HOT LEG INJECTION DRAIN SOLENOID VALVE SI ISV0302 (ISI-V2505) a Primary	289-148 Circuit 28 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR91B-28							
b Backup	289-148A Circuit 28 Fuse FRN		NA	NA	NA	NA	1,2,3,4
35 SOLENOID VALVE (BM-109) a Primary	289-187 Circuit 1 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
BM EBKR95B1							
b Backup	289-187A Circuit 1 Fuse FRN		NA	NA	NA	NA	1,2,3,4
36 CONTAINMENT PURGE ISOLATION SOLENOID VALVES CAPISV0203, CAPISV0204, & CAPISV0204-2 (2HV-B153B & 2HV-B154B) a Primary	289-121 Circuit 26 Breaker EE	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CAPEBKR61B-26							
b Backup	289-121A F6 Fuse TRS		NA	NA	NA	NA	1,2,3,4
37 CONTAINMENT VACUUM RELIEF SOLENOID VALVE CVRISV0101 (2HV-B157B) a Primary	289-148 Circuit 14 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVREBKR91B-14							
b Backup	289-148A Circuit 14 Fuse FRN		NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURVIVIS REQ'D
				FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	
38 STEAM GENERATOR NO. 1 BLOWDOWN CONT. ISOL. SOLENOID VALVE BD ISV'0102-A (2BD-F603) a Primary	289-187	Circuit 6 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
BD EBKR95B-6							
b Backup	289-187A	Circuit 6 Fuse FRN		NA	NA	NA	NA 1,2,3,4
39 STEAM GENERATOR NO. 2 BLOWDOWN CONT. ISOL. SOLENOID VALVE BD ISV'0102-B (2BD-F605) a Primary	289-187	Circuit 8 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
BD EBKR95B-8							
b Backup	289-187A	Circuit 8 Fuse FRN		NA	NA	NA	NA 1,2,3,4
40 H2 ANALYZER PANEL SYSTEM B a Primary	289-121	Circuit 32 Breaker EE	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
HRAEBKR61B-32 →(DRN 05-90, Am. 105)							
b Backup	289-121a	Fuse FNM		NA	NA	NA	NA 1,2,3,4
←(DRN 05-90, Am. 105)							
→(DRN 04-192, Am. 86)							
c Primary	289-121	Circuit 7 Breaker EE	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
→(DRN 05-90, Am. 105)							
HRAEBKR61B-7 d Backup	289-121a	Fuse FNM		NA	NA	NA	NA 1,2,3,4
←(DRN 05-90, Am. 105)							
←(DRN 04-192, Am. 86)							

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>	
<u>BREAKER PROTEC./AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
	<u>DRAWING</u>	<u>TYPE</u>	<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
41 CONTAINMENT SPRAY RISER LEVEL PUMP B TEST SOLENOID VALVE CS ISV0129-B (2CS-E609B)	289-121	Circuit 9 Breaker EE	Note V1.2 10% of Type per R	NA	NA	every 60 M	1,2,3,4
CS EBKR61B-9							
b Backup	289-121A	F2 Fuse TRS	NA	NA	NA	NA	1,2,3,4
42 CONTAINMENT SUMP PUMPS ISOLATION VALVE SOLENOID VALVE SP ISV0105 (2WM-F104A/B)	289-187	Circuit 9 Breaker CD	Note V1.2 10% of Type per R	NA	NA	every 60 M	1,2,3,4
a Primary							
SP EBKR95B-9							
b Backup	289-187A	Circuit 9 Fuse FRN	NA	NA	NA	NA	1,2,3,4
43 SI TANK 1B FILL/DRAIN SOLENOID VALVE SI ISV0307-B (2SI-F1565TK1B)	289-187	Circuit 28 Breaker CD	Note V1.2 10% of Type per R	NA	NA	every 60 M	1,2,3,4
a Primary							
SI EBKR95B-28							
b Backup	289-187A	Circuit 28 Fuse FRN	NA	NA	NA	NA	1,2,3,4
44 SI TANK 2B FILL/DRAIN SOLENOID VALVE SI ISV0308-B (2SI-F1567TK2B)	289-187	Circuit 40 Breaker CD	Note V1.2 10% of Type per R	NA	NA	every 60 M	1,2,3,4
a Primary							
SI EBKR95B-40							
b Backup	289-187A	Circuit 40 Fuse FRN	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURV IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
		<u>TYPE</u>		<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
45 SI TANK 1A VENT SOLENOID VALVE SI ISV0325-A (2SI-E632) a Primary	289-187	Circuit 36 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR95B- 36								
b Backup	289-187A	Circuit 36 Fuse FRN		NA	NA	NA	NA	1,2,3,4
46 SI TANK 2A VENT SOLENOID VALVE SI ISV0326-A (2SI-E634) a Primary	289-187	Circuit 34 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR95B-34								
b Backup	289-187A	Circuit 34 Fuse FRN		NA	NA	NA	NA	1,2,3,4
47 COOLANT SAMPLING ISOLATION VALVE SOLENOID VALVE PSLISV0105 (2SL-F1501A/B) a Primary	289-187	Circuit 29 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
PSL EBKR95B- 29								
b Breaker	289-187A	Circuit 29 Fuse FRN		NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
48 PRESSURIZER SURGE LINE SAMPLING ISOLATION VALVE SOLENOID VALVE PSLISV0203 (2SL-F1502A/B) a Primary	289-187	Circuit 31	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
PSL EBBK95B-31									
b Backup	289-187A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1,2,3,4
49 PRESSURIZER STEAM SPACE SAMPLING ISOLATION VALVE SOLENOID VALVE PSLISV0303 (2SL-F1503A/B) a Primary	289-187	Circuit 33	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
PSLEBKR95B-33									
b Backup	289-187A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1,2,3,4
50 RCS LOOP 1 SDC ISOLATION VALVE SI MVAAA405-B SOLENOID VALVES (IS1-V150IB)* a Primary NO BKR	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

