Duke Power
A Duke Energy Company

**Duke Power**
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February 23, 2000

RE: Catawba Nuclear Station
Selected Licensee Commitments Manual
Revision Date 01/17/00

Attached are revisions to the Catawba Nuclear Station Selected Licensee Commitments Manual. Please remove and replace the following pages:

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If you have any questions concerning the contents of this package update, contact Toni Pasour at (803) 831-3566.

Gary D. Gilbert
Regulatory Compliance Manager

# CATAWBA NUCLEAR STATION
# SELECTED LICENSEE COMMITMENTS MANUAL

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Tab 16.13

# 16.0 SELECTED LICENSEE COMMITMENTS

## 16.1 INTRODUCTION

**COMMITMENT:**

This chapter provides a single location in the UFSAR where certain selected licensee commitments (SLC) are presented. The content of this chapter is based on the results of application of a set of criteria to determine the content of technical specifications. For purposes of administrative ease, this chapter is maintained in a separate manual, The Catawba Nuclear Station Selected Licensee Commitment Manual. Those previous technical specification requirements which did not meet the criteria are relocated in this chapter. Catawba Technical Specification 5.4 (Procedures) requires written procedures to be established, implemented, and maintained on those selected licensee commitments.

The control of the Catawba Nuclear Station SLC program and manual shall be in accordance with Nuclear System Directive 221, "Facility Operating License and Technical Specifications Amendments/Selected Licensee Commitments/Technical Specifications Bases Changes." The manual is officially designated as Chapter 16 of the Catawba UFSAR. The original issue and subsequent revisions of the manual are approved by the station manager. Administrative requirements of the manual are the responsibility of the site Regulatory Compliance section.

Changes to these SLC may be made, pursuant to 10 CFR 50.59, only after the bases for the requirement have been clearly established and after a multi-disciplinary review by qualified reviewers, including onsite operation's personnel (52FR3788, February 6, 1987, Interim Policy Statement on Technical Specification Improvements for Nuclear Power Plants).

Additional operational related commitments, as selected by the station manager or designee may be located in this chapter. It is the intent of this chapter to provide information regarding systems that are a part of the licensing basis, as described in the UFSAR, but are not of such a level of importance that they need to be under the rigorous control provided by technical specifications.

This chapter includes testing requirements for certain systems, and remedial actions to be taken in the event the system is not fully capable of performing its design function. A bases for the commitment is also provided. Reference is also provided to specific sections of the UFSAR where the information relative to the commitment is further described.

## 16.5 REACTOR COOLANT SYSTEM

## 16.5-6 REACTOR COOLANT SYSTEM VENTS

### COMMITMENT:

At least one Reactor Coolant System vent path consisting of at least two valves in series powered from emergency buses shall be OPERABLE and closed* at each of the following locations:

a. Reactor Vessel Head

b. Pressurizer steam space

### APPLICABILITY:

MODES 1, 2, 3 and 4.

### REMEDIAL ACTION:

a. With one of the above Reactor Coolant System vent paths inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the valves in the inoperable vent path; restore the inoperable vent path to OPERABLE status within 30 days, or, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both of the above Reactor Coolant System vent paths inoperable, maintain the inoperable vent paths closed with power removed from the valve actuators of all the valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

### TESTING REQUIREMENTS:

Each Reactor Coolant System vent path shall be demonstrated OPERABLE at least once per 18 months by:

* For the plants using power operated relief valve (PORV) as a vent path, PORV block is not required to be closed if the PORV is operable.

**TESTING REQUIREMENTS (con't)**

a. Cycling each valve in the vent path through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING.

**REFERENCES:**

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.

**BASES:**

Reactor Coolant System Vents are provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. The OPERABILITY of at least one Reactor Coolant System vent path from the reactor vessel head, and the pressurizer steam space ensures the capability exists to perform this function. There are no manual isolation valves in either Reactor Coolant System vent path.

The valve redundancy of the Reactor Coolant System vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, power supply or control system does not prevent isolation of the vent path.

The function, capabilities, and testing requirements of the Reactor Coolant System vent systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements", November 1980.

## 16.7 INSTRUMENTATION

## 16.7-3 METEOROLOGICAL INSTRUMENTATION

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**COMMITMENT:**

a. The meteorological monitoring instrumentation channels shown in Table 16.7-3A shall be OPERABLE.

**APPLICABILITY:**

At all times.

**REMEDIAL ACTION:**

a. With one or more required meteorological monitoring channels inoperable for more than 7 days, prepare and submit a Special report to the Commission within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.

**TESTING REQUIREMENTS:**

a. Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK and Instrument Calibration at the frequencies shown in Table 16.7-3B.

**REFERENCES:**

N/A

**BASES:**

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data are available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23, "Onsite Meteorological Programs," February 1972.

An Instrument Calibration will consist of the following test:

1) A bench based test, certification, and/or calibration of the tower mounted sensors for:

**BASES: (cont'd)**

- Wind Speed
- Wind Direction
- Ambient and Delta Temperature RTD's

2) An Instrument Loop Calibration from the input of the signal processors to the end devices.
3) For Wind Direction a Line Phase Differential Compensation will be performed, which includes the tower signal cable.
4) A CHANNEL CHECK, subsequent to any work performed. This will verify continuity of the signal cable between the sensor and signal processors.
5) The Wind Speed Sensors and cup-sets or Wind Direction Sensors and Vanes do not require wind tunnel testing as an assembly.
6) Replacement of cup-sets or vanes does not require an Instrument Calibration of the affected channel.

