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Waterford 3

W3F1-2017-0080

10 CFR 50.71(e)

December 6, 2017

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Technical Requirements Manual Update to the NRC
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

Dear Sir or Madam:

Pursuant to Waterford Steam Electric Station Unit 3 (Waterford 3) Technical Specification (TS) 6.16, Entergy Operations, Inc. (EOI) hereby submits an update of all changes made to the Waterford 3 Technical Requirements Manual (TRM) since the last submittal per letter W3F1-2016-0040 (ADAMS Accession No. ML16154A863) dated June 2, 2016. Additionally, this update satisfies the submittal frequency required by TS 6.16, which indicates that the TRM will be submitted at a frequency consistent with 10 CFR 50.71(e) and exemptions thereto.

Plant changes made under the provisions of 10 CFR 50.59 are reported to the NRC pursuant to the requirements of 10 CFR 50.59(b)(2) by separate submittal.

There are no commitments associated with this submittal. Should you have any questions or comments concerning this submittal, please contact the Regulatory Assurance Manager, John Jarrell, at (504) 739-6685.

Sincerely,

JPJ/LLB

A001
NRR

Attachments:

1. Waterford 3 Technical Requirements Manual (TRM) Change List.
2. Waterford 3 Technical Requirements Manual (TRM) Revised Pages.

cc: Mr. Kriss Kennedy
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Attachment 1 to

W3F1-2017-0080

Waterford 3 Technical Requirements Manual (TRM) Change List

Waterford 3 Technical Requirements Manual (TRM) Change List

TRM Amendment No.	Implementation Date	Affected TRM Pages	Topic of Change
137	7/14/2016	III 3/4 3-39 3/4 3-39a B 3/4 2a B 3/4 2b B 3/4 2c	Amendment # 137 Turbine over speed protection and its basis which valves must be closed to isolate an affected steam lead if valve is inoperable. License Bases Document Change Request (LBDCR) 16-030
138	9/14/2016	I, II, III, IV, V,VI 3/4 1-1 3/4 1-2 3/4 3-15 3/4 3-16, 3/4 3-17 3/4 3-18 3/4 3-19 3/4 3-20 3/4 7-1d 3/4 7-1e 3/4 7-2 3/4 7-4 3/4 7-6 3/4 7-7 3/4 7-8 3/4 7-9 3/4 7-10a 3/4 7-12 3/4 7-13 3/4 7-13a 3/4 7-14 3/4 7-14a B 3/4 1 B 3/4 3g B 3/4 4 B 3/4 4a	Amendment #138 NFPA 805 Requirements transitioning from Appendix R. License Bases Document Change Request (LBDCR) 16-011.

TRM Amendment No.	Implementation Date	Affected TRM Pages	Topic of Change
139	11/10/2016	5.7-1	Amendment #139 updates Table 5.7-1 "Component Cyclic or Transient Limits to match UFSAR Table 3.9-1. License Bases Document Request (LBDCR) 16-051
140	7/12/2016	3/4 3-39	Amendment #140 clarifies that the provisions of TRM 4.0.2 (Max allowable extension/grace period of 25% for surveillance intervals is not applicable to the TRM 4.3.4.2. A requirement to cycle valves associated with turbine over speed protection at least once every 184 days. Also removes turbine valve testing late date extension. License Bases Document Request (LBDCR) 16-035 and 16-055
141	4/11/2017	3/4 8-5 through 3/4 8-62 3/4 8-64 B 3/4 2h	Amendment #141 replaces the 60 Month frequencies for each component with "See SFCP" Surveillance Frequency Control Program. The required testing frequency will be maintained in procedure UNT-006-033. Change to RT_{NDT} of reactor vessel from 22° to 0° determined using ASME Sec. III NB-2331 methods. License Basis Document Request (LBDCR) 17-012 and 17-001
142	5/9/2017	3/4 8-3	Amendment #142 revises section 3.8.3.1 by renaming the SUPS Static Uninterruptible Power Supplies. License Bases Document Request (LBDCR) 16-058 and 16-059
143	6/7/2017	3/4 3-7b 3/4 3-7c 3/4 3-7d 3/4 3-18	Amendment #143 revises Table 3.3-11b to properly identify that there are 20 detectors on the +46 and 5 detectors in the S-6 Fan room on the +69 elevation. License Bases Document Request (LBDCR) 17-018 and 17-021

TRM Amendment No.	Implementation Date	Affected TRM Pages	Topic of Change
144	8/15/17	II, IIa, IV, Iva 3/4 7-17 3/4 7-18 3/4 7-19 3/4 9-5 B 3/4 4e1 B 3/4 5c	Amendment #144 adds section to establish controls/actions for addressing the operability of the room coolers servicing equipment in the Control Room Equipment room and RAB heating and ventilation room. License Bases Document Request (LBDCR) 16-0056
145	10/24/2017	3/4 7-1 3/4 7-16 B 3/4 3c	Amendment #145 changes the term Inservice Testing Program to a defined term indicated in all Caps. License Bases Document Change Request (LBDCR) 17-032

Attachment 2 to

W3F1-2017-0080

Waterford 3 Technical Requirements (TRM) Revised Pages

(There are 120 unnumbered pages following this cover page)

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BASES

3/4.3 INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

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

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

ACTION:

→(LBDCR 16-030, Am. 137)

a. With one stop valve or one control valve per high pressure turbine steam lead inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close valve(s) to isolate the affected steam lead as shown in Table 3.3-14, or isolate the turbine from the steam supply within the next 6 hours.**

←(LBDCR 16-030, Am. 137)

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

SURVEILLANCE REQUIREMENTS

→(DRN 04-1191, Am. 91)

4.3.4.1 The provisions of TRM SR 4.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

4.3.4.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE:

→(DRN 06-723, Am. 107)

a. At least once every 184 days## (under direct observation) each of the following valves is cycled through at least one complete cycle from the running position.

←(DRN 06-723, Am. 107)

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

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

c. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

→(DRN 06-723, Am. 107)

d. At least once per 40 operating months by inspecting the installed light low pressure turbine discs, and not to exceed# at least once per 90 operating months by inspecting the installed heavy low pressure turbine discs.

←(DRN 06-723, Am. 107)

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*With any main steam isolation valve and/or any main steam line isolation valve bypass valve not fully closed.

→(DRN 06-723, Am. 107)

#The provisions of TRM SR 4.0.2 are not applicable to this requirement.

←(DRN 06-723, Am. 107)

→(LBDCR 16-030, Am. 137)

**Separate entry allowed for each inoperable steam lead.

←(LBDCR 16-030, Am. 137)

→(LBDCR 16-034, Am. 137)

##A one time extension beyond the late date of 7/18/16 is allowed provided the surveillance is completed by 9/30/16.

←(LBDCR 16-034, Am. 137)

→(LBDCR 16-030, Am. 137)

TABLE 3.3-14
VALVE(S) TO CLOSE TO ISOLATE AFFECTED STEAM LEAD

AFFECTED STEAM LEAD	INOPERABLE VALVE	VALVE(S) TO CLOSE
From Main Steam to High Pressure Turbine Steam Lead 1	MS-149	MS-149 or MS-153 and MS-155
	MS-151	MS-151 or MS-153 and MS-155
	MS-153	MS-153 or MS-149 and MS-151
	MS-155	MS-155 or MS-149 and MS-151
From Main Steam to High Pressure Turbine Steam Lead 2	MS-150	MS-150 or MS-154 and MS-156
	MS-152	MS-152 or MS-154 and MS-156
	MS-154	MS-154 or MS-150 and MS-152
	MS-156	MS-156 or MS-150 and MS-152
From Moisture Separator Reheater A to Low Pressure Turbine A	RS-204A	RS-204A or RS-210A
	RS-210A	
From Moisture Separator Reheater A to Low Pressure Turbine B	RS-204B	RS-204B or RS-210B
	RS-210B	
From Moisture Separator Reheater A to Low Pressure Turbine C	RS-204C	RS-204C or RS-210C
	RS-210C	
From Moisture Separator Reheater B to Low Pressure Turbine A	RS-205A	RS-205A or RS-211A
	RS-211A	
From Moisture Separator Reheater B to Low Pressure Turbine B	RS-205B	RS-205B or RS-211B
	RS-211B	
From Moisture Separator Reheater B to Low Pressure Turbine C	RS-205C	RS-205C or RS-211C
	RS-211C	

←(LBDCR 16-030, Am. 137)

→(DRN 02-677, Am. 56)
3/4.3 INSTRUMENTATION

BASES

→(DRN 06-723, Am. 107)
3/4.3.4 TURBINE OVERSPEED PROTECTION (Cont'd)

Prevention of turbine overspeed and generation of potentially damaging turbine missiles is dependent upon proper valve function, overspeed detection and associated turbine runback or trip initiation and turbine disc integrity. Turbine missiles are created upon Low Pressure Turbine disc failure. While Low Pressure Turbine blade failure is an operational concern, Low Pressure Turbine blade failure is not an initiator of turbine missiles. Key factors to guard against generation of turbine missiles in addition to listed surveillances is to ensure Low Pressure Turbine discs remain clear of indications due to stress corrosion cracking, maintaining steam chemistry and preventing reductions in LP inlet temperature due to Moisture Separator Reheater problems. Identification of indications in Low Pressure Turbine rotor discs due to stress corrosion cracking, operation with severe chemistry excursions for a period of time (days) or reductions in Low Pressure Turbine inlet temperatures due to Moisture Separator Reheater problems for a period of time (days) are reasons to re-evaluate turbine rotor disc inspection intervals and turbine valve test intervals. Period of time (days) is based on discussion with Original Equipment Manufacturer Siemens (formerly Westinghouse) and Operating Experience.
←(DRN 06-723, Am. 107)

→(LBDCR 16-030, Am. 137)
This TRM refers to the steam valves at the inlet to the high pressure turbine as "stop valves" and "control valves." The terms "throttle valves" and "governor valves" are also used in this TRM to reference these valves. To provide clarification, a "stop valve" is equivalent to a "throttle valve" and a "control valve" is equivalent to a "governor valve." Per FSAR Table 10.2-2, the throttle and reheat stop valves provide redundancy for the governor and interceptor valves, respectively.

For a low pressure turbine, a "steam lead" is one of the individual lines from a moisture separator reheater to a low pressure turbine. Thus, there are 6 low pressure turbine steam leads. One reheat stop valve or intercept valve in each steam lead may be inoperable for the allowed outage time. Inoperability of one valve in one of the individual leads from the moisture separator reheaters does not prohibit a steam valve in another lead from functioning; therefore, one valve in each lead can be inoperable. If either a reheat stop or interceptor valve is inoperable (incapable of being closed by the protection system or being manually maintained closed), then the corresponding valve in series in the same lead would have to be closed in order to isolate steam flow.

For the high pressure turbine, each steam chest (integral throttle/governor valve assembly), each containing two throttle valves and two governor valves, is a steam lead. Thus, there are two high pressure turbine steam leads. This is due to the configuration of the steam chest such that either throttle valve in that assembly can supply either governor valve. One throttle or governor valve in each steam chest may be inoperable for the allowed outage time. Inoperability of one of the valves in one steam chest does not prohibit a valve in the other steam chest from functioning; therefore one valve in each steam chest can be inoperable. Due to the arrangement of the valves in the steam chest, if any single valve were inoperable (incapable of being closed by the protection system or being manually maintained closed), then two other valves in the same steam chest would have to be closed in order to isolate steam flow.