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	DRAWING	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURVIVS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
51 CONTAINMENT FAN COOLER AH-1(3B-SB) MOTOR SPACE HEATER a Primary	289-121 Circuit 13		Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR61B-13									
b Backup	289-121A	F3	Fuse TRS		NA	NA	NA	NA	1,2,3,4
52 CONTAINMENT FAN COOLER AH-1(3D-SB) MOTOR SPACE HEATER a Primary	289-121 Circuit 15		Breaker EE	NOTE VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR61B-15									
b Backup	289-121A	F4	Fuse TRS		NA	NA	NA	NA	1,2,3,4
53 CEDM COOLING UNIT E-16(3B) MOTOR SPACE HEATER* a Primary	424-1141 Breaker		TED	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-31									
b Backup	424-1141	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-32									

*120/208V SWGR heater bus, double breaker protection.

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>		<u>IDENTIFYING NUMBER OR DESCRIPTION</u>		<u>TIME CURRENT CHARACTERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT.</u>	<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>
<u>BREAKER PROTEC./AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>DESCRIPTION</u>	<u>TYPE</u>	<u>TERMINAL</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>	<u>4.8.4.1.b</u>	
54 CEDM COOLING UNIT E-16(3D) MOTOR SPACE HEATER* a Primary	424-1142	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-33									
b Backup	424-1142	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CDCEBKR31B-34									
55 CONTAINMENT FAN COOLERS SYS B VALVES a Primary	289-121	Circuit 17	Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR61B-17									
b Backup	289-121A	F5	Fuse TRS		NA	NA	NA	NA	1,2,3,4
56 STEAM GENERATOR NO. 1 SAMPLING ISOL. SOLENOID VALVE SSLISV8004-A (2SL F601) a Primary	289-148A	Circuit 49	Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SSLEBKR91B-49									
b Backup	289-148A	Circuit 49	Fuse FRN		NA	NA	NA	NA	1,2,3,4

*120/208V SWGR heater bus, double breaker protection.