## TABLE 16.7-3A

## METEOROLOGICAL MONITORING INSTRUMENTATION

| INSTRUMENT | LOCATION | MINIMUM OPERABLE |
|---|---|---|
| 1. Wind Speed | | |
| a. Meteorological Tower | Nominal Elev. 663.5 ft. | 1 |
| b. Meteorological Tower | Nominal Elev. 830.5 ft. | 1 |
| 2. Wind Direction | | |
| a. Meteorological Tower | Nominal Elev. 663.5 ft. | 1 |
| b. Meteorological Tower | Nominal Elev. 830.5 ft. | 1 |
| 3. Air Temperature | | |
| a. Ambient Meteorological Tower | Nominal Elev. 660.25 ft. | 1 |
| b. $\Delta$ - T Meteorological Tower | Nominal Elev. 827.25-660.25 ft. | 1 |

Note: Elevations are feet above Mean Sea Level

## TABLE 16.7-3B

## METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 1. Wind Speed | | |
| a. Nominal Elev. 663.5 ft | D | SA |
| b. Nominal Elev. 830.5 ft. | D | SA |
| 2. Wind Direction | | |
| a. Nominal Elev. 663.5 ft | D | SA |
| b. Nominal Elev. 830.5 ft. | D | SA |
| 3. Air Temperature | | |
| a. Ambient Nominal Elev. 660.25 ft. | D | SA |
| b. $\Delta$ - T Nominal Elev. 827.25-660.25 ft. | D | SA |

Note: Elevations are feet above Mean Sea Level

## 16.7 INSTRUMENTATION

## 16.7-10 RADIATION MONITORING FOR PLANT OPERATIONS

### COMMITMENT:

The radiation monitoring instrumentation channels for plant operations shown in Table 16.7-10A shall be OPERABLE with their Alarm/Trip Setpoints within the specified limits.

### APPLICABILITY:

As shown in Table 16.7-10A

### REMEDIAL ACTION:

a. With a radiation monitoring channel Alarm/Trip Setpoint for plant operations exceeding the value shown in table 16.7-10A, adjust the Setpoint to within the limit within 4 hours or declare the channel inoperable.

b. With one or more radiation monitoring channels for plant operations inoperable, take the REMEDIAL ACTION shown in Table 16.7-10A.

### TESTING REQUIREMENTS:

Each radiation monitoring instrumentation channel for plant operations shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 16.7-10B.

### REFERENCES:

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.

### BASES:

The OPERABILITY of the radiation monitoring instrumentation for plant operations ensures that: (1) the associated action will be initiated when the radiation level monitored by each channel or combination thereof reaches its setpoint, (2) the specified coincidence logic is maintained, and (3) sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance. The radiation monitors for plant

**BASES (con't)**

operations senses radiation levels in selected plant systems and locations and determines whether or not predetermined limits are being exceeded. The radiation monitors send actuation signals to initiate alarms or automatic isolation action and actuation of emergency exhaust or ventilation systems. Some of the final actuations are dependent on plant condition in addition to the actuation signals from the radiation monitors.

Operation of the Component Cooling Water System (KC) Train A with the Train A Radiation Monitoring System (EMF) monitor inoperable and relying on the Train B EMF monitor for detection of radioactivity is not permissible. Likewise, operation of the KC Train B with the Train B EMF monitor inoperable and relying on the Train A EMF monitor for detection of radioactivity is not permissible. This is due to the interlock between the EMF monitor low-flow alarm and the operation of the KC pump motors on the same train. The EMF monitor in the operating KC pump train must be OPERABLE, or the compensatory measures taken as specified on Table 16.7-10A, Remedial Action H.

## TABLE 16.7-10A
## RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

| FUNCTIONAL UNIT | CHANNELS TO TRIP/ALARM | MINIMUM CHANNELS OPERABLE | APPLICABLE MODES | ALARM/TRIP SETPOINT | REMEDIAL ACTION |
|---|---|---|---|---|---|
| 1. Containment Atmosphere – High Gaseous Radioactivity (Low Range – EMF-39) | 1 | 1 | All | *** | C |
| 2. Fuel Storage Pool Areas | | | | | |
| a. High Gaseous Radioactivity (Low Range – EMF-42) | 1 | 1 | ** | $\leq 1.7 \times 10^{-4}$ µCi/ml | F |
| b. Criticality-Radiation Level (Fuel Bridge – Low Range – 1EMF-15, 2EMF-4) | 1 | 1 | * | ≤ 15 mR/h | E |
| 3. Control Room Air Intake-Radiation Level – High Gaseous Radioactivity (Low Range – EMF-43 A & B) | 1/intake | 2 (1/intake) | All | $\leq 1.7 \times 10^{-4}$ µCi/ml | D |
| 4. Auxiliary Building Ventilation High Gaseous Radioactivity (Low Range – EMF-41) | 1 | 1 | 1, 2, 3, 4 | $\leq 1.7 \times 10^{-4}$ µCi/ml | G |
| 5. Component Cooling Water System (EMF-46 A & B) | 1**** | 1**** | All | $\leq 1 \times 10^{-3}$ µCi/ml | H |

## TABLE 16.7-10A

## TABLE NOTATIONS

* With fuel in the fuel storage pool areas.

** With irradiated fuel in the fuel storage pool areas.

*** When venting or purging from containment to the atmosphere, the trip setpoint shall not exceed the equivalent limits of SLC 16.11-18 in accordance with the methodology and parameters in the ODCM. When not venting or purging in Modes 5 or 6, the alarm setpoint concentration (μCi/ml) shall be such that the actual submersion dose rate would not exceed 5mR/hr without alarm. When not venting or purging in Modes 1 through 4 the alarm setpoint shall be no more than 3 times the containment atmosphere activity as indicated by the radiation monitor.

**** For EMF-46A and -46B: The EMF monitor associated with the operating Component Cooling Water System Train shall be OPERABLE. This requirement is based on the existence of an interlock which blocks the EMF loss of flow alarm from being received in the Control Room when the associated train pump motor(s) are not running.

## REMEDIAL ACTION STATEMENTS

ACTION C - With less than the Minimum Channels OPERABLE requirement, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION D - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of one train of the Control Room Area Ventilation System (CRAVS) with flow through the HEPA filters and activated carbon adsorbers.