Table 3.3-14 is provided in TRM 3.3.4 to identify the valves that must be closed in order to isolate an affected steam lead if a valve is inoperable.
←(LBDCR 16-030, Am. 137)

3/4.3.5 ULTRASONIC FLOWMETERS

→(DRN 02-1889, Am. 74, DRN 03-247, Am. 75)

The ultrasonic flowmeters (UFMs) measure feedwater flow and bulk feedwater temperature. The UFM feedwater flow and feedwater bulk temperature inputs will be used by the Core Operating Limits Supervisory System (COLSS) to calculate station secondary calorimetric power. The UFM feedwater flow and feedwater bulk temperature inputs are also used as inputs into calibration constant algorithms that compensate or "calibrate" the alternate feedwater and main steam venturi-based flows and feedwater temperature instrumentation inputs used by COLSS on a loss of UFMs.

→(DRN 04-1244, Am. 99)

The loss of a UFM will cause a control room alarm to annunciate and COLSS to automatically default to the compensated alternate venturi-based instrumentation inputs. COLSS normally defaults to Main Steam BSCAL (MSBSCAL) when reactor core power is greater than or equal to 95% of 3716 MWt RATED THERMAL POWER (RTP) or Feedwater BSCAL (FWBSCAL) when reactor core power is less than 95% of 3716 MWt RTP. MSBSCAL and FWBSCAL are calibrated by the UFM calibration factors. The requirement for the UFM to be operable above 50% power ensures that feedwater temperature is greater than the temperature (250 F) at which the UFM is reliable and the most accurate power measurement instrumentation is used over a large power range.

←(DRN 02-1889, Am. 74, DRN 03-247, Am. 75; DRN 04-1244, Am. 99)
→(DRN 02-1889, Am. 74; DRN 03-247, Am. 75)
←(DRN 02-1889, Am. 74; DRN 03-247, Am. 75)
→(DRN 02-677, Am. 56)
→(DRN 02-1889, Am. 74; DRN 03-247, Am. 75; DRN 04-1244, Am. 99)

Within 48 hours following the loss of the UFMs, operator action must be taken to reduce THERMAL POWER to less than or equal to 3697 MWt (99.5%). The decrease in power within the 48 hour completion time takes into account the reduction of confidence in the UFM based calibration factors resulting from COLSS alternate instrumentation loop drift caused by time and ambient temperature uncertainty effects. On restoration, THERMAL POWER should be maintained at the previous TRM action level until UFM calibration factors are developed.

←(DRN 02-1889, Am. DRN 03-247, Am. 75)

→(DRN 03-247, Am. 75)

Within 31 days following the loss of the UFMs, operator action must be taken to reduce power to less than or equal to 3660 MWt (98.5%). The decrease in power within the 31 day completion time takes into account the loss of confidence in the UFM based calibration factors.

←(DRN 02-677, Am. 56; DRN 03-247, Am. 75; DRN 04-1244, Am. 99)

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

The 48 hour and 31 day LCO ACTION STATEMENTS are required to maintain consistency with the COLSS Secondary Calorimetric Measurement Uncertainty analyses. The entry into LCO ACTION STATEMENTS begins with the loss of the UFM, when greater than 50% power. The appropriate ACTION STATEMENT time limit entry will be based on the last time MSBSCAL and FWBSCAL were updated by the UFM calibration factors prior to UFM failure. These ACTIONS ensure CPC margins to trip remain conservative and preserve the Appendix K ECCS limits.

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

3/4.3.5 ULTRASONIC FLOWMETERS (cont'd)

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

If COLSS is out of service, then Core Protection Calculator System (CPCS) will continue to maintain plant operations within the core power operating limits. Operating limits will be maintained through compliance with Technical Specifications (TS) sections 3.2.1, 3.2.3, 3.2.4, 3.2.7, and 4.3.1.1, Table 4.3-1 (2, 9, 10, 14) applicable ACTION STATEMENTS and Surveillance Requirements (SR). If the UFM(s) is OPERABLE during the period COLSS is out of service, then plant operation may continue at 3716 MWt RTP using the power indications from the CPCS and UFM based manual secondary calorimetric measurement. If the UFM(s) becomes INOPERABLE during the period COLSS is out of service, then plant operation may continue at 3716 MWt RTP using the power indications from the CPCS. However, in order to remain in compliance with the bases for operation at a RTP of 3716 MWt, the UFM(s) must be returned to service prior to the next required daily CPCS calibration or THERMAL POWER must be reduced to less than or equal to 3660 MWt (98.5%). This power reduction is performed prior to the next CPC calibration in order to remain within the alternate venturi-based instrumentation power measurement uncertainty analysis and maintain consistency with the COLSS Secondary Calorimetric Measurement Uncertainty analyses.

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

The TRM is annotated with a 3.0.4 exemption, allowing entry into the applicable Mode to be made with UFMs INOPERABLE, as required by the Actions.

The SR 4.3.5.a. to perform a CHANNEL FUNCTIONAL TEST at least once per 18 months is based on the vendor recommendations. The UFM equipment contains on-line self-diagnostic capabilities to continuously verify operation within its design bounds. The 18 month frequency is based on the refueling cycle. This frequency is acceptable from a reliability standpoint.

The SR 4.3.5.b 31 day CHANNEL CHECK verifies the COLSS alternate calorimetric heat balances MSBSCAL and FWBSCAL are within a value bounded by engineering analyses. This comparison of alternate heat balances to USBSCAL assures the calibration factors derived by USBSCAL are valid and the basis for the original power measurement uncertainty assumptions for operation are maintained at the various thermal power levels when UFM is inoperable.

←(DRN 02-677, Am. 56)

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

→(DRN 02-912)

←(DRN 02-912)

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

→(DRN 02-912, 02-1639)

←(DRN 02-912, 02-1639)

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←(DRN 02-912, 02-1639)

←(DRN 02-912, 02-1639)

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LIST OF TABLES

→(LBDCR 16-011, Am. 138)

3/4.1 REACTIVITY CONTROL SYSTEMS

3/4.1.2 DELETED

3.1.2.4 The Limiting Condition for Operation for charging pumps A and B has been deleted.

←(LBDCR 16-011, Am. 138)

→(LBDCR 14-005, LBDCR 16-011, Am. 138)

THE COMPENSATORY ACTION (FIRE WATCH) FOR INOPERABLE OR OUT-OF-SERVICE CHARGING PUMP(S) HAS BEEN DELTED.

TABLE 3.1-1 HAS BEEN DELETED

←(LBDCR 14-005, LBDCR 16-011, Am. 138)

3/4.3 INSTRUMENTATION

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

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

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

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

1. Any unexplainable Containment Fan Cooler intake temperature increase,

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

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

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

ACTION:
→(EC-25884, Am. 123, LBDCR 16-011, Am. 138)
For Fire Detection Instrumentation listed in Table 3.3-11a (High Safety Significant)

a. With any, but not more than one-half the total of the Function A fire detection instruments in any fire area shown INOPERABLE, restore the inoperable instrument(s) to OPERABLE STATUS within 14 days or within the next 1 hour establish an hourly fire watch patrol to inspect the area(s) with the inoperable fire detection instrument(s).

b. With more than one-half of the Function A fire detection instruments in any fire area shown INOPERABLE, or with any Function B fire detection instrumentation shown INOPERABLE, within 1 hour establish a continuous fire watch with backup suppression equipment available for the area(s) with the inoperable fire detection instrument(s).

←(EC-25884, Am. 123, LBDCR 16-011, Am. 138)

LIMITING CONDITION FOR OPERATION (Continued)

→(EC-25884, Am. 123, DRN 04-1191, Am. 91, LBDCR 16-011, Am. 138)

ACTION (Continued):

For Fire Detection Instrumentation listed in Table 3.3-11b (Low Safety Significant)

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

d. With more than one-half of the Function A fire detection instruments in any fire area shown INOPERABLE, or with any Function B fire detection instrumentation shown INOPERABLE, restore the inoperable instruments to OPERABLE STATUS within 14 days or within 1 hour establish an hourly fire watch with backup suppression equipment available for the area(s) with the inoperable fire detection instrument(s), unless the instrument(s) is located inside Containment, then inspect that Containment area at least once per 8 hours OR monitor and record temperature at least once per hour at each of the OPERABLE Containment Fan Cooler Air Intakes.

e. The provisions of TRM LCO 3.03 and 3.04 are not applicable.

←(EC-25884, Am. 123, DRN 04-1191, Am. 91, LBDCR 16-011, Am. 138)

SURVEILLANCE REQUIREMENTS

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

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

→(DRN 02-912, LBDCR 16-011, Am. 138)

TABLE 3.3-11a

FIRE DETECTION INSTRUMENTS High Safety Significant (HsS)

FIRE AREA	ROOM NAME	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
REACTOR AUXILIARY BUILDING				
RAB 1A	Control Room Proper	+46		28/0
RAB 1E	Cable Vault	+35		0/17
RAB 5	Electrical Penetration Area "B"	+35		0/12
RAB 6	Electrical Penetration Area "A"	+35		0/10
RAB 7	Relay Room	+35		0/7
	Isolation Panel	+35		18/0
RAB 8A	Switchgear Room "A"	+21		1/11
RAB 8B	Switchgear Room "B"	+21		3/19
	480V Switchgear 3A32 Room			
	CEA M/G Set Room			
RAB 8C	Switchgear Room "AB"	+21		0/8
RAB 15	Emergency Diesel Gen "B" Room	+21	0/3	
RAB 16	Emergency Diesel Gen "A" Room	+21	0/3	
RAB 23	Corridor to CCW Pumps,	+21		0/18
	Corridor to CCW Heat Exchangers			
	And corridor to Emergency Diesel Gen.			
TURBINE GENERATOR BUILDING				
TGB 5	Turbine Lube Oil	+15	0/7	
TSG	Turbine Bldg Switchgear Room	+15		36/0

TABLE NOTATIONS

*(x/y): X is the number of Function A (early warning fire detection and notification only) instruments
Y is the number of Function B (actuation of fire suppression systems and early warning and notification) instruments

←(DRN 02-912, LBDCR 16-011, Am. 138)

→(LBDCR 16-011, Am. 138)

TABLE 3.3-11b

FIRE DETECTION INSTRUMENTS Low Safety Significant (LSS)

FIRE AREA	ROOM NAME	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
REACTOR AUXILIARY BUILDING				
RAB 1B	Control Room H&V Room	+46		0/7
RAB 1C	Control Room Emergency Quarters	+46		9/0
RAB 1D	Computer Room (above raised floor)	+46		5/0
	Computer Room (below raised floor)	+46		7/0
RAB 2	Ventilation Equip Room	+46		0/25
RAB 3	RAB Corridor to Relay Room	+35		0/5
	RAB HVAC Switchgear Equip Room	+46		0/4
RAB 3A	RAB Battery Exhaust Fan Room	+69		0/3
	Elevator Vestibule	+21		1/0
RAB 9	Remove Shutdown Room	+21		1/0
RAB 11	Battery Room "B"	+21		1/0
RAB 12	Battery Room "AB"	+21		1/0
RAB 13	Battery Room "A"	+21		1/0
RAB 15A	Emergency Diesel Gen "B" Feed Tk Room	+46	0/1	
RAB 16A	Emergency Diesel Gen "A" Feed Tk Room	+46	0/1	
RAB 17	CCW Heat Exchanger "B"	+21		0/3
RAB 18	CCW Heat Exchanger "A"	+21		0/3
RAB 19	CCW Pump "A"	+21		0/2
RAB 20	CCW Pump "AB"	+21		0/2
RAB 21	CCW Pump "B"	+21		1/0
RAB 22	Drumming Station / Hot Tool Room	+21		0/5
RAB 24	Hot Machine Shop	+21		17/0
RAB 25	Equipment Access Area Wing Area	+21		12/0
RAB 27	H&V Room	+7		0/4
	Electrical Area and Health Physics Offices	+7		0/31
	I&C Room	+7		0/5
	Communications Room	+7		1/0
RAB 30	Administrative Area (HP)	-4		32/0
RAB 31	Corridor and Passageways	-4		0/17
RAB 32	Wing Area – Auxiliary Component	-35		22/0
	Cooling Water Pump	-4		21/0
RAB 33	S/D Cool Heat Exchangers A&B	-34		0/9