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES			WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TIME CURRENT CHARACTERISTIC	FUNC. TEST	CHANNEL CALIB.	INTEG. FUNC. TEST		INSP & PREV. MAINT.
	DRAWING	TYPE	4.8.4.1.a.2	4.8.4.1.a.1.a	4.8.4.1.a.1.b	4.8.4.1.b	
57 STEAM GENERATOR NO. 2 SAMPLING ISOL. SOLENOID VALVE SSLISV8004-2 (2SL F603)							
a. Primary	289-148A	Breaker CD	Note VI.2	NA	NA	every 60 M	1,2,3,4
SSLEBKR91B-45							
b. Backup	289-148A	Fuse FRN	NA	NA	NA	NA	1,2,3,4
→(DRN 03-1762, Am. 84)							
58 SAMPLE SYSTEM RECORDER PANEL SAMPLE VALVES							
RX COOLANT HOT LEG 1 SMPL ISOL SOLENOID VALVE, RC-0104 (SV-RC-1151A/B) PRESSURIZER SURGE LINE SMPL SOLENOID VALVE, RC-0316 (SV-RC-2503A/B) PRESSURIZER STEAM SPACE SMPL ISOL SOLENOID VLV, RC-0319 (SV-RC-2502A/B)							
• VALVES SSL-ISV-8001A(B) ARE GAGGED CLOSED AND SSL-ISV80002A(B) GAGGED OPEN.							
a. Primary	B289-133	Breaker EE	Note VI.2	NA	NA	Every 60M	1,2,3,4
SSLEBKR 84A-35							
b. Backup	B289-133A	Fuse TRS	NA	NA	NA	NA	1,2,3,4
←(DRN 03-1762, Am. 84)							
59 CONTAINMENT PURGE SYSTEM DAMPERS SOLENOID VALVES CAP SV0201 & CAPISV0202 (SV-D23 & SV-D22)							
a. Primary	289-133	Breaker EE	Note VI.2	NA	NA	every 60 M	1,2,3,4
HVREBKR84A-1							
b. Backup	289-133A	Fuse TRS	NA	NA	NA	NA	1,2,3,4
c. Primary	289-134	Breaker EE	Note VI.2	NA	NA	every 60 M	1,2,3,4
HVREBKR85B-1							
d. Backup	289-134A	Fuse ATM	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURV IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
				<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
60 QUENCH TANK VENT VALVE SOLENOID VALVE RC ISV0323 (7RC-F604) a Primary	289-133 Circuit 8	Breaker EE	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR84A-8								
b Backup	289-133A	F3 Fuse TRS		NA	NA	NA	NA	1,2,3,4
61 QUENCH TANK DRAIN VALVE SOLENOID VALVE RC ISV0325 (7RC-F605) a Primary	289-133 Circuit 10	Breaker EE	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR84A-10								
b Backup	289-133A	F4 Fuse TRS		NA	NA	NA	NA	1,2,3,4
62 CHARGING LLINE TO LOOP 2A SHUT OFF VALVE SOLENOID VALVE CVCISV0218-B (1CHE2504B) a Primary	289-148 Circuit 29	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVCEBKR91B-29								
b Backup	289-148A	Circuit 29 Fuse FRN		NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST	CHANNEL CALIB.	INTEG. FUNC. TEST		
63 CHARGING LINE TO LOOP 1A SHUT OFF VALVE SOLENOID VALVE CVCISV0218-A (1CH-E2503A) a Primary	289-147	Circuit 27	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVCEBKR90A-27									
b Backup	289-147A	Circuit 27	Fuse FRN		NA	NA	NA	NA	1,2,3,4
64 RCP 1A COOLING COIL CCW INLET & OUTLET SOLENOID VALVES CC ISV0665-A & CC ISV0679-A (3CC-P1501A1 & 3CC-P1505A1) a Primary	289-150	Circuit 25	Breaker TEB	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CC EBKR96AB-25									
b Backup	424-280	F1	Fuse ATM		NA	NA	NA	NA	1,2,3,4
65 RCP 2A COOLING COIL CCW INLET & OUTLET SOLENOID VALVES CC ISV0666-A & CC ISV0680-A (3CC-P1503A2 & 3CC-P1507A2) a Primary	289-150	Circuit 27	Breaker TEB	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CC EBKR96AB-27									
b Backup	424-282	F1	Fuse ATM		NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURV IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST 4.8.4.1.a.2</u>	<u>CHANNEL CALIB. 4.8.4.1.a.1.a</u>	<u>INTEG. FUNC. TEST 4.8.4.1.a.1.b</u>		<u>INSP & PREV. MAINT. 4.8.4.1.b</u>
	<u>DRAWING</u>	<u>TYPE</u>					
66 RCP 1A INSTRUMENTATION AND ACCESSORIES* a Primary NO BKR	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
67 RCP 2A INSTRUMENTATION AND ACCESSORIES* a Primary NO BKR	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
68 CEDM COOLING UNITS INLET DAMPERS a Primary CDCEBKR45AB-14	289-149 Circuit 14	Breaker TEB	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
*Two fuses in series, one each, + and - poles							
69 CEDM COOLER UNITS INLET DAMPERS a Primary CDCEBKR96AB-20	289-150 Circuit 20	Breaker TEB	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