ACTION E - With less than the Minimum Channels OPERABLE requirement, operation may continue for up to 30 days provided an appropriate portable continuous monitor with the same Alarm Setpoint is provided in the fuel storage pool area. Restore the inoperable monitors to OPERABLE status within 30 days or suspend all operations involving fuel movement in the fuel building.

ACTION F - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided one train of the Fuel Handling Ventilation Exhaust System (FHVES) is OPERABLE and in operation discharging through the HEPA filters and

## TABLE 16.7-10A

## REMEDIAL ACTION STATEMENTS (con't)

activated carbon adsorbers. Otherwise, suspend all operations involving fuel movement in the fuel building.

ACTION G - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided one train of the Auxiliary Building Filtered Ventilation Exhaust System (ABFVES) is OPERABLE and in operation discharging through the HEPA filter and activated carbon adsorbers.

ACTION H - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue for up to 30 days provided that, at least once per 12 hours, grab samples are collected and analyzed for principal gamma emitters (listed in Table 16.11-1, Table Notation (3)) at a lower limit of detection of no more than $5x10^{-7}$ μCi/ml.

## TABLE 16.7-10B
## RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS TESTING REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL CALIBRATION | CHANNEL OPERATIONAL TEST | MODES FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| 1. Containment Atmosphere – High Gaseous Radioactivity (Low Range – EMF-39) | 12 hours | 18 months | 92 days | All |
| 2. Fuel Storage Pool Areas | | | | |
| a. High Gaseous Radioactivity (Low Range – EMF-42) | 12 hours | 18 months | 92 days | ** |
| b. Criticality-Radiation Level (Fuel Bridge – Low Range – 1EMF-15, 2EMF-4) | 12 hours | 18 months | 92 days | * |
| 3. Control Room Air Intake Radiation Level – High Gaseous Radioactivity – (Low Range – EMF-43 A & B) | 12 hours | 18 months | 92 days | All |
| 4. Auxiliary Building Ventilation High Gaseous Radioactivity (Low Range – EMF-41) | 12 hours | 18 months | 92 days | 1, 2, 3, 4 |
| 5. Component Cooling Water System (EMF-46 A & B) | 12 hours | 18 months | 92 days | All |

### TABLE NOTATIONS

* With fuel in the fuel storage pool area.
** With Irradiated fuel in the fuel storage pool areas.

## 16.8 ELECTRICAL POWER SYSTEMS

## 16.8-1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

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**COMMITMENT:**

Primary and backup containment penetration conduction overcurrent protective devices shown in Table 16.8-1A and 16.8-1B shall be operable.

**APPLICABILITY:**

MODES 1, 2, 3, and 4.

**REMEDIAL ACTION:**

With one or more of the primary or backup containment penetration conductor overcurrent protective device(s) shown in Table 16.8-1A and 16.8-1B inoperable:

a. Restore the protective device(s) to OPERABLE status or de-energize the circuit(s) by tripping the associated redundant circuit breaker or removing the redundant fuse(s), or by racking out the inoperable circuit breaker or removing the inoperable protective device(s) within 72 hours, declare the affected system or component inoperable, and verify the associated redundant protective device(s) to be tripped or removed, or that the inoperable device is removed or racked out at least once per 7 days thereafter; the provisions of SLC 16.2-3 are not applicable to overcurrent device(s) in circuit(s) which have their redundant device(s) tripped or removed, or their inoperable protective device(s) racked out or removed from the circuit, or

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

**TESTING REQUIREMENTS:**

The above noted primary and backup containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:

a. At least once per 18 months:

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

**TESTING REQUIREMENTS (con't)**

a) A CHANNEL CALIBRATION of the associated protective relays,

b) An integrated protective system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers function as designed, and

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

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

3) By selecting and functionally testing a representative sample of each type of fuse on a rotating basis. Each representative sample of fuses shall include at least 10% of all fuses of that type. The functional test shall consist of a nondestructive resistance measurement test which demonstrates that the fuse meets its manufacturer's design criteria. Fuses found inoperable during these functional tests shall be replaced with OPERABLE fuses prior to resuming operation. For each fuse found inoperable during these functional tests, an additional representative sample of at least 10% of all fuses of that type shall be functionally tested until no more failures are found or all fuses of that type have been functionally tested.

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

**REFERENCES:**

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.

**BASES:**

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

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

The lists of components for which this COMMITMENT is applicable exclude those circuits for which credible fault currents would not exceed the electrical penetration design rating.

