March 23, 1989

Docket No. 50-382

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LRubenstein	

Mr. J. G. Dewease
Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
317 Baronne Street, Mail Unit 17
New Orleans, Louisiana 70112

Dear Mr. Dewease:

SUBJECT: ISSUANCE OF AMENDMENT NO. 51 TO FACILITY OPERATING LICENSE NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. 71118)

The Commission has issued the enclosed Amendment No. 51 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 31, 1988.

The amendment changes the Appendix A Technical Specifications by clarifying the test requirements for integrated functional testing of containment penetration circuit breaker testing and adds the surveillance requrements to Table 3.8-1.

A copy of the Safety Evaluation supporting the amendment is also enclosed. Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

/s/

David L. Wigginton, Project Manager
Project Directorate - IV
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 51 to NPF-38
2. Safety Evaluation

cc w/enclosures:
See next page

LTR NAME: W3 AMEND TAC 71118

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03/9/89	03/\/89	03/14/89	03/23/89

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PNoonan	DWigginton:	R. Bachmann	JCalvo
03/9/89	03/1/89	03/14/89	03/23/89

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 23, 1989

Docket No. 50-382

Mr. J. G. Dewease
Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
317 Baronne Street, Mail Unit 17
New Orleans, Louisiana 70112

Dear Mr. Dewease:

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Sincerely,

David L. Wigginton, Project Manager
Project Directorate - IV
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 51 to NPF-38
2. Safety Evaluation

cc w/enclosures:
See next page

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Louisiana Power & Light Company

Waterford 3

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

LOUISIANA POWER AND LIGHT COMPANY

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 51
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Louisiana Power and Light Company (the licensee) dated October 31, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-38 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 51 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

José A. Calvo

Jose A. Calvo, Director
Project Directorate - IV
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: March 23, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 51

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove	Insert
3/4 8-18 thru 3/4 8-51	3/4 8-18 thru 3/4 8-51e

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 3.8-1, 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.

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 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	
II. 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR (NOTE II.6)									
1 POLAR CRANE									
a Primary	289-20A1	Line 16	Note II.1	Notes II.2, II.3	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary	289-20A2	Line 16	Note II.1	Notes II.2, II.3	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
c Backup	424-2486	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 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 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 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 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 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 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

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
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	≤ 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	424-1140	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.5	≥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.5	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	c Backup	424-286	TD Relay 2		adjust to 0.5 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.5	≥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.5	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	c Backup	424-286	TD Relay 2		adjust to 0.5 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.5	≥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.5	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	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

* Note II.4

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
9 PRESSURIZER HEATERS BACKUP BANK 4 (B-4)									
a Primary*	289-24A1	Line 4	Note II.1	Notes II.2, II.5	≥10% of Type per R	NA	NA	≤ 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	≤ 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	≤ 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.5	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary*	289-24A2	Line 5	Note II.1	Notes II.2, II.5	≥10% of Type per R	NA	NA	≤ 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	≤ 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.5	≥10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Primary*	289-24A2	Line 6	Note II.1	Notes II.2, II.5	≥10% of Type per R	NA	NA	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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 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	
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	≤ every 60 M	1, 2, 3, 4
b Primary		Hold Bus	Heinemann 30A	Heinemann Series AM, Curve 3	10% per R	NA	NA	≤ 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.

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-V1505 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-V1507 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-V1504A (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-V1503A (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