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>	
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>		<u>INSP & PREV. MAINT.</u>
	<u>DRAWING</u>	<u>TYPE</u>	<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.a</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
70 RCP CONTROL BLEEDOFF RELIEF ISOLATION (RC-602) RC ISV0602 (2CH-F1514A/B)	289-150	Circuit 5 Breaker TEB	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR96AB-5							
b Backup	424-326	F2 Fuse ATM	NA	NA	NA	NA	1,2,3,4
71 REACTOR DRAIN TANK VENT VALVE SOLENOID GWMISV0101 (7BM-F237)	289-135	Circuit 11 Breaker EE	10% of Type per R	NA	NA	every 60 M	1,2,3,4
GWM EBKR64AB-11							
b Backup	424-401	F1 Fuse ATM	NA	NA	NA	NA	1,2,3,4
72 RECIRC RETURN LINE DRAIN TO CONTAINMENT SUMP SOLENOID VALVE SI ISV0342 (SSI-F1563)	289-150	Circuit 1 Breaker TEB	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI EBKR96AB-1							
b Backup	424-499	F3 Fuse ATM	NA	NA	NA	NA	1,2,3,4
73 RCP 1B COOLING COIL CCW INLET & OUTLET SOLENOID VALVES CC ISV0665-B & CC ISV0679-B (3CC-P1502B1 & 3CC-P1506B1)	289-150	Circuit 26 Breaker TEB	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CC EBKR96AB-26							
b Backup	424-281	F2 Fuse ATM	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURVIVAL IS REQ'D</u>
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>	<u>INSP & PREV. MAINT.</u>	
	<u>DRAWING</u>	<u>TYPE</u>	<u>4.8.4.1.a.2</u>	<u>4.8.4.1.a.1.2</u>	<u>4.8.4.1.a.1.b</u>	<u>4.8.4.1.b</u>	
74 RCP 2B COOLING COIL CCW INLET & OUTLET SOLENOID VALVES CC ISV0666 B & CC ISV0680-B (3CC-P1504B2 & 3CC-P1508B2)	Circuit 28	Breaker	10% of Type per R	NA	NA	every 60 M	1,2,3,4
a Primary CC EBKR96AB-28	289-150	TEB		NA	NA		
b Backup	424-283	Fuse ATM	NA	NA	NA	NA	1,2,3,4
75 RCP 1B INSTRUMENTATION AND ACCESSORIES*							
a Primary NO BKR	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
76 RCP 2B INSTRUMENTATION AND ACCESSORIES*							
a Primary NO BKR	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
77 CONTAINMENT ATMOSPHERE RADIATION MONITOR ISOLATION SOLENOID VALVE ARMISV0109 (2CA-E604B)	Circuit 26	Breaker	10% of Type per R	NA	NA	every 60 M	1,2,3,4
a Primary ARMEBKR91B-26	289-148	CD		NA	NA		
b Backup	289-148A	Fuse FRN	NA	NA	NA	NA	1,2,3,4

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

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST	CHANNEL CALIB.	INTEG. FUNC. TEST		
78 PRESSURIZER AUX SPRAY VALVE SOLENOID VALVE CVCISV0216-A (ICH-E2505A) a Primary	289-147	Circuit 31	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVCEBKR90A-31									
b Backup	289-147A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1,2,3,4
79 PRESSURIZER AUX SPRAY VALVE SOLENOID VALVE CVCISV0216-B (ICH-E2505B) a Primary	289-148	Circuit 31	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CVCEBKR91B-31									
b Backup	289-148A	Circuit 31	Fuse FRN		NA	NA	NA	NA	1,2,3,4
80 CONTAINMENT SUMP PUMP RECIRC ISOLATION SOLENOID VALVE SP ISV0102-A a Primary	C-1402 Sh 35	CB-1	Breaker CH	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
PASEBKR6368-3									
b Backup	C-1402 Sh 35	CB-1	Breaker CH	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
PASEBKR6368-4									