**TABLE 16.8-1A**

**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 1. 6900 VAC Swgr | |
| Primary Bkr RCP1A<br>Backup Bkr 1TA-3 | Reactor Coolant Pump 1A |
| Primary Bkr RCP1B<br>Backup Bkr 1TB-3 | Reactor Coolant Pump 1B |
| Primary BKR RCP1C<br>Backup Bkr 1TC-3 | Reactor Coolant Pump 1C |
| Primary BKR RCP1D<br>Backup Bkr 1TD-3 | Reactor Coolant Pump 1D |
| 2. 600 VAC MCC | |
| 1EMXC-F01B<br>Primary Bkr<br>Backup Fuse | Accumulator 1C Discharge<br>Isol Vlv 1NI76A |
| 1EMXC-F01C<br>Primary Bkr<br>Backup Fuse | Check Valve Test Header<br>Cont Isol Vlv 1NI95A |
| 1EMXC-F02A<br>Primary Bkr<br>Backup Fuse | Train A Alternate Power<br>To ND LTDN Vlv 1ND1B |
| 1EMXC-F02B<br>Primary Bkr<br>Backup Fuse | Hot Leg Inj. Check Vlv<br>Test Isol Vlv 1NI153A |
| 1EMXC-FO2C<br>Primary Bkr<br>Backup Fuse | Cont Isol at 134 Deg<br>Annulus Area Vlv 1VI312A |
| 1EMXC-FO3A<br>Primary Bkr<br>Backup Fuse | NC Pump 1C Thermal Barrier Outlet<br>Isol Vlv 1KC345A |
| 1EMXC-FO3B<br>Primary Bkr<br>Backup Fuse | N2 to Prt Cont Isol Inside<br>Vlv 1NC54A |
| 1EMXC-FO3C<br>Primary Bkr<br>Backup Fuse | Pressurizer Power-Operated<br>Relief Isol Vlv 1NC33A |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXC-FO5A<br>Primary Bkr<br>Backup Fuse | NCDT Vent Inside Cont Isol Vlv 1WL450A |
| 1EMXC-F05B<br>Primary Bkr<br>Backup Fuse | Cont Sump Pumps Discharge Inside Cont Isol Vlv 1WL825A |
| 1EMXC-F05C<br>Primary Bkr<br>Backup Fuse | Vent Unit Cond Drn Tank Outside Cont Isol Vlv 1WL867A |
| 1EMXC-F06A<br>Primary Bkr<br>Backup Fuse | NCDT Pumps Disch Inside Cont Isol Vlv 1WL805A |
| 1EMXC-F07B<br>Primary Bkr<br>Backup Fuse | Cont H2 Purge Outlet Cont Isol Vlv 1VY17A |
| 1EMXD-F01A<br>Primary Bkr<br>Backup Fuse | ND Pump 1A Suction From NC Loop B Vlv 1ND1B |
| 1EMXD-F01B<br>Primary Bkr<br>Backup Fuse | Accumulator 1B Discharge Isol Vlv 1NI65B |
| 1EMXD-F01C<br>Primary Bkr<br>Backup Fuse | NI Pump A to Hot Leg Check Vlv Test Isol Vlv 1NI122B |
| 1EMXD-F02A<br>Primary Bkr<br>Backup Fuse | ND Pump 1B Suction from NC Loop C Vlv 1ND36B |
| 1EMXD-F02B<br>Primary Bkr<br>Backup Fuse | ND to Hot Legs Chk 1NI125, 1NI129 Test Isol Vlv 1NI154B |