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
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	≤ 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	≤ 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	≤ 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-V1502B (SI-401B)									
a Primary	289-67 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	289-67	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
11 CARS SUCTION VALVE 2HV-F254B (CAR-201B)									
a Primary	289-68 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	289-68	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	≤ 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 3.8-1 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 377A									
	a Primary	289-71	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-71	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	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-71	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	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
16	STEAM GENERATOR 1 VENT VALVE 2MS-V668 (MS-101A)									
	a Primary	289-71	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-71	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
17	MOVEABLE DETECTOR DRIVE MACHINE 1									
	a Primary	289-72	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-72	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
18	STEAM GENERATOR 2 VENT VALVE 2MS-V667 (MS-101B)									
	a Primary	289-74	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-74	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
19	RCP 1B OIL LIFT PUMP A									
	a Primary	289-74	Breaker	EF	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	Note IV.1 289-74	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
20 RCP 2B OIL LIFT PUMP A									
a Primary	289-74 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	289-74	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
21 MOVEABLE DETECTOR DRIVE MACHINE 2									
a Primary	289-74 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	289-74	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
22 Cont. 30KVA Transf. PDP 378B									
a Primary	289-76 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	289-76	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
23 H2 RECOMBINER POWER SUPPLY A									
a Primary	289-77 Note IV.1	Breaker	FJ	Notes IV.2 & IV.3	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-77	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
24 REACTOR CAVITY COOLING SYSTEM FAN S-2 (3A)									
a Primary	289-78 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	289-78	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1, 2, 3, 4
25 RADIATION REMOVAL UNIT E-13 (3A)									
a Primary	289-78 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	289-78	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	
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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	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
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	≤ every 60 M	1, 2, 3, 4
b Backup Note IV.5	289-20A1	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	289-20A2	Relay	IAC66T	Notes IV.6, & IV.7, IV.8	10% of Type per R	NA	NA	≤ 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	≤ every 60 M	1, 2, 3, 4
b Backup Note IV.5	289-20A1	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	289-20A2	Relay	IAC66T	Notes IV.6, & IV.7, IV.8	10% of Type per R	NA	NA	≤ 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	≤ 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	≤ 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

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-SB)									
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.5	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

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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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 REQUIR'D
50 IP-300									
a Primary	289-49	Breaker	EF	Notes IV.2 & IV.3	10% of Type per 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	289-45	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 365A 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 366B 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