←(LBDCR 16-011, Am. 138)

→(LBDCR 16-011, Am. 138)

TABLE 3.3-11b (Continued)

FIRE DETECTION INSTRUMENTS Low Safety Significant (LSS)

FIRE AREA	ROOM NAME	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
REACTOR AUXILIARY BUILDING				
RAB 34	Valve Gallery Rooms A & B	-15.5		5/0
RAB 35	Safety Injection Pump Room "B"	-35		5/0
RAB 36	Safety Injection Pump Room "A"	-35		6/0
RAB 37	Emergency Feedwater Pump "A"	-35		0/1
RAB 38	Emergency Feedwater Pump "B"	-35		1/0
RAB 39	Corridor & General Equip Areas	-35		8/22
RAB 40	Diesel Storage Tank "A"	-35		1/0
RAB 41	Diesel Storage Tank "B"	-35		1/0
COOLING TOWERS				
CTA	Cooling Tower "A"		16/0	1/0
CTB	Cooling Tower "B"		2/0	1/0
FUEL HANDLING BUILDING				
FHB	Electrical Equip Room	+1		1/0
REATOR CONTAINMENT BULDING**				
RCB	Electrical Penetration Areas A & B	+21		44/0
RCB	Reactor Cable Trays	+46		16/0
TURBINE GENERATOR BUILDING				
TGB 6	Hydrogen Seal Oil	+40		0/2
TGB 7	Feed Water Pump A	+15		0/12
TGB 8	Feed Water Pump B	+15		0/12
TRANSFORMER YARD				
XFMR	Main Transformer "A"	+18	0/7	
XFMR	Main Transformer "B"	+18	0/8	
XFMR	Aux Transformer "A"	+18	0/4	
XFMR	Aux Transformer "B"	+18	0/4	
XFMR	Start-up Transformer "A"	+18	0/4	
XFMR	Start-up Transformer "B"	+18	0/4	

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

←(LBDCR 16-011, Am. 138)

→(LBDCR 16-011, Am. 138)

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→(LBDCR 16-011, Am. 138)

3/4.7.3 DELETED

3.7.3 The Limiting Condition for Operation for Component Cooling Water Pumps A and B has been deleted.

←(LBDCR 16-011, Am. 138)

→(LBDCR 14-005, LBDCR 16-011, Am. 138)

THE COMPENSATORY ACTION (FIRE WATCH) FOR INOPERABLE OR OUT-OF-SERVICE CCW PUMP(S) HAS BEEN DELETED.

TABLE 3.7-1 HAS BEEN DELETED

←(LBDCR 14-005 LBDCR 16-011, Am. 138)

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

f. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:

→(DRN 07-213, Am. 114; EC-8523, Am. 126)

1. Verify that each fire suppression pump develops at least 1218 gpm at a system head of 108.3 psid.

←(DRN 07-213, Am. 114; EC-8523, Am. 126)

2. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and

3. Verifying that the fire pumps start sequentially on a continued pressure drop in the fire suppression system.

g. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association.

4.7.10.1.2 Each fire pump diesel engine shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying:

1. The diesel fuel oil day storage tank contains at least 170 gallons of fuel, and

2. The diesel starts from ambient conditions and operates for at least 30 minutes.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM-D270-75, is within the acceptable limits specified in Table 1 of ASTM D975-77 when checked for viscosity, water and sediment.

→(LBDCR 16-011, Am. 138)

c. At least once per 18 months by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service.

←(LBDCR 16-011, Am. 138)

3/4.7 PLANT SYSTEMS

3/4.7.10.2 SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

→(DRN 04-1191, Am. 91, DRN 03-115, Am. 72, DRN 04-1191, Am. 91, LBDCR 16-011, Am. 138)

3.7.10.2 As a minimum, the Spray and/or Sprinkler Systems listed in Tables 3.7-2a (High Safety Significant) and 3.7-2b (Low Safety Significant) shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by spray/ sprinkler system is required to be OPERABLE.

ACTION:

a. With one or more of the spray and/or sprinkler systems listed in Table 3.7-2a INOPERABLE within 1 hour establish a continuous fire watch with backup fire suppression equipment available.

b. With one or more of the spray and/or sprinkler systems listed in Table 3.7-2b INOPERABLE, restore to OPERABLE STATUS within 14 days, or within 1 hour establish an hourly fire watch patrol with backup fire suppression equipment available.

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

←(DRN 04-1191, Am. 91, DRN 03-115, Am. 72, DRN 04-1191, Am. 91, LBDCR 16-011, Am. 138)

SURVEILLANCE REQUIREMENTS

4.7.10.2 Each of the Spray and/or Sprinkler Systems listed in Table 3.7-2 shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.

b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

c. At least once per 18 months:

1. By performing a system functional test which includes simulated automatic actuation of the system, and:

2. Verifying that the automatic valves in the flow path actuate to their correct position on a thermal/ preaction test signal, and

3. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

4. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and.

5. By a visual inspection of each nozzle's spray area to verify the spray pattern is not obstructed.

→(DRN 02-38, Am. 52, DRN 03-115, Am. 72, LBDCR 16-011, Am. 138)

TABLE 3.7-2a

SPRAY and/or SPRINKLER SYSTEMS High Safety Significant (HSS)

Sprinkler No.	Bldg./Elev.	Location	Fire Area/Room Numbers
FPM-3A	RAB +21	Diesel Generator Area A (ONLY)	RAB 16 / 221
FPM-4B	RAB +21	Diesel Generator Area B (ONLY)	RAB 15 / 222
FPM-17	RAB +35	Cable Vault Area	RAB 1E / 260
FPM-18	RAB +35	Electrical Penetration Area A	RAB 6 / 263A
FPM-19	RAB +35	Electrical Penetration Area B	RAB 5 / 263
FPM-24	RAB +21	Corridors & Passageways (ONLY)	RAB 23 / 218 & 219 & 225A
FPM-25B	RAB +21	Switchgear Rooms B & AB	RAB 8 / 212 & 212B & 225B
FPM-29	RAB +35	Relay Room (ONLY)	RAB 7 / 262
FPM-30A	RAB +21	Switchgear Rooms A & AB	RAB 8 / 212A & 212B

←(DRN 02-38, Am. 52, DRN 03-115, Am. 72, LBDCR 16-011, Am. 138)

→(LBDCR 16-011, Am. 138)

TABLE 3.7-2b

SPRAY and/or SPRINKLER SYSTEMS Low Safety Significant (LSS)

Sprinkler No.	Bldg./Elev.	Location	Fire Area/Room Numbers
FPM-3A	RAB +46	EDG Diesel Fuel Tank A (ONLY)	RAB 16A / 328B
FPM-4B	RAB +46	EDG Diesel Fuel Tank B (ONLY)	RAB 15A / 328A
FPM-5	TGB +15	Lube Oil Tank	TGB / 256
FPM-7	TGB +15	Feed Water Pump A	TGB / 343
FPM-8	TGB +15	Feed Water Pump B	TGB / 343
FPM-11A	RAB -35	Diesel Oil Storage Tank "A"	RAB 40 / B50
FPM-12B	RAB -35	Diesel Oil Storage Tank "B"	RAB 41 / B52
FPM-22	RAB -4	Corridor & Passageway	RAB 31 / B101, B114, B116 & B145A, B145B & B150A, B150B, B150C
FPM-23	RAB -35	General Area Elev. -35 (ONLY)	RAB 39 / B1 thru B5, B17, B49
FPM-24	RAB +21	CCW Pump AB Room (ONLY)	RAB 20 / 234
FPM-26	RAB +46	Control Room HVAC Room	RAB 1B / 314
FPM-26	RAB +46	H & V Mechanical Room (Essential Chillers)	RAB 2 / 299

←(LBDCR 16-011, Am. 138)

3/4.7 PLANT SYSTEMS

3/4.7.10 FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

→(DRN 04-1191, Am. 91)
3.7.10.4 The Fire Hose Stations listed in Table 3.7-4 shall be OPERABLE.
←(DRN 04-1191, Am. 91)

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the fire hose stations shown inoperable, provide gated wye(s) on the nearest operable hose station(s). One outlet of the wye shall be connected to the standard length of hose provided for the hose station. The second outlet of the wye shall be connected to length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. Where it can be demonstrated that the physical routing of the fire hose would result in a recognizable hazard to operating technicians, plant equipment, or the hose itself, the fire hose shall be stored in a roll at the outlet of the operable hose station. For those stations in the RCB the hose and gated wye(s) may be staged at the containment entry. With the exception of gated wyes staged at the containment entry, signs shall be mounted at the gated wye(s) to identify the proper hose to use. The above action shall be accomplished within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise, route the additional hose within 24 hours.

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

SURVEILLANCE REQUIREMENTS

4.7.10.4 Each of the Fire Hose Stations listed shall be demonstrated OPERABLE.

a. At least once per 31 days by visual inspection of the stations accessible during plant operation to assure all required equipment is at the station.

b. At least once per 18 months by:

1. Visual inspection of the stations not accessible during plant operations to assure all required equipment is at the station.

→(LBDCR 16-011, Am. 138)
2. Removing the hose for inspection.
←(LBDCR 16-011, Am. 138)

3. Inspecting all gaskets and replacing any degraded gaskets in the couplings.

c. At least once per 3 years by:

1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

TABLE 3.7-4

FIRE HOSE STATIONS

→(LBDCR 16-011, Am. 138)

LOCATION BLDG	COLUMN	ELEVATION (Feet MSL)	HOSE RACK IDENTIFICATION
FHB	3FH-V	+1	FH/A-020
FHB	5FH-V	+1	FH/A-021
RAB	J-9A	-35	RA/F-101
RAB	J-6A	-35	RA/F-102
RAB	H-4A	-35	RA/F-103
RAB	J-3A	-35	RA/F-104
RAB	K-4A	-35	RA/F-105
RAB	M-10AZ	-35	RA/C-106
RAB	M-3A	-35	RA/A-107
RAB	M-2AC	-20	RA/K-108
RAB	M-11AZ	-20	RA/L-109
RAB	K-10A	-35	RA/F-110
RAB	K-11A	-4	RA/D-201
RAB	H-11A	-4	RA/D-202
RAB	J-10A	-4	RA/E-203
RAB	J-6A	-4	RA/H-204
RAB	H-4A	-4	RA/I-205
RAB	K-4A	-4	RA/J-206
RAB	M-10AZ	-4	RA/C-207
RAB	M-3A	-4	RA/A-208
RAB	LY-8A	-4	RA/B-209
RAB	K-12A	+7	RA/D-301
RAB	J-11A	+7	RA/D-302
RAB	H-11A	+21	RA/E-401
RAB	H-9A	+21	RA/E-402
RAB	K-11A	+21	RA/D-403
RAB	L-7A	+21	RA/C-411
RAB	N-10AZ	+21	RA/C-405
RAB	J-6A	+21	RA/I-406
RAB	H-4A	+21	RA/I-407
RAB	J-1A	+21	RA/I-408
RAB	K-4A	+21	RA/J-409
RAB	L-7A	+21	RA/G-410
RAB	N-4A	+21	RA/A-412

←(LBDCR 16-011, Am. 138)

→(LBDCR 16-011, Am. 138)

TABLE 3.7-4 (Continued)

FIRE HOSE STATIONS

LOCATION BLDG / COLUMN	ELEVATION (Feet MSLL)	HOSE RACK ID
TGB / B-2T	+15	T/A-100
TGB / E-4T	+15	T/B-101
TGB / B-4T	+15	T/B-102
TGB / E-7T	+15	T/C-103
TGB / B-7T	+15	T/C-104
TGB / E-9T	+15	T/D-105
TGB / B-9T	+15	T/D-106
TGB / D-7T	+40	T/C-203
TGB / F-9T	+40	T/D-204
TGB / B-10T	+40	T/D-205

←(LBDCR 16-011, Am. 138)

TABLE 3.7-5

YARD FIRE HYDRANTS AND ASSOCIATED HYDRANT HOSE HOUSES

→(DRN 06-660, AM. 113, LBDCR 16-011, Am. 138)

LOCATION	HYDRANT NUMBER	HOSE HOUSE
South of TGB	1	1
South of Xfmr Yard	2	2
East of TGB	3	3

←(DRN 06-660, AM. 113, LBDCR 16-011, Am. 138)

3/4.7 PLANT SYSTEMS

3/4.7.11 FIRE RATED ASSEMBLIES

LIMITING CONDITION FOR OPERATION

→(DRN 04-1191, Am. 91, LBDCR 16-011, Am. 138)

3.7.11 Fire rated assemblies which include: 1) Electrical Raceway Fire Barrier Systems (ERFBS); 2) fire barrier penetration seals; 3) fire doors and fire dampers and 4) fire area boundary walls, floors and/or ceilings shall be OPERABLE.