**TABLE 16.8-1A**

**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXD-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Power-Operated Relief Isol Vlv 1NC31B |
| 1EMXD-F05A<br>Primary Bkr<br>Backup Fuse | Pressurizer Power-Operated Relief Isol Vlv 1NC35B |
| 1EMXD-F05B<br>Primary Bkr<br>Backup Fuse | Rx Bldg Drain Hdr Inside Cont Isol Vlv 1KC429B |
| 1EMXD-F05C<br>Primary Bkr<br>Backup Fuse | NCDT Hx Clng Water Return Inside Isol Vlv 1KC332B |
| 1EMXD-F06A<br>Primary Bkr<br>Backup Fuse | NC Pump 1B Thermal Barrier Outlet Isol Vlv 1KC364B |
| 1EMXD-F06B<br>Primary Bkr<br>Backup Fuse | NC Pumps Rtn Hdr Inside Cont Isol Vlv 1KC424B |
| 1EMXK-F01C<br>Primary Bkr<br>Backup Fuse | Backup N2 to PORV 1NC34A From Accum Tnk 1A Vlv 1NI438A |
| 1EMXK-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 1A Thermal Barrier Outlet Isol Vlv 1KC394A |
| 1EMXK-F02B<br>Primary Bkr<br>Backup Fuse | Lower Cont Vent Units Return Cont Isol Vlv 1RN484A |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXK-F02C<br>Primary Bkr<br>Backup Fuse | NV Supply to Pressurizer Vlv<br>1NV037A |
| 1EMXK-F03A<br>Primary Bkr<br>Backup Fuse | S/G C Blowdown Line Sample<br>Inside Cont Isol Vlv 1NM210A |
| 1EMXK-F04A<br>Primary Bkr<br>Backup Fuse | S/G A Upper Shell Sample Inside<br>Cont Isol Vlv 1NM187A |
| 1EMXK-F04B<br>Primary Bkr<br>Backup Fuse | S/G A Blowdown Line Sample<br>Inside Cont Isol Vlv 1NM190A |
| 1EMXK-F04C<br>Primary Bkr<br>Backup Fuse | S/G C Upper Shell Sample<br>Inside Cont Isol Vlv 1NM207A |
| 1EMXK-F06A<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan 1A<br>Inlet Vlv 1VX1A |
| 1EMXK-F07C<br>Primary Bkr<br>Backup Fuse | Electric Hydrogen Recombiner<br>Power Supply Panel 1A |
| 1EMXK-F09A<br>Primary Bkr<br>Backup Fuse | Accumulator 1A Discharge Isol<br>Vlv 1NI54A |
| 1EMXK-F09C<br>Primary Bkr<br>Backup Fuse | NC Pump Oil Fill Header<br>Cont Isol Vlv 1NC196A |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXK-F10A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Damper<br>1ARF-D-2 |
| 1EMXK-F10B<br>Primary Bkr<br>Backup Fuse | VQ Fans Suction From Containment<br>Isol Vlv 1VQ2A |
| 1EMXK-F10C<br>Primary Bkr<br>Backup Fuse | Cont Air Addition Containment<br>Isol Vlv 1VQ16A |
| 1EMXK-F11A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Fan<br>Motor 1A |
| 1EMXK-F11B<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan Motor 1A |
| 1EMXL-F01B<br>Primary Bkr<br>Backup Fuse | Trn B Alternate Power to ND<br>Letdn Vlv 1ND37A |
| 1EMXL-F01C<br>Primary Bkr<br>Backup Fuse | NI Accum D Sample Line Inside<br>Cont Isol Vlv 1NM81B |
| 1EMXL-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 1D Thermal Barrier<br>Outlet Isol Vlv 1KC413B |
| 1EMXL-F02B<br>Primary Bkr<br>Backup Fuse | Air Handling units Glycol Return<br>Cont Isol Vlv 1NF233B |
| 1EMXL-F02C<br>Primary Bkr<br>Backup Fuse | NI Accum C Sample Line Inside<br>Cont Isol Vlv 1NM78B |
| 1EMXL-F03A<br>Primary Bkr<br>Backup Fuse | S/G D Blowdown Sample Line<br>Inside Cont Isol Vlv 1NM220B |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXL-F03B<br>Primary Bkr<br>Backup Fuse | NI Accum A Sample Line Inside<br>Cont Isol Vlv 1NM72B |
| 1EMXL-F03C<br>Primary Bkr<br>Backup Fuse | NI Accum B Sample Line Inside<br>Cont Isol Vlv 1NM75B |
| 1EMXL-F04A<br>Primary Bkr<br>Backup Fuse | S/G B Upper Shell Sample Inside<br>Cont Isol Vlv 1NM197B |
| 1EMXL-F04B<br>Primary Bkr<br>Backup Fuse | S/G B Blowdown Sample Line Inside<br>Cont Isol Vlv 1NM200B |
| 1EMXL-F04C<br>Primary Bkr<br>Backup Fuse | S/G D Upper Shell Sample Inside<br>Cont Isol Vlv 1NM217B |
| 1EMXL-F06A<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan 1B<br>Inlet Vlv 1VX2B |
| 1EMXL-F06B<br>Primary Bkr<br>Backup Fuse | Backup N2 to PORV 1NC32B<br>from Accum Tnk 1B Vlv 1NI439B |
| 1EMXL-F07C<br>Primary Bkr<br>Backup Fuse | Electric Hydrogen Recombiner<br>Power Supply Panel 1B |
| 1EMXL-F09A<br>Primary Bkr<br>Backup Fuse | Accumulator 1D Discharge<br>Isol Vlv 1NI88B |
| 1EMXL-F10A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Damper<br>1ARF-D-4 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXL-F10B<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 1NC251B |
| 1EMXL-F10C<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 1NC252B |
| 1EMXL-F11A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Fan Motor 1B |
| 1EMXL-F11B<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan Motor 1B |
| 1EMXS-F01B<br>Primary Bkr<br>Backup Fuse | NC Pumps Seal Rtn Inside Cont Isol Vlv 1NV89A |
| 1EMXS-F02A<br>Primary Bkr<br>Backup Fuse | ND Pump 1B Suction from NC Loop C Vlv 1ND37A |
| 1EMXS-F02B<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 1NC250A |
| 1EMXS-F03D<br>Primary Bkr<br>Backup Fuse | ND Pump 1A Suction from NC Loop B Vlv 1ND2A |
| 1EMXS-F03E<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 1NC253A |
| 1EMXS-F04B<br>Primary Bkr<br>Backup Fuse | S/G 1D Blowdown Inside Cont Isol Vlv 1BB8A |
| 1EMXS-F04C<br>Primary Bkr<br>Backup Fuse | S/G 1B Blowdown Inside Cont Isol Vlv 1BB19A |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1EMXS-F05A<br>Primary Bkr<br>Backup Fuse | S/G 1A Blowdown Inside Cont Isol Vlv 1BB56A |
| 1EMXS-F05B<br>Primary Bkr<br>Backup Fuse | S/G 1C Blowdown Inside Cont Isol Vlv 1BB60A |
| 1EMXS-F05C<br>Primary Bkr<br>Backup Fuse | Pzr Liquid Sample Line Inside Cont Isol Vlv 1NM3A |
| 1EMXS-F06A<br>Primary Bkr<br>Backup Fuse | Pzr Steam Sample Line Inside Cont Isol Vlv 1NM6A |
| 1EMXS-F06B<br>Primary Bkr<br>Backup Fuse | NC Hot Leg A Sample Line Inside Cont Isol Vlv 1NM22A |
| 1EMXS-F06C<br>Primary Bkr<br>Backup Fuse | NC Hot Leg C Sample Line Inside Cont Isol Vlv 1NM25A |
| 1MXM-F01A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Pump Motor Drain Tank Pump Motor |
| 1MXM-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 1B Oil Lift Pump Motor 1 |
| 1MXM-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 1C Oil Lift Pump Motor 1 |
| 1MXM-F03A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Power Transformer ICT1A |
| 1MXM-F03B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B6 Fan Motor A & B |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXM-F03C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Equipment Access Door Hoist Motor 1A |
| 1MXM-F04D<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR10 |
| 1MXM-F04E<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR13 |
| 1MXM-F05A<br>Primary Bkr<br>Backup Fuse | 175 Ton Polar Crane and 25 Ton Aux Crane No. R013 and R015 |
| 1MXM-F05C<br>Primary Bkr<br>Backup Fuse | Upper Containment Welding Feeder |
| 1MXM-F06A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1A7 Fan Motor A & B |
| 1MXM-F06B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B8 Fan Motor A & B |
| 1MXM-F06C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1A9 Fan Motor A & B |
| 1MXM-F06D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B10 Fan Motor A & B |
| 1MXM-F07B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1A13 Fan Motor A & B |
| 1MXM-F07C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B14 Fan Motor A & B |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXM-F08D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration<br>Floor Cool Defrost Heater 1A |
| 1MXM-F09A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A1 Fan Motor A & B |
| 1MXM-F09B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B2 Fan Motor A & B |
| 1MXM-F09C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A3 Fan Motor A & B |
| 1MXM-F09D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B4 Fan Motor A & B |
| 1MXM-F10A<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment<br>Sump Pump Motor 1A1 |
| 1MXM-F10B<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment<br>Sump Pump Motor 1B1 |
| 1MXN-F01F<br>Primary Bkr<br>Backup Fuse | Stud Tensioner<br>Hoist 1B |
| 1MXN-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 1B Oil Lift Pump Motor 2 |
| 1MXN-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 1C Oil Lift Pump Motor 2 |
| 1MXN-F02E<br>Primary Bkr<br>Backup Fuse | Stud Tensioner Hoist 1C |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXN-F03A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Power Transformer ICT1B |
| 1MXN-F03B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Bridge Crane 1 Crane No. R011 |
| 1MXN-F03E<br>Primary Bkr<br>Backup Fuse | Stud Tensioner Hoist 1A |
| 1MXN-F04D<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR5 |
| 1MXN-F04E<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR6 |
| 1MXN-F05A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration Floor Cool Defrost Heater 1B |
| 1MXN-F05B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration Floor Cool Pump Motor 1B |
| 1MXN-F05C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Equipment Access Door Hoist Motor 1B |
| 1MXN-F06A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B1 Fan Motor A & B |
| 1MXN-F06B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1A2 Fan Motor A & B |
| 1MXN-F06C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B3 Fan Motor A & B |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXN-F06D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A4 Fan Motor A & B |
| 1MXN-F07B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B5 Fan Motor A & B |
| 1MXN-F07C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A6 Fan Motor A & B |
| 1MXN-F08A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B7 Fan Motor A & B |
| 1MXN-F08B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A8 Fan Motor A & B |
| 1MXN-F08C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B9 Fan Motor A & B |
| 1MXN-F08D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A10 Fan Motor A & B |
| 1MXN-F09A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B11 Fan Motor A & B |
| 1MXN-F09B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A12 Fan Motor A & B |
| 1MXN-F09C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B13 Fan Motor A & B |
| 1MXN-F09D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A14 Fan Motor A & B |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXN-F10A<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment Sump Pump Motor 1A2 |
| 1MXN-F10B<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment Sump Pump Motor 1B2 |
| 1MXN-F10C<br>Primary Bkr<br>Backup Fuse | Incore Instrumentation Sump Pump Motor 1 |
| 1MXN-F10D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 1B15 Fan Motor A & B |
| 1MXO-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Air Return Fan Motor 1C |
| 1MXO-F01B<br>Primary Bkr<br>Backup Fuse | Incore Instrument Tunnel Booster Fan Motor 1A |
| 1MXO-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor 1A |
| 1MXO-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation Unit 1C Fan Motor |
| 1MXO-F04C<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation Unit 1C Fan Motor |
| 1MXO-F05C<br>Primary Bkr<br>Backup Fuse | Containment Pipe Tunnel Booster Fan Motor 1A |
| 1MXP-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Return Air Fan 1B |