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)				MODES FOR WHICH SURV IS REQ'D	
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	INSP & PREV. MAINT. 4.8.4.1.b		
81 REACTOR COOLANT SYSTEM VENT VALVES SOLENOID VALVES RC ISV3184, RC ISV1015, & RC ISV3186 (2RC-2557A, 2RC-2559A, & 2RC-2561A)	289-212	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	NA	every 60 M	1,2,3,4
RC EBKR004A-2										
b Backup	289-120A	F2	Fuse TRS		NA	NA	NA	NA	NA	1,2,3,4
82 REACTOR COOLANT SYSTEM VENT VALVES SOLENOID VALVES RC ISV3183, RC ISV1014, & RC ISV1017 (2RC-2558B, 2RC-2560B, & 2RC-2562B)	289-213	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	NA	every 60 M	1,2,3,4
RC EBKR005B-2										
b Backup	289-121A	F1	Fuse TRS		NA	NA	NA	NA	NA	1,2,3,4
83 SI TANK 1A ISOL. VALVE SI MVAAA331-A (ISI-V1505TK1A) SPACE HEATER) THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED. (SI EBKR94A-13)										
84 SI TANK 1A ISOL. VALVE SI MVAAA331-A (ISI-V1505TK1A) LIMIT SWITCH & INDICATING LIGHTS	289-147	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	NA	every 60 M	1,2,3,4
SI EBKR90A-6										
b Backup	289-147A	Circuit 6	Fuse FRN		NA	NA	NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u> BREAKER PROTEC./ AFFECTED COMPONENTS	<u>DRAWING</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TYPE</u>	<u>TIME CURRENT CHARAC- TERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT. 4.8.4.1.b</u>	<u>MODES FOR WHICH SURV IS REQ'D</u>
					<u>FUNC. TEST</u> 4.8.4.1.a.2	<u>CHANNEL CALIB.</u> 4.8.4.1.a.1.a.	<u>INTEG. FUNC. TEST</u> 4.8.4.1.a.1.b		
85 SI TANK 2A ISOL. VALVE SI MVAAA332-A (1SI-V1507TK2A) SPACE HEATER THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED (SI EBKR94A-15)									
86 SI TANK 2A ISOL. VALVE SI MVAAA332-A (1SI-V1507TK2A) LIMIT SWITCH & INDICATING LIGHTS a Primary 289-147 Circuit 8 SI EBKR90A-8			Breaker CD	Note V1.2 10% of T type per R	NA	NA	NA	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									
THE RCP 1A SPEED SENSOR HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED. (RC EBKR77A-5)									
88 RCP 2A SPEED SENSOR									
THE RCP 2A SPEED SENSOR HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED. (RC EBKR77A-7)									

TABLE 3.8-1 (cont'd)

CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>		<u>IDENTIFYING NUMBER OR DESCRIPTION</u>		<u>TIME CURRENT CHARACTERISTIC</u>	<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>			<u>INSP & PREV. MAINT.</u>	<u>MODES FOR WHICH SURV IS REQ'D</u>
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>DRAWING</u>	<u>DESCRIPTION</u>	<u>TYPE</u>		<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>	<u>4.8.4.1.b</u>	
89 RADIATION REMOVAL UNIT E-13 (3A) THEMISTOR									
a Primary	289-133	Circuit 24	Breaker EE	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
ARREBKR84A-24									
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	289-149	Circuit 3	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CCSEBKR45AB-3									
b Backup	424-829	F1	Fuse ATM		NA	NA	NA	NA	1,2,3,4
91 PRESSURIZER NORM. SPRAY VALVES RC MVAAA301-A & RC MVAAA301B (IRC-F1501A & IRC-F1502B)									
a Primary	289-150	Circuit 4	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
RC EBKR96AB-4									
b Backup	424-296	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.
(MINI EBKR77A-32)

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b	
93 MOVABLE INCORE DETECTOR SWITCHING DEVICE								
THE MOVABLE INCORE DETECTOR SWITCHING DEVICE HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED. (PMCEBKR87A-7)								
94 REFUELING MACHINE CONTROL a Primary NO BKR	5817-4241	Fuse	TRS		NA	NA	NA	1,2,3,4
b Backup	5817-4241	Fuse	KTN/ KTRN		NA	NA	NA	1,2,3,4
95 SI TANK 1B ISOL. VALVE SI MVA AAA331-B (SI-V1506TK1B) SPACE HEATER THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED. (SI EBKR95B-13)								
96 SI TANK 1B ISOL. VALVE SI MVA AAA331-B (SI-V1506TK1B) LIMIT SWITCH & INDICATING LIGHTS a Primary	289-148	Circuit 6	Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M 1,2,3,4
SI EBKR91B-6								
b Backup	289-148A	Circuit 6	Fuse FRN		NA	NA	NA	1,2,3,4
97 SI TANK 2B ISOL. VALVE SI MVA AAA332-B (SI-I508TK2B) SPACE HEATER THE SPACE HEATER WAS DISCONNECTED AT THE MCC AND PDP. BOTH THE BREAKER AND FUSE ARE SPARED. (SI EBKR95B-15)								