APPLICABILITY: At all times

ACTION:

For Electrical Raceway Fire Barrier Systems (ERFBS)

a. With ERFBS INOPERABLE, and fire detection AND automatic suppression INOPERABLE in the fire area containing the ERFBS, within 1 hour establish an hourly fire watch.

b. With ERFBS INOPERABLE, and fire detection OR automatic suppression OPERABLE in the fire area containing the ERFBS, establish a fire watch once per shift.

For Fire Barrier Penetration Seal(s)

c. With fire barrier penetration seal(s) INOPERABLE, and fire detection AND automatic suppression INOPERABLE on BOTH sides of the penetration seal(s), within 1 hour establish an hourly fire watch with backup suppression equipment available on one side of the fire barrier penetration seal(s).

d. With fire barrier penetration seal(s) INOPERABLE, and either fire detection OR automatic suppression OPERABLE on at least one side of the penetration seal(s), NO compensatory action is required.

For Fire Doors, Fire Dampers and Fire Area Boundary (Walls, Floors or Ceilings)

e. With either fire door, fire damper or fire area boundary INOPERABLE, and fire detection AND automatic suppression INOPERABLE on BOTH sides of the fire rated assembly, within 1 hour establish an hourly fire watch with backup suppression on one side of the fire rated assembly.

f. With either fire door, fire damper or fire area boundary INOPERABLE, and either fire detection OR automatic suppression OPERABLE on one side of the fire rated assembly, within 1 hour establish shiftily fire watch on one side of the fire rated assembly.

g. With either fire door, fire damper or fire area boundary INOPERABLE, and either fire detection OR automatic suppression OPERABLE on BOTH sides of the fire rated assembly, NO compensatory action is required.

h. The provision of TRM LCO 3.0.3 and 3.0.4 are not applicable.

←(DRN 04-1191, Am 91, LBDCR 16-011, Am. 138)

SURVEILLANCE REQUIREMENTS

4.7.11.1 At least once per 18 months the above required fire rated assemblies and penetration sealing devices other than fire doors shall be verified OPERABLE by:

a. Performing a visual inspection of the exposed surfaces of each fire rated assembly.

→(DRN 02-450, LBDCR 16-011, Am. 138)

b. Performing a visual inspection of at least 10% sample of the fire windows / fire dampers / and associated hardware. If degradation or deficiencies are found, a visual inspection of an additional 10% sample of the fire windows / fire dampers / and associated hardware shall be made. This inspection process shall continue until a 10% sample with no degradation or deficiencies is found. Samples shall be selected such that each fire window / fire damper / and associated hardware will be inspected at least once per 15 years.

←(DRN 02-450)

→(DRN 02-814)

c. Performing a visual inspection of at least 10% of each type of accessible sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10% of that type of sealed penetration shall be made. This inspection process shall continue until a 10% sample with no apparent changes in appearance or abnormal degradation is found. Samples shall be selected such that each accessible penetration seal will be inspected at least once per 15 years.

←(DRN 02-814)

4.7.11.2 Each of the above required fire doors shall be verified OPERABLE by inspecting the automatic hold-open, release, and closing mechanism and latches at least once per 6 months, and by verifying:

a. That doors with automatic hold-open and release mechanisms are free of obstructions at least once per 24 hours and performing a functional test of these mechanisms at least once per 18 months.

b. That each fire door is closed at least once per 24 hours.

←(LBDCR 16-011, Am. 138)

3/4.7 PLANT SYSTEMS

→(LBDCR 16-011, Am. 138)

3/4.7.12 DELETED

3.7.12 The Limiting Condition for Operation for the three essential services chilled water chillers and associated chilled water pumps has been deleted.

←(LBDCR 16-011, Am. 138)

→(LBDCR, 14-005, LBDCR 16-011, Am. 138)

THE COMPENSATORY ACTION (FIRE WATCH) FOR INOPERABLE OR OUT-OF-SERVICE CHW PUMP(S) OR CHILLER(S) HAS BEEN DELETED.

TABLE 3.7-12 HAS BEEN DELETED

←(LBDCR, 14-005, LBDCR 16-011, Am. 138)

3/4.1 REACTIVITY CONTROL SYSTEMS

BASES

→(DRN 02-912, LBDCR 16-011, Am. 138)

3/4.1.2 DELETED

The Limiting Condition for Operation established for charging pumps A and B was associated with maintaining compliance with 10 CFR 50 Appendix R. With the transition to NFPA 805, the compensatory action is no longer required. Therefore, Section 3/4 1.2 of the Technical Requirements Manual has been deleted.

←(DRN 02-912, LBDCR 16-011 Am. 138)

→(DRN 02-1794)

3/4.7 PLANT SYSTEMS

BASES

→(LBDCR 16-011, Am. 138)

3/4.7.3 DELETED

The Limiting Condition for Operation established for the Component Cooling Water pumps A and B was associated with maintaining compliance with 10 CFR 50 Appendix R. With the transition to NFPA 805, the compensatory measure action is no longer required. Therefore, Section 3/4.7.3 of the Technical Requirements Manual has been deleted.

←(DRN 02-1794, LBDCR 16-011, Am. 138)

→(LBDCR 13-003, Am. 124; LBDCR 13-001, Am. 125)

3/4.7.5 FLOOD PROTECTION

The Limiting Condition for Operation provides a limitation on flood protection that ensures facility protective actions will be taken in the event of flood conditions. The limit of elevation +27.0 ft Mean Sea Level is based on the maximum elevation at which the levee provides protection. The nuclear plant island structure provides protection to safety-related equipment up to elevation +30 ft Mean Sea Level. The Action requirement to initiate and complete procedures ensuring that all doors and penetrations to the nuclear island are secure prior to attaining +27.0 ft Mean Sea Level establishes the nuclear plant island structure as flood protection for safety-related equipment. EC41353 determined a conservative response time to close the doors and EC39741 determined a maximum expected rate of rise in the Mississippi River using

←(LBDCR 13-003, Am. 124; LBDCR 13-001, Am. 125)

3/4.7.10 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire suppression system consists of the water system spray and/or sprinklers, fire hose stations, and yard fire hydrants. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

→(LBDCR 16-011, Am. 138)

The Surveillance Requirements provide assurance that the minimum OPERABILITY requirements of the fire suppression systems are met. A sprinkler / spray system isolation valve or a water supply sectional valve that is found stuck in its full open position will fail the Surveillance Requirement of 4.7.10.1.1.e or 4.7.10.2.b. However, a failed but fully open sprinkler / spray system isolation or water supply sectional valve allows the fire suppression water system to meet its design function as set forth in Limiting Condition for Operation statement 3.7.10.1.c. The stuck open valve does not adversely impact the ability of the water to flow and does not impede the water supply function to any automatic fire suppression system, hose station or fire hydrant. Therefore, a stuck open valve in the fire suppression water supply flow path does NOT require entry into ACTION statements 3.7.10.1.b or 3.7.10.2.a. This situation is an exception to TRM 4.0.1 based on a stuck fully open fire suppression water supply valve having no adverse impact on the ability of the fire suppression water system to perform its design function.

←(LBDCR 16-011, Am. 138)

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant.

3/4.7.11 FIRE RATED ASSEMBLIES

The OPERABILITY of the fire barriers and barrier penetrations ensure that fire damage will be limited. These design features minimize the possibility of a single fire involving more than one fire area prior to detection and extinguishment. The fire barriers, fire barrier penetrations for conduits, cable trays and piping, fire windows, fire dampers, and fire doors are periodically inspected to verify their OPERABILITY.

→(LBDCR 16-011, Am. 138)

3/4.7.12 DELETED

The Limiting Condition for Operation established for each train of chilled water (CHW) and associated pump was associated with maintaining the compliance with 10 CFR 50 Appendix R. With the transition to NFPA 805, the compensatory action is no longer required. Therefore, Section 3/4 7.12 of the Technical Requirements Manual has been deleted.

←(LBDCR 16-011, Am. 138)

→(DRN 04-1244, Am. 99)

5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

5.7-1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

TABLE 5.7-1

COMPONENT CYCLIC OR TRANSIENT LIMITS

COMPONENT	CYCLIC OR TRANSIENT LIMIT	DESIGN CYCLE OR TRANSIENT
Reactor Coolant System	500 system heatup cycles and 500 cooldown cycles at rates ≤ 100 °F / hr.	Heatup cycle Tcold from ≤ 70 °F to ≥ 543 °F; cooldown cycle Tcold from ≥ 543 °F to ≤ 70 °F.
→(LBDCR 16-051, Am. 139)	The RSG is analyzed for 300 plant heatup and 300 plant cooldown cycles.	
←(LBDCR 16-051, Am. 139)		
→(DRN 06-1000, Am. 110)	200 pressurizer heatup and cooldown cycles at rates ≤ 200 °F / hr.	Heatup cycle – Pressurizer temperature from < 70 °F to > 653 °F; cooldown cycle ≥ 653 °F to ≤ 70 °F
←(DRN 06-1000, Am. 110)	10 hydrostatic testing cycles.	RCS pressurized to 3125 psia with RCS temperature ≥ 60 °F above the most limiting components' NDTT value.
→(LBDCR 16-051, Am. 139)	200 leak testing cycles. Fatigue consideration of leak test are already accounted for in the plant heatup and cooldown transients(i.e., no additional pressure transients at normal RCS operating pressure need to be included in the plant component design specification.).	RCS pressurized to 2250 psia with RCS temperature greater than minimum for hydrostatic testing, but less than 400 °F.
←(LBDCR 16-051, Am. 139)	200 seismic stress cycles.	Subjection to a seismic event equal to the operating basis earthquake (OBE).
	480 cycles (any combination) of reactor trip, turbine trip, or complete loss of forced reactor coolant flow.	Trip from 100% of RATED THERMAL POWER; Turbine trip (total load rejection from 100% of RATED THERMAL POWER followed by resulting reactor trip; simultaneous loss of all reactor coolant pumps at 100% of RATED THERMAL POWER.
	5 complete loss of secondary pressure cycles.	Loss of secondary pressure from either steam generator while in MODE 1, 2, or 3.