**TABLE 16.8-1A**

**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXP-F01B<br>Primary Bkr<br>Backup Fuse | Incore Instrument Tunnel<br>Booster Fan Motor 1B |
| 1MXP-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent<br>Fan Motor 1B |
| 1MXP-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation<br>Unit 1B Fan Motor |
| 1MXP-F04D<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation<br>Unit 1B Fan Motor |
| 1MXP-F05C<br>Primary Bkr<br>Backup Fuse | Containment Pipe Tunnel<br>Booster Fan Motor 1B |
| 1MXQ-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Return<br>Air Fan Motor 1A |
| 1MXQ-F01B<br>Primary Bkr<br>1A Fan Motor | Incore Instrument Room Ventilation Unit<br>Unit 1A Fan Motor |
| 1MXQ-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan<br>Motor 1C |
| 1MXQ-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation<br>Unit 1A Fan Motor |
| 1MXQ-F04C<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation<br>Unit 1A Fan Motor |
| 1MXR-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Return Air<br>Fan Motor 1D |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXR-F01B<br>Primary Bkr<br>Backup Fuse | Incore Instrument Room Ventila<br>tion Unit 1B Fan Motor |
| 1MXR-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent<br>Fan Motor 1D |
| 1MXR-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation<br>Unit 1D Fan Motor |
| 1MXR-F04C<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation<br>Unit 1D Fan Motor |
| 1MXY-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 1A Oil Lift Pump Motor 1 |
| 1MXY-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 1D Oil Lift Pump Motor 1 |
| 1MXY-F02C<br>Primary Bkr<br>Backup Fuse<br>1RCPL0185 | Reactor Building Lower ContainmenT<br>Welding Machine Receptacle |
| 1MXY-FO2D<br>Primary Bkr<br>Backup Fuse | Upper Containment Reactor Building<br>Welding Receptacle 1RCPL0193 |
| 1MXY-F03A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Drain Tank Pump<br>Motor 1A |
| 1MXY-F03D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration<br>Floor Cool Pump Motor 1A |
| 1MXY-F05A<br>Primary Bkr<br>Backup Fuse | Lighting Transformer<br>1LR8 |
| 1MXY-F05B<br>Primary Bkr<br>Backup Fuse | Lighting Transformer<br>1LR11 |

**TABLE 16.8-1A**

**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXY-F05C<br>Primary Bkr<br>Backup Fuse | Lighting Transformer<br>1LR14 |
| 1MXY-F06A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A5 Fan Motor A & B |
| 1MXY-F06B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A11 Fan Motor A & B |
| 1MXY-F06C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1B12 Fan Motor A & B |
| 1MXY-F06D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 1A15 Fan Motor A & B |
| 1MXY-F08A<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly<br>Motor 1A |
| 1MXY-F08B<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly<br>Motor 1C |
| 1MXY-F08C<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly<br>Motor 1E |
| 1MXY-F08D<br>Primary Bkr<br>Backup Fuse | Lower Containment Auxiliary<br>Charcoal Filter Unit Fan Motor 1A |
| 1MXZ-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 1A Oil Lift Pump<br>Motor 2 |
| 1MXZ-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 1D Oil Lift Pump<br>Motor 2 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXZ-F03A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Drain Tank<br>Pump Motor 1B |
| 1MXZ-F04B<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR1 |
| 1MXZ-F04C<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR2 |
| 1MXZ-F04D<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR3 |
| 1MXZ-F05A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Pump Jib<br>Hoist No. R019 TH R022 |
| 1MXZ-F05C<br>Primary Bkr<br>Backup Fuse | Lower Containment Auxiliary<br>Charcoal Filter Unit Fan Motor 1B |
| 1MXZ-F06A<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly Motor 1B |
| 1MXZ-F06B<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly Motor 1D |
| 1MXZ-F06C<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly Motor 1F |
| 1MXZ-FO6D<br>Primary Bkr<br>Backup Fuse | Lower Containment Reactor Building<br>Welding Receptacle 1RCPL0194 |
| 1MXZ-F07B<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 1LR4 |
| 1MXZ-F07C<br>Primary Bkr<br>Backup Fuse | 5 Ton Jib Crane in Containment<br>Crane No. R005 |