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 per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-2269	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	≤ 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	≤ every 60 M	1, 2, 3, 4
b Backup	424-2269	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	≤ 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	≤ every 60 M	1, 2, 3, 4
b Backup	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	≤ 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	≤ every 60 M	1, 2, 3, 4
b Backup	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	≤ 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 ISI-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 ISI-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-161A)									
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-162A)									
a Primary	289-186	Circuit 25	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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-E636 (SI-323A)									
	a Primary	289-186	Circuit 30	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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	≤ 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-F1516AB (CVC-181)									
	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
	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	≤ 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-F1564TK1A (SI-307A)									
	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
	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	≤ 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	INSP & PREV MAINT 4.8.4.1.b	
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-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.									
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	289-120A	F3	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
15 SOLENOID VALVE 2SI-F1566TK2A (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-E636 (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-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
	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
19	**SOLENOID VALVE 2HV-B156A (CVR-201)**									
	a Primary	289-147	Circuit 14	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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 per R	NA	NA	≤ 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-SA)**									
	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
	b Backup	289-120A	F4	Fuse TRS		NA	NA	NA	NA	1, 2, 3, 4
22	**MOTOR HEATER LEADS AH-1 (3C-SA)**									
	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
	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 per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-1139	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	≤ 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 per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	424-1140	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	≤ 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 REQUIR'D
25	**SOLENOID VALVE 2SI-F1552TK1B (SI-303B)**									
	a Primary	289-187	Circuit 26	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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 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	
32 SOLENOID VALVE 2CH-F1513AB (RC-606)									
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
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	≤ 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	≤ 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	≤ 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-B163B (CAP-203)									
a Primary	289-121	Circuit 26	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ 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-B167B (CVR-101)									
a Primary	289-148	Circuit 14	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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)				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
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-F605 (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	**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	≤ 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-F1565TK1B (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
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
44 SOLENOID VALVE 2SI-F1567TK2B (SI-308B)									
a Primary	289-187	Circuit 40	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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	≤ 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	≤ 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-F1501AB (PSL-105)									
a Primary	289-187	Circuit 29	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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-F1502AB (PSL-203)									
a Primary	289-187	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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-F1503AB (PSL-303)									
a Primary	289-187	Circuit 33	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ 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	≤ 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	≤ 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	≤ every 60 M	1, 2, 3, 4
	b Backup	424-1141	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	≤ 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	≤ every 60 M	1, 2, 3, 4
	b Backup	424-1142	Breaker	TED	Note VI 2	10% of Type per R	NA	NA	≤ 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 REQUIR'D
55 CONTAINMENT FAN COOLERS DAMPERS									
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
b Backup	289-121A	F5	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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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	≤ 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
	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
61	**SOLENOID VALVE 7RC-F605 (RC-325)**									
	a Primary	289-133	Circuit 10	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ 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	≤ 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-218A)**									
	a Primary	289-147	Circuit 27	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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-P1501A1 (CC-665A) & 3CC-P1505A1 (CC-679A)**									
	a Primary	289-150	Circuit 25	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	≤ 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-P1503A2 (CC-666A) & 3CC-P1507A2 (CC-680A)**									
	a Primary	289-150	Circuit 27	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	≤ 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 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	
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 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 CEDM 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-F1514AB (RC-602)									
a Primary	289-150	Circuit 5	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 6SI-F1563 (SI-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	424-499	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-P1502B1 (CC-665B) & 3CC-P1506B1 (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-P1504B2 (CC-666B) & 3CC-P1508B2 (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-E2605A (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-E2505B (CVC-216B)									
a Primary	289-148	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ 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	CB 2	Breaker CH	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	5817-6368	Circuit H4	Breaker QO	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
* 15a breakers on Skid #4 (5817-6368).									
81 SOLENOID VALVES 2RC-2557A (RC-3184), 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	≤ 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-1014), 2RC-2562B (RC-1017)									
a Primary	289-213	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ 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-V1505TK1A (SI-331A)									
a Primary	289-186	Circuit 13	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-186A	Circuit 13	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
84 LIMIT SWITCH & INDICATING LIGHTS 1SI-V1505TK1A (SI-331A)									
a Primary	289-147	Circuit 6	Breaker CD	Note VI 2	10% of Type per R	NA	NA	≤ 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 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	
85	**SPACE HEATER 1SI-V1507TK2A (SI-332A)**									
	a Primary	289-186	Circuit 15	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-186A	Circuit 15	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
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	≤ 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	≤ 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	≤ 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	≤ 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	289-149	Circuit 3	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	≤ 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-F1501A (RC-301A) & 1RC-F1502B (RC-301B)									
a Primary	289-160	Circuit 4	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-296	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
92 MOVALBLE INCORE DETECTOR DRIVE MACHINE #1 CONTROL									
a Primary	289-126	Circuit 32	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-158	Fuse	FRN		NA	NA	NA	NA	1, 2, 3, 4
93 MOVALBLE INCORE DETECTOR SWITCHING DEVICE									
a Primary	289-136	Circuit 7	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-158	Fuse	ABU		NA	NA	NA	NA	1, 2, 3, 4
94 REFUELING MACHINE CONTROL									
a Primary	5817-4241	Fuse	TRS		NA	NA	NA	NA	1, 2, 3, 4
b Backup	5817-4241	Fuse	KTN/KTNR		NA	NA	NA	NA	1, 2, 3, 4
95 SPACE HEATER 1SI-V1506TK1B (SI-331B)									
a Primary	289-187	Circuit 13	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-187A	Circuit 13	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
96 LIMIT SWITCH & INDICATING LIGHTS 1SI-V1506TK1B (SI-331B)									
a Primary	289-148	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	289-148A	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	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
97	**SPACE HEATER 1SI-V1508TK2B (SI-332B)**									
	a Primary	289-187	Circuit 15	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-187A	Circuit 15	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
98	**LIMIT SWITCH & INDICATING LIGHTS 1SI-V1508TK2B (SI-332B)**									
	a Primary	289-148	Circuit 8	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-148A	Circuit 8	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
99	**RCP 1B SPEED SENSOR**									
	a Primary	289-127	Circuit 5	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-127A	F6	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
100	**RCP 2B SPEED SENSOR**									
	a Primary	289-127	Circuit 7	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-127A	F5	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
101	**RADIATION REMOVAL UNIT E-13 (3B) THERMISTOR**									
	a Primary	289-134	Circuit 24	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-134A	F1	Fuse ATM		NA	NA	NA	NA	1, 2, 3, 4
102	**CONTAINMENT AIR LOCKS DOOR POSITION INDICATOR**									
	a Primary	289-147	Circuit 33	Breaker CD	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
	b Backup	289-147A	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
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
b Backup	289-148A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1, 2, 3, 4
104 POSITION INDICATOR 2BM-F188AB (BM-189)									
a Primary	289-133	Circuit 34	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-400 & 405	Circuit 2	Fuse NON		NA	NA	NA	NA	1, 2, 3, 4
105 POSITION INDICATOR 2WM-F157AB (GWM-184)									
a Primary	289-133	Circuit 33	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-650 & 680	Circuit 19	Fuse NON		NA	NA	NA	NA	1, 2, 3, 4
106 MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL									
a Primary	289-133	Circuit 32	Breaker EE	Note VI.2	10% of Type per R	NA	NA	≤ every 60 M	1, 2, 3, 4
b Backup	424-158	Fuse	FRN		NA	NA	NA	NA	1, 2, 3, 4
107 CEDM COOLING UNITS VIBRATION SWITCHES*									
a Primary	289-110A 424-771 & 2028	Fuse	FB		NA	NA	NA	NA	1, 2, 3, 4
b Backup	289-110A 424-771 & 2028	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.