← (DRN 04-1244, Am. 99)

→(DRN 04-1244, Am. 99)

←(DRN 04-1244, Am. 99)

3/4.3 INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

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

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

ACTION:

→(LBDCR 16-030, Am. 137)

a. With one stop valve or one control valve per high pressure turbine steam lead inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close valve(s) to isolate the affected steam lead as shown in Table 3.3-14, or isolate the turbine from the steam supply within the next 6 hours.**

←(LBDCR 16-030, Am. 137)

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

SURVEILLANCE REQUIREMENTS

→(DRN 04-1191, Am. 91)

4.3.4.1 The provisions of TRM SR 4.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

4.3.4.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE:

→(DRN 06-723, Am. 107; LBDCR 16-035, Am. 140; LBDCR 16-055, Am. 140)

a. At least once every 184 days# (under direct observation) each of the following valves is cycled through at least one complete cycle from the running position.

←(DRN 06-723, Am. 107; LBDCR 16-035, Am. 140; LBDCR 16-055, Am. 140)

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

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

c. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

→(DRN 06-723, Am. 107)

d. At least once per 40 operating months by inspecting the installed light low pressure turbine discs, and not to exceed# at least once per 90 operating months by inspecting the installed heavy low pressure turbine discs.

←(DRN 06-723, Am. 107)

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*With any main steam isolation valve and/or any main steam line isolation valve bypass valve not fully closed.

→(DRN 06-723, Am. 107)

#The provisions of TRM SR 4.0.2 are not applicable to this requirement.

←(DRN 06-723, Am. 107)

→(LBDCR 16-030, Am. 137)

**Separate entry allowed for each inoperable steam lead.

←(LBDCR 16-030, Am. 137)

→(LBDCR 16-034, Am. 137; LBDCR 16-035, Am. 140)

←(LBDCR 16-034, Am. 137; LBDCR 16-035, Am. 140)

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECTED AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARACTERISTIC	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	MODES FOR WHICH SURV IS REQ'D
1 6.9 KV POWER FROM MEDIUM VOLTAGE SWITCHGEAR (NOTE I.3) (LBDCR 17-012, Am. 141)									
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	See SFCP	1,2,3,4
RC EBKR1A-7A RC EREL1A-7L RC EREL1A-7K RC EREL1A-7M RC EREL1A-7N									
b Backup									
7KVEBKR1A-1									
RC EREL220-D	424-220	TD Relay 2		adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-1E	289-11A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-1F	289-11A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-1G	289-11A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
c Backup									
7KVEBKR1A-4									
RC EREL220-D	424-220	TD Relay 2		adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-4E	289-11A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-4F	289-11A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-4G	289-11A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	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	See SFCP	1,2,3,4
RC EBKR1B-7A RC EREL1B-7A RC EREL1B-7C RC EREL1B-7B RC EREL1B-7D									

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

OVER-CURRENT PROTECTIVE DEVICES				WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
b Backup									
7KVEBKR1B-1									
RC EREL230-D	424-230	TD Relay 2		adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-1E	289-12A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-1F	289-12A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-1G	289-12A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
c Backup									
7KVEBKR1B-4									
RC EREL230-D	424-230	TD Relay 2		adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-4E	289-12A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-4F	289-12A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-4G	289-12A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	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	See SFCP	1,2,3,4
RC EBKR1A-8A									
RC EREL1A-8A									
RC EREL1A-8C									
RC EREL1A-8B									
RC EREL1A-8D									
b Backup									
7KVEBKR1A-1									
RC EREL240-D	424-240	TD Relay 2		adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-1E	289-11A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-1F	289-11A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-1G	289-11A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	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 PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
c Backup									
7KVEBKR1A-4									
RC EREL240-D	424-240	TD Relay 2		Adjust to 4 sec	NA	10% per R	10 % per R	See SFCP	1,2,3,4
7KVEREL1A-4E	289-11A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-4F	289-11A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1A-4G	289-11A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	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	See SFCP	1,2,3,4
RC EBKR1B-8A									
RC EREL1B-8A									
RC EREL1B-8C									
RC EREL1B-8B									
RC EREL1B-8D									
b Backup									
7KVEBKR1B-1	424-250	TD Relay 2							
RC EREL250-D				adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-1E	289-12A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-1F	289-12A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-1G	289-12A1	Line 1	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
c Backup									
7KVEBKR1B-4	424-250	TD Relay 2							
RC EREL250-D				adjust to 4 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-4E	289-12A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-4F	289-12A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	1,2,3,4
7KVEREL1B-4G	289-12A1	Line 10	Note I.1	Note II.5	NA	10% per R	10% per R	See SFCP	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 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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
II 480 VOLTS POWER FROM LOW VOLTAGE SWITCHGEAR (NOTE II.6)									
a Primary CRNEBKR31A-8A	289-20A1	Line 16	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Primary CRNEREL31A-11C CRNEREL31A-11A CRNEREL31A-11B	289-20A2	Line 16	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
c Backup CRNEREL2485 SSDEBKR3A-15	424-2485	TD Relay 2		adjust to 2 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
2 CEDM COOLING UNIT E-16 (3A)									
a Primary* CDCEBKR31A-8B	289-20A1	Line 17	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Primary* CDCEREL31A-11C CDCEREL31A-11A CDCEREL31A-11B	289-20A2	Line 17	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4

*Note II.4

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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	See SFCP	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	See SFCP	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	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
4 CEDM COOLING UNIT E-16 (3B) (Continued)									
b Primary*	289-21A2	Line 18	Note II.1	Note II.2,II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
CDCEREL31B-11M CDCEREL31B-11K CDCEREL31B-11L									
c Backup	424-1141	TD Relay 2		adjust to 1 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
CDCEREL1141-3 SSDEBKR3B-10									
5 CEDM COOLING UNIT E-16 (3D)									
a Primary*	289-21A3	Line 24	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
CDCEBKR31B-9B									
b Primary*	289-21A4	Line 24	Note II.1	Note II.2, II.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
CDCEREL31B-11R CDCEREL31B-11P CDCEREL31B-11Q									
c Backup	424-1142	TD Relay 2		adjust to 1 sec	NA	10% per R	10% per R	See SFCP	1,2,3,4
CDCEREL1142-3 SSDEBKR3B-10									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
6 PRESSURIZER HEATERS BACKUP BANK 1 (B-1)									
a Primary*	289-23A1	Line 4	Note II.1	Note II.2,II.5	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR32A-4C									
*Note II.4									
b Primary*	289-23A2	Line 4	Note II.1	Note II.2,II.5	10% of Type per R	NA	NA	See SFCP	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	10% per R	See SFCP	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	Note II.2,II.5	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR32A-4D									
b Primary*	289-23A2	Line 5	Note II.1	Note II.2, II.5	10% of Type per R	NA	NA	See SFCP	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	10% per R	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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	See SFCP	1,2,3,4
RC EREL287-E SSD EBKR3A-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	See SFCP	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	See SFCP	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	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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	See SFCP	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	See SFCP	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	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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	See SFCP	1,2,3,4
RC EREL32A-7M RC EREL32A-7N RC EREL32A-7O									
c Backup		CHASE-SHAWMUT	Fuse		NA	NA	NA	NA	1,2,3,4
Fuses		A50P200							
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	See SFCP	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	See SFCP	1,2,3,4
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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER or OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
13 PRESSURIZER HEATERS PROPORTIONAL BANK 2 (P-2)(Continued)									
c Backup Fuses		CHASE-SHAWMUT A50P200	Fuse		NA	NA	NA	NA	1,2,3,4
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	NA	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
1 CEDM COILS (91 Circuits) Continued									
a Primary CEDEBKR9218-D CEDEBKR9218-C CEDEBKR9218-A CEDEBKR9218-B		Subgroup Bus	Heine-mann 40	Heinemann Series AM,Curve3	10% per R	NA	NA	See SFCP	1,2,3,4
b Primary CEDEBKR2909-A CEDEBKR2909-B		Hold Bus	Heine-mann 30	Heinemann Series AM,Curve3	10% per R	NA	NA	See SFCP	1,2,3,4
c Backup Fuses		60A	Fuse	Fast Acting Semiconductor Fuse	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 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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	NA	See SFCP	1,2,3,4
SI EBKR311A-8H	Note IV.1								
b Backup	289-61	Fuse	TRS	Note IV.4	NA	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	NA	See SFCP	1,2,3,4
SI EBKR311A-8M	Note IV.1								
b Backup	289-61	Fuse	TRS	Note IV.4	NA	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	NA	See SFCP	1,2,3,4
LTNEBKR311A-12ML	Note IV.1								
b Backup	289-62	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
4 RCS LOOP 2 SDC ISOLATION VALVE SI MVAAA401A (1SI-V1504A)									
a Primary	289-63	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR311A-8D	Note IV.1								
b Backup	289-63	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	NA	See SFCP	1,2,3,4
CAR EBKR311A-15M	Note IV.1								
b Backup	289-64	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
7 SAFETY INJECTION TANK 1B ISOLATION VALVE SI MVAAA331-B (1SI-V1506 TK 1B)									
a Primary	289-65	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR311B-8H	Note IV.1								
b Backup	289-65	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
8 SAFETY INJECTION TANK 2B ISOLATION VALVE SI MVAAA332-B (1SI-V1508 TK 2B)									
a Primary	289-65	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR311B-8M	Note IV.1								
b Backup	289-65	Fuse	TRS	Note IV.4	NA	NA NA	NA 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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC/ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
9 LP-310									
a Primary	289-66	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	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	See SFCP	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	See SFCP	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

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
13 CONT. 30KVA TRANSF. PDP 377A									
a Primary	289-71	Breaker	HFD	Note IV.2,IV.3	10% of Type	NA	NA	See SFCP	1,2,3,4
LVD EBKR312A-12MR	Note IV.1				per R				
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 per R	NA	NA	See SFCP	1,2,3,4
RC EBKR312A-9H	Note IV.1								
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 per R	NA	NA	See SFCP	1,2,3,4
RC EBKR312A-9E	Note IV.1								
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. (MNI EBKR312A-12ML)									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC/ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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									
a Primary	289-74	Breaker	HFD	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR312B-9E	Note IV.1								
b Backup	289-74	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
20 RCP 2B OIL LIFT PUMP A									
a Primary	289-74	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR312B-9H	Note IV.1								
b Backup	289-74	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
21 MOVABLE DETECTOR DRIVE MACHINE 2									
THE MOVABLE DETECTOR DRIVE MACHINE 2 WAS DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED.(MNI EBKR312B-12ML)									
22 CONT. 30KVA TRANSF. PDP 378B									
a Primary	289-75	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
LVD EBKR312B-12MR	Note IV.1								
b Backup	289-75	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
23 H2 RECOMBINER POWER SUPPLY A									
a Primary	289-77	Breaker	FJ	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
HRAEBKR313A-3M	Note IV.1								
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	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RCCEBKR313A-12M	Note IV.1								
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	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
ARREBKR313A-12E	Note IV.1								
b Backup	289-78	Fuse	TRS	Note IV.4	NA	NA	NA	NA	1,2,3,4
26 RCP 1A OIL LIFT PUMP B									
a Primary	289-78	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR313A-10J	Note IV.1								
b Backup	289-78	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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)									
a Primary	289-81	Breaker	HFD	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	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	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b..	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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*									
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	See SFCP	1,2,3,4
CCSEBKR317A-2M									
b Backup	289-20A1	Breaker	ECS	Note IV.6, IV.7,IV.8	10% of Type per R	NA	NA	See SFCP	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	See SFCP	1,2,3,4