**TABLE 16.8-1A**

**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 1MXZ-F07D<br>Primary Bkr<br>Backup Fuse | Reactor Cavity Manipulator Crane No. R007 & R027 |
| 1MXZ-F08A<br>Primary Bkr<br>Backup Fuse | Steam Generator Drain Pump Motor 1 |
| 1MXZ-F08C<br>Primary Bkr<br>Backup Fuse | 15 Ton Equipment Access Hatch Hoist Crane No. R009 |
| 1MXZ-F08D<br>Primary Bkr<br>Backup Fuse | Control Rod Drive 2 Ton Jib Hoist Crane No. R017 |
| 1MXZ-F08E<br>Primary Bkr<br>Backup Fuse | Reactor Side Fuel Handling Control Console |
| SMXG-F01C<br>Primary Bkr<br>Backup Fuse | Standby Makeup Pump Drain Isol Vlv 1NV876 |
| SMXG-F05C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters 28, 55 & 56 |
| SMXG-F06A<br>Primary Bkr<br>Backup Fuse | Standby Makeup Pump to Seal Water Line Isol Vlv 1NV877 |
| 3. 600 VAC Pressurizer Heater Power Panels | |
| PHP1A-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters 1, 2, & 22 |
| PHP1A-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters 5, 6, & 27 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 3. 600 VAC Pressurizer Heater Power Panels (Continued) | |
| PHP1A-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>9, 10 & 32 |
| PHP1A-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>11, 12 & 35 |
| PHP1A-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>13, 14 & 37 |
| PHP1A-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>17, 18 & 42 |
| PHP1B-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>21, 47 & 48 |
| PHP1B-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>26, 53 & 54 |
| PHP1B-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>31, 59 & 60 |
| PHP1B-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>36, 65 & 66 |
| PHP1B-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>41, 71 & 72 |
| PHP1B-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>46, 77 & 78 |
| PHP1C-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>7, 8 & 30 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 3. 600 VAC Pressurizer Heater Power Panels (Continued) | |
| PHP1C-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>19, 20 & 45 |
| PHP1C-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>24, 51 & 52 |
| PHP1C-F01D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>29, 57 & 58 |
| PHP1C-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>34, 63 & 64 |
| PHP1C-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>39, 69 & 70 |
| PHP1C-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>44, 75 & 76 |
| PHP1D-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>3, 4 & 25 |
| PHP1D-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>15, 16 & 40 |
| PHP1D-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>23, 49 & 50 |
| PHP1D-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>33, 61 & 62 |
| PHP1D-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>38, 67 & 68 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 3. 600 VAC Pressurizer Heater Power Panels (Continued) | |
| PHP1D-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>43, 73 & 74 |
| 4. 250 VDC Reactor Building Deadlight Panelboard | |
| 1DLD-2<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 1LR1,<br>1LR2, 1LR3, 1LR4 |
| 1DLD-3<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 1LR13,<br>1LR14 |
| 1DLD-4<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 1LR5,<br>1LR6 |
| 1DLD-5<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 1LR10,<br>1LR11 |
| 1DLD-10<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 1LR8 |
| 5. 120 VAC Panelboards | |
| 1ELB1-5<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 1ELB1-7<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 1ELB1-13<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 1ELB1-15<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 5. 120 VAC Panelboards (Continued) | |
| 1ELB1-17<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 1KPM-1<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 1A Space Heater |
| 1KPM-2<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 1C Space Heater |
| 1KPM-7-1<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit<br>1A Fan Motor Space Heater |
| 1KPM-8-1<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit<br>1C Fan Motor Space Heater |
| 1KPM-24<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>1A, 1B, 1C, 1D Space Heaters |
| 1KPM-24-10<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>1A Space Heaters |
| 1KPM-24-11<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>1B Space Heaters |
| 1KPM-24-12<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>1C Space Heaters |
| 1KPM-24-13<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>1D Space Heaters |
| 1KPM-33<br>Primary Bkr<br>Backup Fuse | NI Temperature Transmitters<br>1NITT5800, 1NITT5810,<br>1NITT5820, 1NITT5830 |
| 1KPM-33-04<br>Primary Fuse | NI Temperature Transmitter<br>1NITT5800 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 5. 120 VAC Panelboards (Continued) | |
| 1KPM-33-05<br>Primary Fuse | NI Temperature Transmitter<br>1NITT5810 |
| 1KPM-33-06<br>Primary Fuse | NI Temperature Transmitter<br>1NITT5820 |
| 1KPM-33-07<br>Primary Fuse | NI Temperature Transmitter<br>1NITT5830 |
| 1KPN-1<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 1B Space Heater |
| 1KPN-2<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 1D Space Heater |
| 1KPN-7-1<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit<br>1B Fan Motor Space Heater |
| 1KPN-08<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit 1D<br>Fan Motor Space Heater, NC Pump<br>Seal Stand Pipe Vent and Drain<br>Valves 1NV105, 1NV106,<br>1NV110, 1NV111, 1NV115,<br>1NV116, 1NV120, 1NV121 |
| 1KPN-08-01<br>Primary Fuse<br>Backup Fuse | Lower Containment Vent Unit 1D<br>Fan Motor Space Heater |
| 1KPN-08-02<br>Primary Fuse<br>Backup Fuse | NC Pump 1A Standpipe Drain and<br>Overflow Valves 1NV105 and 1NV106 |
| 1KPN-08-03<br>Primary Fuse<br>Backup Fuse | NC Pump 1B Standpipe Drain and<br>Overflow Valves 1NV110 and 1NV111 |
| 1KPN-08-04<br>Primary Fuse<br>Backup Fuse | NC Pump 1C Standpipe Drain and<br>Overflow Valves 1NV115 and 1NV116 |