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

<u>OVER-CURRENT PROTECTIVE DEVICES</u>			<u>WITHIN EACH VOLTAGE LEVEL (ROMAN)</u>				<u>MODES FOR WHICH SURV IS REQ'D</u>
<u>BREAKER PROTEC./ AFFECTED COMPONENTS</u>	<u>IDENTIFYING NUMBER OR DESCRIPTION</u>	<u>TIME CURRENT CHARACTERISTIC</u>	<u>FUNC. TEST</u>	<u>CHANNEL CALIB.</u>	<u>INTEG. FUNC. TEST</u>	<u>INSP & PREV. MAINT.</u>	
98 SI TANK 2B ISOL. VALVE SI MVA332-B (SI-V1508TK2B) LIMIT SWITCH & INDICATING LIGHTS a Primary	289-148 Circuit 8 Breaker CD	Note V1.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
SI BK91B-8E							
b Backup	289-148A Circuit 8		NA	NA	NA	NA	1,2,3,4
99 RCP 1B SPEED SENSOR							
THE RCP 1B SPEED SENSOR HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED. (RC EBKR78B-5)							
100 RCP 2B SPEED SENSOR							
THE RCP 2B SPEED SENSOR HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED. (RC EBKR78B-7)							
101 RADIATION REMOVAL UNIT E-13 (3B) THERMISTOR a Primary	289-134 Circuit 24	Breaker EE	Note V1.2	10% of Type per R	NA	every 60 M	1,2,3,4
ARREBK85B-24							
b Backup	289-134A F1	Fuse ATM		NA	NA	NA	1,2,3,4
102 CONTAINMENT AIR LOCKS DOOR POSITION INDICATOR a Primary	289-147 Circuit 33	Breaker CD	Note V1.2	10% of Type per R	NA	every 60 M	1,2,3,4
CB EBKR90A-33							
b Backup	289-147A Circuit 33	Fuse FRN		NA	NA	NA	1,2,3,4

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
					FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
103 CONTAINMENT AIR LOCKS DOOR POSITION INDICATOR a Primary	289-148	Circuit 33	Breaker CD	Note VI.2	10% of Type per R	NA	NA	every 60 M	1,2,3,4
CB EBKR91B-33									
b Backup	289-148A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1,2,3,4
→(DRN 04-1357, Am. 106)									
104 REACTOR DRAIN TANK CONT. ISOL. VALVE BM MVAAA109 (2BM-F108AB) POSITION INDICATION a Primary	424-400 & 405	Circuit 2	Fuse NON		NA	NA	NA	NA	1,2,3,4
BM EBKR84A-34									
b Backup	424-400 & 405	Circuit 30	Fuse NON		NA	NA	NA	NA	1,2,3,4
105 WASTE GAS CONT. ISOL. VALVE GWMMVAAA104 (2WM-F157AB) POSITION INDICATION a Primary	424-650 & 680	Circuit 19	Fuse NON	Note VI.2	NA	NA	NA	NA	1,2,3,4
LWMEBKR84A-33									
b Backup	424-650 & 680	Circuit 22	Fuse NON		NA	NA	NA	NA	1,2,3,4
←(DRN 04-1357, Am. 106)									
106 MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL									

THE MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED.
(MINI EBKR78B-32)

TABLE 3.8-1 (cont'd)
CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC- TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN)			INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
				FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.a	INTEG. FUNC. TEST 4.8.4.1.a.1.b		
107 CEDM COOLING UNITS VIBRATION SWITCHES* a Primary NO BKR	289-110A Fuse 424-771 & 2028	FB		NA	NA	NA	NA	1,2,3,4
b Backup	289-110A Fuse 424-771 & 2028	FB		NA	NA	NA	NA	1,2,3,4
108 CONTAINMENT PRESSURE EXHAUST SOLENOID VALVE CAR-ISV-200B (2HV-228A) a Primary	289-147 Circuit 18 Breaker CD		Note V1.2	10% of Type Per R	NA	NA	every 60 M	1,2,3,4
CAREBKR90A-18								
b Backup	289-147A Circuit 18	Fuse FRN	NA	NA	NA	NA	NA	1,2,3,4
→(DRN 04-475, Am. 93)								
109 RADIATION REMOVAL UNIT E-13 (3A) DRAIN SOLENOID VALVE ARR-ISV-0103A a Primary	5817- F3 10186	Fuse 313002		NA	NA	NA	NA	1,2,3,4
b Backup	5817- F2 10186	Fuse 313002		NA	NA	NA	NA	1,2,3,4
110 RADIATION REMOVAL UNIT E-13 (3B) DRAIN SOLENOID VALVE ARR-ISV-0103B a Primary	5817- F3 10186	Fuse 313002		NA	NA	NA	NA	1,2,3,4
b Backup	5817- F2 10186	Fuse 313002		NA	NA	NA	NA	1,2,3,4
←(DRN 04-475, Am. 93)								