*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

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
35 CONTAINMENT COOLING UNIT AH-1 (3C-SA)									
a Primary CCSEBKR317A-3M	289-97	Breaker	JL	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-20A1	Breaker	ECS	Note IV.6,IV.7&,IV.8	10% of Type per R	NA	NA	See SFCP	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	See SFCP	1,2,3,4
36 CONTAINMENT COOLING UNIT AH-1 (3B-SB)									
a Primary CCSEBKR317B-3M	289-97	Breaker	JL	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-21A1	Breaker	ECS	Note IV.6,IV.7,IV.8	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SSDEBKR31B 7A	Note IV.5								
c Backup	289-21A2	Relay	IAC66T	Note IV.6,IV.7,IV.8	10% of Type per R	NA	NA	See SFCP	1,2,3,4
37 CONTAINMENT COOLING UNIT AH-1 (3D-SB)									
a Primary CCSEBKR317B-2M	289-97	Breaker	JL	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-21A1	Breaker	ECS	Note IV.6,IV.7,IV.8	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SSDEBKR31B 7A	Note IV.5								
c Backup	289-21A2	Relay	IAC66T	Note IV.6,IV.7,IV.8	10% of Type per R	NA	NA	See SFCP	1,2,3,4

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC/. AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b.	MODES FOR WHICH SURV IS REQ'D
38 CONTAINMENT SUMP PUMP A									
a Primary	289-45	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SP EBKR213A-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	See SFCP	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	See SFCP	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	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-TERISTIC	WITHIN EACH VOLTAGE LEVEL (ROMAN) 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	MODES FOR WHICH SURV IS REQ'D
42 LP-304									
a Primary	289-45	Breaker	EF	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	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	See SFCP	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	See SFCP	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 or HFD	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
46 REFUELING EQUIPMENT									
a Primary	289-48	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	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	See SFCP	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	See SFCP	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	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
50 LP-300									
a Primary	289-49	Breaker	EF	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	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	See SFCP	1,2,3,4
SI EBKR213A-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	See SFCP	1,2,3,4
SI EBKR213B-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	See SFCP	1,2,3,4
SSDEBKR65A-7									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
53 PDP 365A RECEPTACLES (Continued)									
b Backup	289-104	Breaker	TED	Note IV.2,IV.3	10% of Type per R	NA	NA	See SFCP	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	See SFCP	1,2,3,4
SSDEBKR66B-7									
b Backup	289-104	Breaker	TED	Note IV.2, IV.3	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SSDEBKR66B-7A									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	1,2,3,4
RC EBKR1A-7B									
b Backup	424-2269	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR1A-7C									
2 RCP 2A HEATER									
a Primary	424-2269	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR1A-8B									
b Backup	424-2269	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR1A-8C									
3 RCP 1B HEATER									
a Primary	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR1B-7B									
b Backup	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR1B-7C									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
4 RCP 2B HEATER									
a Primary RC EBKR1B-8B	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup RCEBKR1B-8C	424-2270	Breaker	TEB	Note V.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
VI 120 VOLTS CONTROL POWER FROM PDPs OR MCCs									
1 SI TANK 1A LEAKAGE DRAIN SOLENOID VALVE SI ISV0303-A (1SI-F1551TK1A)									
a Primary SI EBKR94A-26	289-186	Circuit 26	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 (1SI-F1553TK2A)									
a Primary SI EBKR94A-38	289-186	Circuit 38	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
4 CONT ISOL FROM SI TANK DRAIN TO RWSP SOLENOID VALVE SI ISV0343 (2SI-F1561A/B)									
a Primary	289-186	Circuit 5	Breaker	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR94A-30									
b Backup									
289-186A	289-186A	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
8 SI TANK 2A VENT SOLENOID VALVE SI ISV0324-A (2SI-E638)									
a Primary SI EBKR94A-36	289-186	Circuit 36	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 CVC EBKR90A-1	289-147	Circuit 1	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 SI EBKR90A-30	289-147	Circuit 30	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 SI EBKR94A-28	289-186	Circuit 28	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	1,2,3,4
HRA EBKR60A-32									
b Backup	289-120a	F18	Fuse FNM		NA	NA	NA	NA	1,2,3,4
c Primary	289-120	Circuit 7	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
HRA EBKR60A-7									
d Backup	289-120a	F17	Fuse FNM		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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
14 CONTAINMENT SPRAY RISER LEVEL PUMP A TEST SOLENOID VALVE CS ISV0129-A (2CS-E608A)									
a Primary	289-120	Circuit 9	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
18 RCS LOOP 2 SDC ISOLATION VALVE SI MVAAA405-A SOLENOID VALVES (1SI-V1503A)*									
a Primary NO BKR	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
19 CONTAINMENT VACUUM RELIEF SOLENOID VALVE CVRISV0201 (2HV-B156A)									
a Primary CVR EBKR90A-14	289-147	Circuit 14	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-147A	Circuit 14	Fuse FRN		NA	NA	NA	NA	1,2,3,4
20 CONTAINMENT FAN COOLERS SYS A VALVES									
a Primary CCSEBKR60A-17	289-120	Circuit 17	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-120A	F6	Fuse TRS		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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
21 CONTAINMENT FAN COOLER AH-1(3A-SA) MOTOR SPACE HEATER									
a Primary CCSEBKR60A-13	289-120	Circuit 13	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 CCSEBKR60A-15	289-120	Circuit 15	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 CDC EBKR31A-31	424-1139	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup CDCEBKR31A-32	424-1139	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4

*120/280V 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)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
24 CEDM COOLING UNIT E-16(3C) MOTOR SPACE HEATER*									
a Primary	424-1140	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
CDCEBKR31A-33									
b Backup	424-1140	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
CDCEBKR31A-34									
25 SI TANK 1B LEAKAGE DRAIN SOLENOID VALVE SI ISV0303-B (2SI-F1552TK1B)									
a Primary	289-187	Circuit 26	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR95B-26									
b Backup	289-187A	Circuit 26	Fuse FRN		NA	NA	NA	NA	1,2,3,4
26 SI TANK 2B LEAKAGE DRAIN SOLENOID VALVE SI ISV0304-B (1SI-F1554TK2B)									
a Primary	289-187	Circuit 38	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR95B-38									
b Backup	289-187A	Circuit 38	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)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
27 WASTE GAS CONT. ISOLATION VALVE SOLENOID VALVE GWMISV0104 (2WM-F157AB)									
a Primary	289-187	Circuit 7	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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	Note VI.2	10% of Type per R	NA	NA	See SFCP	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	Note VI.2	10% of Type per R	NA	NA	See SFCP	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	Note VI.2	10% of Type per R	NA	NA	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
34 RCS LOOP 2 HOT LEG INJECTION DRAIN SOLENOID VALVE SI ISV0302 (1SI-V2505)									
a Primary	289-148	Circuit 28	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
BM EBKR95B-1									
b Backup	289-187A	Circuit 1	Fuse FRN		NA	NA	NA	NA	1,2,3,4
36 CONTAINMENT PURGE ISOLATION SOLENOID VALVES CAPISV0203, CAPISV0203-2, CAPISV0204, & CAPISV0204-2 (2HV-B153B & 2HV-B154B)									
a Primary	289-121	Circuit 26	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
38 STEAM GENERATOR NO. 1 BLOWDOWN CONT. ISOL. SOLENOID VALVE BD ISV0102-A (2BD-F603)									
a Primary	289-187	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 ISV0102-B (2BD-F605)									
a Primary	289-187	Circuit 8	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
HRAEBKR61B-32									
b Backup	289-121a	F18	Fuse FNM		NA	NA	NA	NA	1,2,3,4
c Primary	289-121	Circuit 7	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
HRAEBKR61B-7									
d Backup	289-121a	F17	Fuse FNM		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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
41 CONTAINMENT SPRAY RISER LEVEL PUMP B TEST SOLENOID VALVE CS ISV0129-B (2CS-E609B)									
a Primary	289-121	Circuit 9	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	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)									
a Primary	289-187	Circuit 9	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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)									
a Primary	289-187	Circuit 28	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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)									
a Primary	289-187	Circuit 40	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
45 SI TANK 1A VENT SOLENOID VALVE SI ISV0325-A (2SI-E632)									
a Primary	289-187	Circuit 36	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
48 PRESSURIZER SURGE LINE SAMPLING ISOLATION VALVE SOLENOID VALVE PSLISV0203 (2SL-F1502A/B)									
a Primary	289-187	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
PSL EBKR95B-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 VI.2	10% of Type per R	NA	NA	See SFCP	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 (1SI-V1501B)*									
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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	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	See SFCP	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	See SFCP	1,2,3,4
CDCEBKR31B-31									
b Backup	424-1141	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	See SFCP	1,2,3,4
CDCEBKR31B-33									
b Backup	424-1142	Breaker	TED	Note VI.2	10% of Type per R	NA	NA	See SFCP	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	See SFCP	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	See SFCP	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)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
57 STEAM GENERATOR NO. 2 SAMPLING ISOL. SOLENOID VALVE SSLISV8004-2 (2SL F603)									
a. Primary	289-148A	Circuit 45	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SSLEBKR91B-45									
b. Backup	289-148A	Circuit 45	Fuse FRN		NA	NA	NA	NA	1,2,3,4
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 SSLEBKR 84A-35	B289-133	Circuit 35	Breaker EE	Note VI.2	10% of Type Per R	NA	NA	See SFCP	1,2,3,4
b. Backup	B289-133A	F12	Fuse TRS		NA	NA	NA	NA	1,2,3,4
59 CONTAINMENT PURGE SYSTEM DAMPERS SOLENOID VALVES CAP SV0201 & CAPISV0202 (SV-D23 & SV-D22)									
a. Primary	289-133	Circuit 1	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
HVREBKR84A-1									
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	See SFCP	1,2,3,4
HVREBKR85B-1									
d. Backup	289-134A	F2	Fuse ATM		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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
60 QUENCH TANK VENT VALVE SOLENOID VALVE RC ISV0323 (7RC-F604)									
a Primary	289-133	Circuit 8	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	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 (1CH-E2504B)									
a Primary	289-148	Circuit 29	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
63 CHARGING LINE TO LOOP 1A SHUT OFF VALVE SOLENOID VALVE CVCISV0218-A (1CH-E2503A)									
a Primary CVCEBKR90A-27	289-147	Circuit 27	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 CC EBKR96AB-25	289-150	Circuit 25	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 CC EBKR96AB-27	289-150	Circuit 27	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	424-1145	F2	Fuse ATM		NA	NA	NA	NA	1,2,3,4
69 CEDM COOLER UNITS INLET DAMPERS									
a Primary CDCEBKR96AB-20	289-150	Circuit 20	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	424-1145	F1	Fuse ATM		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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
70 RCP CONTROL BLEEDOFF RELIEF ISOLATION (RC-602) RC ISV0602 (2CH-F1514A/B)									
a Primary	289-150	Circuit 5	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	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)									
a Primary	289-135	Circuit 11	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 (5SI-F1563)									
a Primary SI EBKR96AB-1	289-150	Circuit 1	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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)									
a Primary	289-150	Circuit 26	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-TERISTIC	FUNC. TEST 4.8.4.1.a.2	CHANNEL CALIB. 4.8.4.1.a.1.2	INTEG. FUNC. TEST 4.8.4.1.a.1.b	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
74 RCP 2B COOLING COIL CCW INLET & OUTLET SOLENOID VALVES CC ISV0666 B & CC ISV0680-B (3CC-P1504B2 & 3CC-P1508B2)									
a Primary CC EBKR96AB-28	289-150	Circuit 28	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 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)									
a Primary ARMEBKR91B-26	289-148	Circuit 26	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-148A	Circuit 26	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTECT AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
78 PRESSURIZER AUX SPRAY VALVE SOLENOID VALVE CVCISV0216-A (1CH-E2505A)									
a Primary	289-147	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 (1CH-E2505B)									
a Primary	289-148	Circuit 31	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
PASEBKR6368-3									
b Backup	C-1402 Sh 35	CB-1	Breaker CH	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
PASEBKR6368-4									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
81 REACTOR COOLANT SYSTEM VENT VALVES SOLENOID VALVES RC ISV3184, RC ISV1015, & RC ISV3186 (2RC-2557A, 2RC-2559A, & 2RC-2561A)									
a Primary	289-212	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR004A-2									
b Backup	289-120A	F2	Fuse TRS		NA	NA	NA	NA	1,2,3,4
82 REACTOR COOLANT SYSTEM VENT VALVES SOLENOID VALVES SOLENOID VALVES RC ISV3183, RC ISV1014, & RC ISV1017 (2RC-2558B, 2RC-2560B, & 2RC-2562B)									
a Primary	289-213	Circuit 2	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
RC EBKR005B-2									
b Backup	289-121A	F1	Fuse TRS		NA	NA	NA	NA	1,2,3,4
83 SI TANK 1A ISOL. VALVE SI MVAAA331-A (1SI-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 (1SI-V1505TK1A) LIMIT SWITCH & INDICATING LIGHTS									
a Primary	289-147	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR90A-6									
b Backup	289-147A	Circuit 6	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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 SI EBKR90A-8	289-147	Circuit 8	Breaker CD	Note VI.2	10% of T ype per R	NA	NA	See SFCP	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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
89 RADIATION REMOVAL UNIT E-13 (3A) THEMISTOR									
a Primary ARREBKR84A-24	289-133	Circuit 24	Breaker EE	Note VI.2	10% of Type per R	NA	NA	See SFCP	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 CCSEBKR45AB-3	289-149	Circuit 3	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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 (1RC-F1501A & 1RC-F1502B)									
a Primary RC EBKR96AB-4	289-150	Circuit 4	Breaker TEB	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
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. (MN1 EBKR77A-32)									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
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	NA	1,2,3,4
b Backup	5817-4241	Fuse	KTN/ KTNR		NA	NA	NA	NA	1,2,3,4
95 SI TANK 1B ISOL. VALVE SI MVAAA331-B (1SI-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 MVAAA331-B (1SI-V1506TK1B) LIMIT SWITCH & INDICATING LIGHTS									
a Primary SI EBKR91B-6	289-148	Circuit 6	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-148A	Circuit 6	Fuse FRN		NA	NA	NA	NA	1,2,3,4
97 SI TANK 2B ISOL. VALVE SI MVAAA332-B (1SI-1508TK2B) 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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
98 SI TANK 2B ISOL. VALVE SI MVAAA332-B (1SI-V1508TK2B) LIMIT SWITCH & INDICATING LIGHTS									
a Primary	289-148	Circuit 8	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
SI EBKR91B-8									
b Backup	289-148A	Circuit 8	Fuse FRN		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 VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
ARREBKR85B-24									
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	See SFCP	1,2,3,4
CB EBKR90A-33									
b Backup	289-147A	Circuit 33	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					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER or OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
103 CONTAINMENT AIR LOCKS DOOR POSITION INDICATOR									
a Primary CB EBKR91B-33	289-148	Circuit 33	Breaker CD	Note VI.2	10% of Type per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-148A	Circuit 33	Fuse FRN		NA	NA	NA	NA	1,2,3,4
104 REACTOR DRAIN TANK CONT. ISOL. VALVE BM MVAAA109 (2BM-F108AB) POSITION INDICATION									
a Primary BM EBKR84A-34	424-400 & 405	Circuit 2	Fuse NON		NA	NA	NA	NA	1,2,3,4
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 LWMEBKR84A-33	424-650 & 680	Circuit 19	Fuse NON	Note VI.2	NA	NA	NA	NA	1,2,3,4
b Backup	424-650 & 680	Circuit 22	Fuse NON		NA	NA	NA	NA	1,2,3,4
106 MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL									
THE MOVABLE INCORE DETECTOR DRIVE MACHINE #2 CONTROL HAS BEEN DISCONNECTED. BOTH THE BREAKER AND FUSE ARE SPARED. (MNI EBKR78B-32)									