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.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 51 TO

FACILITY OPERATING LICENSE NO. NPF-38

LOUISIANA POWER AND LIGHT COMPANY

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

Waterford Licensee Event Report (LER) 88-19 documented how Technical Specification 4.8.4.1.a.1.(b) led to unclear definition of voltage levels which required functional testing of the electrical penetration protective devices. Table 3.8-1 which contained Specification 4.8.4.1.a.1.(b) had the surveillance requirements only for 6.9kV breakers. The specification did not implement the surveillance requirements for 4.16kV breakers and molded case breakers of the motor control centers. By letter dated October 31, 1988, Louisiana Power and Light Company requested a revision to Technical Specification Table 3.8-1 to include the surveillance requirements for 4.16kV breakers and molded case breakers.

2.0 EVALUATION

Louisiana Power and Light Company has proposed changes to Technical Specification Table 3.8-1 to include the integrated system functional test surveillance requirements for 4.16kV and molded case breakers in Technical Specification 4.8.4.1. The existing integrated system functional test surveillance requirements include only four primary 6.9kV breakers associated with reactor coolant pump motors. The licensee has proposed changes to Technical Specification Table 3.8-1 to include integrated functional tests for 4.16kV breakers which provide backup overcurrent protection via transfer trip relays and the 480V switchgear breaker similar to the 6.9kV breaker design. 4.16kV backup breakers provide secondary containment penetration overcurrent protection for the control element drive mechanism (CEDM) cooling units, the polar crane and the pressurizer heaters.

We have reviewed the licensee's submittal and have found that the surveillance applied to the primary 6.9kV breakers has been extended to the backup 4.16kV breakers and the molded case breakers. The reformatting of Table 3.8-1 did not delete any items from the old list, or delete any surveillance requirements. The reformatting is in accordance with Combustion Engineering Standard Technical Specification and is, therefore acceptable. During our review a number of errors were identified in the proposed table. These have been corrected for accurate identification of equipment.

8903310287 890323
PDR ADOCK 05000382
P PDC

3.0 SUMMARY

We have reviewed the licensee's submittal and have concluded that the proposed change to Technical Specification Table 3.8-1 includes the surveillance requirements for 4.16kV and molded case breakers and is in accordance with Standard Technical Specifications and is, therefore, acceptable.

4.0 CONTACT WITH STATE OFFICIAL

The NRC staff has advised the Administrator, Nuclear Energy Division, Office of Environmental Affairs, State of Louisiana of the proposed determination of no significant hazards consideration. No comments were received.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment relates to changes in installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

6.0 CONCLUSION

Based upon its evaluation of the proposed changes to the Waterford 3 Technical Specifications, the staff has concluded that: there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The staff, therefore, concludes that the proposed changes are acceptable, and are hereby incorporated into the Waterford 3 Technical Specifications.

Dated: March 23, 1989

Principal Contributor: N. Trehan