*This circuit has a Westinghouse Trip ac two pole breaker which contains fuses in each pole (positive and negative) of the breaker. Since this circuit is a DC ungrounded circuit, the fuses are in series and provide primary/backup protection.

TABLE 3.8-1

NOTES

CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

I. 6.9 KV POWER FROM MEDIUM VOLTAGE SWITCHGEAR

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

➔(DRN 02-194)

I.2) Refer to G.E. curve in GEI-19959 instruction book for IAC57 relay and G.E. curve 888B0273-0 in instruction book for IAC66M relay.

⬅(DRN 02-194)

I.3) Relay testing to be performed in accordance with manufacturer's recommendation.

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.

➔(DRN 04-2065, Am. 95)

II.5) Refer to G.E. curve GEK-34055 for IAC77 relays.

⬅(DRN 04-2065, Am. 95)

II.6) Relay and programmer testing to be performed in accordance with manufacturer's recommendation.

IV. 480 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

➔(EC-22965, Am. 122)

JD Breaker – Eaton SC-4247 - 87D

⬅(EC-22965, Am. 122)

➔(EC-15976, Am. 126)

HFD Breaker – Westinghouse, SC-4100 Series

⬅(EC-15976, Am. 126)

IV.3) Circuit breaker testing to be performed in accordance with manufacturer's recommendation.

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.

TABLE 3.8-1

NOTES (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVER-CURRENT PROTECTIVE DEVICES

- IV.7) Refer to G.E. curve GES-7004A for IAC66T relays.
- IV.8) Relay and programmer testing to be performed in accordance with manufacturer's recommendation.
- IV.9) Equivalent breakers and fuses may be substituted for the types specified.
- 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 a 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.
- 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 a 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.

→ (DRN 02-912)

TABLE 3.8-2

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION

AND/OR BYPPASS DEVICE TABLE

← (DRN 02-912)

The Valves listed on Table 3.8-2 are the valves that are applicable to Technical Specification 3.8.4.2.

TABLE 3.8-2

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION
AND/OR BYPASS DEVICES TABLES

<u>BYPASS DEVICE VALVE NUMBER</u>	<u>FUNCTION</u>	<u>(YES/NO)</u>
ACCMVAAA110A	ACCW Pump A Discharge Line Isolation	YES
ACCMVAAA110B	ACCW Pump B Discharge Line Isolation	YES
BAMMVAAA113A	Boric Acid Gravity Feed	YES
BAMMVAAA113B	Boric Acid Gravity Feed	YES
BAMMVAAA133	Reactor Makeup Bypass	YES
CARMVAAA201A	CARS Suction	YES
CARMVAAA201B	CARS Suction	YES
CARMVAAA204A	CARS Discharge	YES
CARMVAAA204B	CARS Discharge	YES
CVCMVAAA183	Volume Control Tank Discharge	YES
HVCMVAAA201A	Control Room Em. Filter Unit North	YES
HVCMVAAA201B	Control Room Em. Filter Unit North	YES
HVCMVAAA202A	Control Room Em. Filter Unit North	YES
HVCMVAAA202B	Control Room Em. Filter Unit North	YES
HVCMVAAA203A	Control Room Em. Filter Unit South	YES
HVCMVAAA203B	Control Room Em Filter Unit South	YES
HVCMVAAA204A	Control Room Em. Filter Unit South	YES
HVCMVAAA204B	Control Room Em. Filter Unit South	YES
HVRMVAAA304A	CVAS A Train Inlet	YES
HVRMVAAA304B	CVAS B Train Inlet	YES
HVRMVAAA313A	CVAS A Train Outlet	YES
HVRMVAAA313B	CVAS B Train Outlet	YES
MS MVAAA119A	Steam Line 1 Upstream Emergency Drain	NO
MS MVAAA119B	Steam Line 2 Upstream Emergency Drain	NO
MS MVAAA120A	Steam Line 1 Upstream Normal Drain	NO
MS MVAAA120B	Steam Line 2 Upstream Normal Drain	NO