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

OVER-CURRENT PROTECTIVE DEVICES					WITHIN EACH VOLTAGE LEVEL (ROMAN)				
BREAKER PROTEC./ AFFECTED COMPONENTS	DRAWING	IDENTIFYING NUMBER OR DESCRIPTION	TYPE	TIME CURRENT CHARAC-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	INSP & PREV. MAINT. 4.8.4.1.b	MODES FOR WHICH SURV IS REQ'D
107 CEDM COOLING UNITS VIBRATION SWITCHES*									
a Primary NO BKR	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
108 CONTAINMENT PRESSURE EXHAUST SOLENOID VALVE CAR-ISV-200B (2HV-228A)									
a Primary CAREBKR90A-18	289-147	Circuit 18	Breaker CD	Note VI.2	10% of Type Per R	NA	NA	See SFCP	1,2,3,4
b Backup	289-147A	Circuit 18	Fuse FRN	NA	NA	NA	NA	NA	1,2,3,4
109 RADIATION REMOVAL UNIT E-13 (3A) DRAIN SOLENOID VALVE ARR-ISV-0103A									
a Primary	5817-10186	F3	Fuse 313002		NA	NA	NA	NA	1,2,3,4
b Backup	5817-10186	F2	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	5817-10186	F3	Fuse 313002		NA	NA	NA	NA	1,2,3,4
b Backup	5817-10186	F2	Fuse 313002		NA	NA	NA	NA	1,2,3,4

(LBDCR 17-012, Am. 141)

*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 (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.

(LBDCR 17-012, Am. 141)
See SFCP – Frequencies are controlled under the Surveillance Frequency Control Program
(LBDCR 17-012, Am. 141)

3/4.4.9 STRUCTURAL INTEGRITY (cont'd)

→(DRN 03-1808, Am. 80; LBDCR 17-001, Am 141)

The ACTION requirements provide restrictions prior to restoring structural integrity on ASME Code Class 1 and 2 components while allowing sufficient Reactor Coolant System heatup to allow pressurization to perform hydrostatic testing of the affected component while complying with the RCS pressure/temperature limits of Specification 3.4.8.1. For the structural integrity of the reactor coolant pressure boundary to be assured, the reactor coolant pressure boundary must be maintained within the limitations of Technical Specifications 3.4.8.1 and 3.4.8.2. Maintaining the reactor coolant pressure boundary within these limits ensures that the component material is adequately warmed such that the material is above the Nil Ductility Reference Temperature, RT_{NDT}, prior to introducing pressure sufficient to induce brittle fracture. The RT_{NDT} of the reactor vessel is 0°F plus adjustments for embrittlement when the reactor coolant system pressure is greater than 525 psi. At pressure below 525 psi, lower temperatures are acceptable. These limits are controlled by the Pressure/Temperature limits in Technical Specification 3.4.8.1.

The lowest service temperature per ASME is RT_{NDT} plus 60°F for the reactor vessel and RT_{NDT} plus 100°F for the piping, pumps and valves. The most limiting RT_{NDT} of the reactor coolant system is 90°F based on the reactor coolant pump driver mount flanges. That makes the lowest service temperature 215.6°F (90°F plus 100°F plus instrument error). The minimum temperatures apply

Components of the Reactor Coolant System were designed to provide access to permit inservice inspections in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition and Addenda through Winter 1981.

←(DRN 03-1808, Am. 80; LBDCR 17-001, Am 141)

→(DRN 03-1808, Am. 80, 07-201, Am. 112)

←(DRN 03-1808, Am. 80, 07-201, Am. 112)

→(DRN 02-1639)

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

OPERATING

LIMITING CONDITION FOR OPERATION

→(LBDCR 15-008 Am. 135; LBDCR 15-009 Am. 135; LBDCR 16-058 Am. 142; LBDCR 16-059 Am. 142)

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

a. SUPS-3MA-S
b. SUPS-3B1-S
c. SUPS-3A1-S
d. SUPS-3MD-S
e. SUPS-3A-S
f. SUPS-3B-S
g. SUPS-3AB-S

←(LBDCR 15-008 Am. 135, LBDCR 15-009 Am. 135; LBDCR 16-058 Am. 142; LBDCR 16-059 Am. 142)

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)

AMENDMENT NO. ~~34, 67, 91~~, ~~103, 111, 135~~, 142

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

→(LBDCR 16-011, Am. 138)

TABLE 3.3-11b

FIRE DETECTION INSTRUMENTS Low Safety Significant (LSS)

FIRE AREA	ROOM NAME	ELEVATION (ft)	HEAT *(x/y)	SMOKE *(x/y)
REACTOR AUXILIARY BUILDING				
RAB 1B	Control Room H&V Room	+46		0/7
RAB 1C	Control Room Emergency Quarters	+46		9/0
RAB 1D	Computer Room (above raised floor)	+46		5/0
	Computer Room (below raised floor)	+46		7/0
→(LBDCR 17-021, Am. 143)				
RAB 2	Ventilation Equip Room	+46		0/20
	S-6 Fan Room (RAB Roof)	+69		0/5
←(LBDCR 17-021, Am. 143)				
RAB 3	RAB Corridor to Relay Room	+35		0/5
	RAB HVAC Switchgear Equip Room	+46		0/4
RAB 3A	RAB Battery Exhaust Fan Room	+69		0/3
	Elevator Vestibule	+21		1/0
RAB 9	Remove Shutdown Room	+21		1/0
RAB 11	Battery Room "B"	+21		1/0
RAB 12	Battery Room "AB"	+21		1/0
RAB 13	Battery Room "A"	+21		1/0
RAB 15A	Emergency Diesel Gen "B" Feed Tk Room	+46	0/1	
RAB 16A	Emergency Diesel Gen "A" Feed Tk Room	+46	0/1	
RAB 17	CCW Heat Exchanger "B"	+21		0/3
RAB 18	CCW Heat Exchanger "A"	+21		0/3
RAB 19	CCW Pump "A"	+21		0/2
RAB 20	CCW Pump "AB"	+21		0/2
RAB 21	CCW Pump "B"	+21		1/0
RAB 22	Drumming Station / Hot Tool Room	+21		0/5
RAB 24	Hot Machine Shop	+21		17/0
RAB 25	Equipment Access Area Wing Area	+21		12/0
RAB 27	H&V Room	+7		0/4
	Electrical Area and Health Physics Offices	+7		0/31
	I&C Room	+7		0/5
	Communications Room	+7		1/0
RAB 30	Administrative Area (HP)	-4		32/0
RAB 31	Corridor and Passageways	-4		0/17
RAB 32	Wing Area – Auxiliary Component	-35		22/0
	Cooling Water Pump	-4		21/0
RAB 33	S/D Cool Heat Exchangers A&B	-34		0/9

←(LBDCR 16-011, Am. 138)

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
a. Fuel Storage Pool Area Fuel Handling Building Ventilation System Isolation	2	*	$\leq$ 100 mR/h	10^{-1} - 10^{4} mR/h	24
→(LBDCR 17-018, Am. 143)					
2. EFFLUENT ACCIDENT MONITORS					
a. Fuel Handling Building Exhaust High Range	1	*	Not Applicable	10^{-7} - 10^{5} µCi/cc	27
←(LBDCR 17-018, Am. 143)					

*With irradiated fuel in the storage pool.