TABLE 3.8-2 (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION
AND/OR BYPASS DEVICES TABLE (continued)

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>BYPASS DEVICE (YES/NO)</u>
MS MVAAA416	Emergency Feed Water Pump Turbine Stop	NO
SBVMVAAA101A	SBVS A Train Inlet	YES
SBVMVAAA101B	SBVS B Train Inlet	YES
SBVMVAAA110A	SBVS A Train Outlet	YES
SBVMVAAA110B	SBVS B Train Outlet	YES
SBVMVAAA113A	SBVS A Train Recirc	YES
SBVMVAAA113B	SBVS B Train Recirc	YES
SBVMVAAA114A	SBVS A Exhaust	YES
SBVMVAAA114B	SBVS B Exhaust	YES
SI MVAAA120A	SI Pumps A Min. Flow Isolation	YES
SI MVAAA120B	SI Pumps B Min. Flow Isolation	YES
SI MVAAA121A	SI Pumps A Min. Flow Isolation	YES
SI MVAAA121B	SI Pumps B Min. Flow Isolation	YES
SI MVAAA138A	LPSI Flow Control	YES
SI MVAAA138B	LPSI Flow Control	YES
SI MVAAA139A	LPSI Flow Control	YES
SI MVAAA139B	LPSI Flow Control	YES
SI MVAAA219A	HPSI Hdr. A Orifice Bypass	NO
SI MVAAA219B	HPSI Hdr. B Orifice Bypass	NO
SI MVAAA225A	HPSI Flow Control	YES
SI MVAAA225B	HPSI Flow Control	YES
SI MVAAA226A	HPSI Flow Control	YES
SI MVAAA226B	HPSI Flow Control	YES

TABLE 3.8-2 (CONT)

**MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION
AND/OR BYPASS DEVICES TABLE (continued)**

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>BYPASS DEVICE (YES/NO)</u>
SI MVAAA227A	HPSI Flow Control	YES
SI MVAAA227B	HPSI Flow Control	YES
SI MVAAA228A	HPSI Flow Control	YES
SI MVAAA228B	HPSI Flow Control	YES
SI MVAAA331A	Safety Inj. Tank 1A Isolation	YES
SI MVAAA331B	Safety Inj. Tank 1B Isolation	YES
SI MVAAA332A	Safety Inj. Tank 2A Isolation	YES
SI MVAAA332B	Safety Inj. Tank 2B Isolation	YES
SI MVAAA401A	RCS Loop 2 Shutdown Cooling Isolation	NO
SI MVAAA401B	RCS Loop 1 Shutdown Cooling Isolation	NO
→(EC-935, Am. 117)		
←(EC-935, Am. 117)		
SI MVAAA407A	RCS Loop 2 Shutdown Cooling Isolation	NO
SI MVAAA407B	RCS Loop 1 Shutdown Cooling Isolation	NO
SI MVAAA415A	Shutdown Cooling Flow Control	NO
SI MVAAA415B	Shutdown Cooling Flow Control	NO
SI MVAAA502A	Hot Leg Injection	NO
SI MVAAA502B	Hot Leg Injection	NO
SI MVAAA506A	Hot Leg Injection	NO
SI MVAAA506B	Hot Leg Injection	NO
SI MVAAA602A	SIS Sump Outlet Isolation	YES
SI MVAAA602B	SIS Sump Outlet Isolation	YES

TABLE 3.8-2 (CONT)

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION
AND/OR BYPASS DEVICES TABLE (continued)

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>BYPASS DEVICE (YES/NO)</u>
SI MVAAA135A	Shutdown Line A Warm Up Line	NO
SI MVAAA135B	Shutdown Line B Warm Up Line	NO
SI MVAAA125A	Shutdown Heat Exchanger A Inlet Valve	NO
SI MVAAA125B	Shutdown Heat Exchanger B Inlet Valve	NO
SI MVAAA412A	Shutdown Heat Exchanger A Outlet Valve	NO
SI MVAAA412B	Shutdown Heat Exchanger B Outlet Valve	NO
MS MVAAA401A	EFW Pump Turbine Steam Shut-Off Valve	YES
MS MVAAA401B	EFW Pump Turbine Steam Shut-Off Valve	YES