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

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

→(LBDCR 17-018, Am. 143)

ACTION 27 With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

1. Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and

2. If the monitor is not restored to OPERABLE status within 7 days after the failure, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days after the failure outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

←(LBDCR 17-018, Am. 143)

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. AREA MONITORS				
a. Fuel Storage Pool Area Fuel Handling Building Ventilation System Isolation	S	R	Q	*
→(LBDCR 17-018, Am. 143)				
2. EFFLUENT ACCIDENT MONITORS				
a. Fuel Handling Building Exhaust High Range	S	R	Q	*
←(LBDCR 17-018, Am. 143)				

*With irradiated fuel in the storage pool.

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BASES

→(LBDCR 16-056, Am. 144)

PLANT SYSTEMS

CONTROL ROOM EQUIPMENT ROOM - OPERATING

LIMITING CONDITION FOR OPERATION

3.7.15.1 Two independent control room equipment room air handling units (AH-26) shall be OPERABLE.

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

ACTION:

a. With one control room equipment room air handling unit inoperable,

   1. Verify the opposite train control room air conditioning unit (AH-12) is OPERABLE and capable of being powered from an OPERABLE emergency power source, and
   2. Restore the inoperable unit to OPERABLE within 7 days.

b. With both control room equipment room air handling units inoperable, or if any requirements of ACTION a are not met, enter TRM LCO 3.0.3.

SURVEILLANCE REQUIREMENTS

4.7.15.1 No additional surveillance requirements specific to the control room equipment room air handling units.

←(LBDCR 16-056, Am. 144)

→(LBDCR 16-056, Am. 144)

PLANT SYSTEMS

CONTROL ROOM EQUIPMENT ROOM – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.7.15.2 Two independent control room equipment room air handling units (AH-26) shall be OPERABLE.

APPLICABILITY: MODES 5, 6, and during load movements with or over irradiated fuel assemblies.

ACTION:

a. With one control room equipment room air handling unit inoperable, restore the inoperable unit to OPERABLE within 7 days, or initiate and maintain operation of the remaining OPERABLE control room equipment room air handling unit.

b. With both control room equipment room air handling units inoperable, or with the OPERABLE control room equipment room air conditioning unit, required to be in operation by ACTION a, not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS and load movements with or over irradiated fuel assemblies, OR verify environmental conditions allow supported equipment to remain OPERABLE.

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

SURVEILLANCE REQUIREMENTS

4.7.15.2 No additional surveillance requirements specific to the control room equipment room air handling units.

←(LBDCR 16-056, Am. 144)

→(LBDCR 16-056, Am. 144)

PLANT SYSTEMS

3/4.7.16 REACTOR AUXILIARY BUILDING HEATING AND VENTILATION ROOM EQUIPMENT ROOM

LIMITING CONDITION FOR OPERATION

3.7.16 Two independent trains of reactor auxiliary building heating and ventilation room equipment room fan coolers (AH-13) and exhaust fans (E-41) shall be OPERABLE.

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

ACTION:

a. With one train of reactor auxiliary building heating and ventilation room equipment room fan coolers and exhaust fans inoperable,

   1. Verify the opposite train reactor auxiliary building heating and ventilation room equipment room fan coolers and exhaust fans is OPERABLE and capable of being powered from an OPERABLE emergency power source, and
   2. Restore the inoperable train to OPERABLE within 72 hours.

b. With both trains of reactor auxiliary building heating and ventilation room equipment room fan coolers and exhaust fans inoperable, or if any requirements of ACTION a are not met, enter TRM LCO 3.0.3.

SURVEILLANCE REQUIREMENTS

4.7.16 No additional surveillance requirements specific to the reactor auxiliary building heating and ventilation room equipment room fan coolers.

←(LBDCR 16-056, Am. 144)

→(LBDCR 16-056, Am. 144)

REFUELING OPERATIONS

3/4.9.13 FUEL HANDLING BUILDING HEATING AND VENTILATION ROOM

LIMITING CONDITION FOR OPERATION

3.9.13 Two independent trains of fuel handling building heating and ventilation room exhaust fans (E-21) shall be OPERABLE.

APPLICABILITY: Whenever irradiated fuel is in the spent fuel pool.

ACTION:

a. With one train of fuel handling building heating and ventilation room equipment room exhaust fans inoperable, restore the inoperable train to OPERABLE within 7 days, or declare the same train fuel handling building emergency filtration unit (E-35) INOPERABLE.

b. With no fuel handling building heating and ventilation room equipment room exhaust fans OPERABLE, suspend all operations involving movement of fuel within the spent fuel pool or crane operation with loads over the spent fuel pool until at least one train of fuel handling building heating and ventilation room exhaust is restored to OPERABLE status.

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

SURVEILLANCE REQUIREMENTS

4.9.13 No additional surveillance requirements specific to the fuel handling building heating and ventilation room equipment room fan coolers.

←(LBDCR 16-056, Am. 144)

3/4.7.15.1 and 3/4.7.15.2 CONTROL ROOM EQUIPMENT ROOM

Control Room equipment Room Air Handling Units AH-26A(B) [HVCMAHU0013A(B)] support the safety function of the Control Room Air Handling Units AH-12A(B) [HVCMAHU0001A(B)] and the Control Room Emergency Filtration Units S-8A(B) [HVCMAHU0009A(B)] by maintaining the control room equipment room temperature within acceptable limits. Each AH-26 will auto-start when its associated AH-12 starts.

A train of AH-26 is considered OPERABLE when it is capable of performing its safety function of removing heat from the control room equipment room. Each AH-26 is designed as a 100% capacity subsystem and therefore only one train is required to remove heat generated by both trains of equipment in the control room equipment room and maintain temperature below the design limit.

The room coolers may not be required to maintain the room design temperature if the environmental conditions (outdoor ambient air temperature) are at a point where transmission losses from the room exceed the heat load in the room. In MODES 1-4, such an allowance to maintain the supported equipment Operable may be implemented under the provisions of TRM 3.0.3. In MODES 5-6, TRM 3.0.3 is not applicable, so this allowance has been included in the associated TRM Action.

3/4.7.16 REACTOR AUXILIARY BUILDING HEATING AND VENTILATION ROOM EQUIPMENT ROOM

The reactor auxiliary building heating and ventilation room equipment room fan coolers support the safety function of equipment in the room by maintaining the room temperature within acceptable limits. The room is supplied by AH-13A(B) [HVRMAHU0022A(B)] and is exhausted through E-41A(B) [HVRMFAN0024A(B)].

A train of reactor auxiliary building heating and ventilation room equipment room fan coolers is considered OPERABLE if the AH-13 and E-41 on a single train are OPERABLE. AH-13 is considered OPERABLE when it can auto-start on a SIAS and supply air to the reactor auxiliary building heating and ventilation room equipment room. E-41 is considered OPERABLE when it can remove heat from the equipment room and auto-start upon starting its associated AH-13 or start on high room temperature. Each train of fan coolers is designed as a 100% capacity subsystem and therefore only one train is required to support the safety function of both trains of equipment in the reactor auxiliary building heating and ventilation room equipment room.

The room coolers may not be required to maintain the room design temperature if the environmental conditions (outdoor ambient air temperature) are at a point where transmission losses from the room exceed the heat load in the room. In MODES 1-4, such an allowance to maintain the supported equipment Operable may be implemented under the provisions of TRM 3.0.3.

3/4.9.13 FUEL HANDLING BUILDING HEATING AND VENTILATION ROOM

At least one Fuel Handling Building Heating and Ventilation Room Exhaust Fan, E-21A(B) [HVFMFAN0006A(B)], is required to be OPERABLE for both trains of Fuel Handling Building ventilation E-35A(B) [HVFMFAN0005A(B)] to be considered OPERABLE. Each train of fan coolers is designed as a 100% capacity subsystem and therefore only one train is required to support the safety function of both trains of equipment in the fuel handling building heating and ventilation room equipment room. The E-21 exhaust fan is OPERABLE if it is capable of starting upon a loss of offsite power coincident with a fuel handling accident when the room temperature is greater than the preset limit. The auto-start of the exhaust fans is not tied to the associated fuel handling building emergency filtration units on the same train.

←(LBDCR 16-056, Am. 144)

3/4.7 PLANT SYSTEMS

3/4.7.1.6.1 MAIN FEEDWATER REGULATING VALVES AND STARTUP FEEDWATER REGULATING VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.6.1 In support of their backup functions to the Main Feedwater Isolation Valves, each Main Feedwater Regulating Valve (MFRV) and Startup Feedwater Regulating Valve (SFRV) shall be able to actuate to the closed position on MSIS.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

Note: Separate Condition entry is allowed for each valve.

With one or more MFRV or SFRV degraded such that it is unable to actuate to the closed position on MSIS, either:

a. Close and deactivate, or isolate the degraded valve within 72 hours and verify degraded valve closed and deactivated or isolated once every 7 days or

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

→(DRN 04-1191, Am. 91)

The provisions of TRM LCO 3.0.4 are not applicable.

←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.7.1.6.1 Functionality of each MFRV and SFRV shall be demonstrated:

→(DRN 04-1191, Am. 91; LBDCR 17-032, Am. 145)

a. By verifying isolation ≤ 4.5 seconds when tested pursuant to the INSERVICE TESTING PROGRAM.

←(DRN 04-1191, Am. 91; LBDCR 17-032, Am. 145)

b. By verifying actuation to the closed position on an actual or simulated actuation signal at least once per 18 months.

→ (DRN 02-1876)

PLANT SYSTEMS

3/4.7.14 ESSENTIAL INSTRUMENT AIR

LIMITING CONDITION FOR OPERATION

3.7.14 The Essential Instrument Air System shall be OPERABLE with a minimum air bank pressure of 2250 PSIG.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one station inoperable and its air bank pressure ≥ 2250 PSIG, align the high pressure and low pressure cross-connect valves within 4 hours to maintain the operability of the valves served by the inoperable station.

→ (DRN 04-1191, Am. 91)

b. With one station inoperable and its air bank pressure <2250 PSIG or unable to align the high pressure cross connect, then align the low pressure cross-connect valves to supply the valves served by the inoperable station within 4 hours, and restore the inoperable air bank cylinders within 14 days; otherwise, enter TRM LCO 3.0.3.

←(DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

→(DRN 03-1808, Am. 80; LBDCR 17-032, Am. 145)

4.7.14.1 No additional surveillance requirements other than those required by the INSERVICE TESTING PROGRAM.

←(DRN 02-1876; 03-1808, Am. 80; LBDCR 17-032, Am. 145)

3/4.7.1.6.1 MAIN FEEDWATER REGULATING VALVES AND STARTUP FEEDWATER REGULATING VALVES (Continued)

→ (DRN 03-1808, Am. 80; LBDCR 17-032, Am. 145)
The Surveillance Requirement to verify isolation in less than or equal to 4.5 seconds supports the 5.0 second time assumed in the accident and containment analyses minus 0.5 seconds to account for measurement uncertainty. The SFRVs and MFRVs should not be tested at power since even a partial stroke exercise increases the risk of a valve closure with the plant generating power. The Surveillance to verify each SFRV and MFRV can close on an actual or simulated actuation signal is normally performed when the plant is returning to operation following a refueling outage. The 18 month frequency is based on the refueling cycle. Verification of closure time is performed per the INSERVICE TESTING PROGRAM. This frequency is acceptable from a reliability standpoint and is in accordance with the INSERVICE TESTING PROGRAM.
← (DRN 03-1808, Am. 80; LBDCR 17-032, Am. 145)

→ (DRN 02-1683)
← (DRN 02-1683)