**TABLE 16.8-1A**
**UNIT 1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 5. 120 VAC Panelboards (Continued) | |
| 1KPN-08-05<br>Primary Fuse<br>Backup Fuse | NC Pump 1D Standpipe Drain and Overflow Valves 1NV120 and 1NV121 |
| 1KPN-11<br>Primary Bkr<br>Backup Fuse | Misc Control Power for 1ATC 24 |
| 6. DC Welding Circuits | |
| 1EQCB0001<br>Primary Bkr-AA<br>Backup Bkr-AB | Lower Containment DC Welding Circuit |
| 1EQCB0002<br>Primary Bkr-AA<br>Backup Bkr-AB | Upper Containment DC Welding Circuit |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 1. 6900 VAC Swgr | |
| Primary Bkr RCP2A<br>Backup Bkr 2TA-3 | Reactor Coolant Pump 2A |
| Primary Bkr RCP2B<br>Backup Bkr 2TB-3 | Reactor Coolant Pump 2B |
| Primary BKR RCP2C<br>Backup Bkr 2TC-3 | Reactor Coolant Pump 2C |
| Primary BKR RCP2D<br>Backup Bkr 2TD-3 | Reactor Coolant Pump 2D |
| 2. 600 VAC MCC | |
| 2EMXC-F01B<br>Primary Bkr<br>Backup Fuse | Accumulator 2C Discharge<br>Isol Vlv 2NI76A |
| 2EMXC-F01C<br>Primary Bkr<br>Backup Fuse | Check Valve Test Header<br>Cont Isol Vlv 2NI95A |
| 2EMXC-F02A<br>Primary Bkr<br>Backup Fuse | Train A Alternate Power<br>To ND LTDN Vlv 2ND1B |
| 2EMXC-F02B<br>Primary Bkr<br>Backup Fuse | Hot Leg Inj. Check Vlv<br>Test Isol Vlv 2NI153A |
| 2EMXC-FO2C<br>Primary Bkr<br>Backup Fuse | Cont Isol at 134 Deg<br>Annulus Area Vlv 2VI312A |
| 2EMXC-FO3A<br>Primary Bkr<br>Backup Fuse | NC Pump 2C Thermal Barrier Outlet<br>Isol Vlv 2KC345A |
| 2EMXC-FO3B<br>Primary Bkr<br>Backup Fuse | N2 to Prt Cont Isol Inside<br>Vlv 2NC54A |
| 2EMXC-FO3C<br>Primary Bkr<br>Backup Fuse | Pressurizer Power-Operated<br>Relief Isol Vlv 2NC33A |

**TABLE 16.8-1B**

**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXC-FO5A<br>Primary Bkr<br>Backup Fuse | NCDT Vent Inside Cont Isol Vlv 2WL450A |
| 2EMXC-F05B<br>Primary Bkr<br>Backup Fuse | Cont Sump Pumps Discharge Inside Cont Isol Vlv 2WL825A |
| 2EMXC-F05C<br>Primary Bkr<br>Backup Fuse | Vent Unit Cond Drn Tank Outside Cont Isol Vlv 2WL867A |
| 2EMXC-F06A<br>Primary Bkr<br>Backup Fuse | NCDT Pumps Disch Inside Cont Isol Vlv 2WL805A |
| 2EMXC-F07B<br>Primary Bkr<br>Backup Fuse | Cont H2 Purge Outlet Cont Isol Vlv 2VY17A |
| 2EMXD-F01A<br>Primary Bkr<br>Backup Fuse | ND Pump 2A Suction From NC Loop B Vlv 2ND1B |
| 2EMXD-F01B<br>Primary Bkr<br>Backup Fuse | Accumulator 2B Discharge Isol Vlv 2NI65B |
| 2EMXD-F01C<br>Primary Bkr<br>Backup Fuse | NI Pump A to Hot Leg Check Vlv Test Isol Vlv 2NI122B |
| 2EMXD-F02A<br>Primary Bkr<br>Backup Fuse | ND Pump 2B Suction from NC Loop C Vlv 2ND36B |
| 2EMXD-F02B<br>Primary Bkr<br>Backup Fuse | ND to Hot Legs Chk 2NI125, 2NI129 Test Isol Vlv 2NI154B |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXD-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Power-Operated Relief Isol Vlv 2NC31B |
| 2EMXD-F05A<br>Primary Bkr<br>Backup Fuse | Pressurizer Power-Operated Relief Isol Vlv 2NC35B |
| 2EMXD-F05B<br>Primary Bkr<br>Backup Fuse | Rx Bldg Drain Hdr Inside Cont Isol Vlv 2KC429B |
| 2EMXD-F05C<br>Primary Bkr<br>Backup Fuse | NCDT Hx Clng Water Return Inside Isol Vlv 2KC332B |
| 2EMXD-F06A<br>Primary Bkr<br>Backup Fuse | NC Pump 2B Thermal Barrier Outlet Isol Vlv 2KC364B |
| 2EMXD-F06B<br>Primary Bkr<br>Backup Fuse | NC Pumps Rtn Hdr Inside Cont Isol Vlv 2KC424B |
| 2EMXK-F01C<br>Primary Bkr<br>Backup Fuse | Backup N2 to PORV 2NC34A From Accum Tnk 2A Vlv 2NI438A |
| 2EMXK-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 2A Thermal Barrier Outlet Isol Vlv 2KC394A |
| 2EMXK-F02B<br>Primary Bkr<br>Backup Fuse | Lower Cont Vent Units Return Cont Isol Vlv 2RN484A |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXK-F02C<br>Primary Bkr<br>Backup Fuse | NV Supply to Pressurizer Vlv<br>2NV037A |
| 2EMXK-F03A<br>Primary Bkr<br>Backup Fuse | S/G C Blowdown Line Sample<br>Inside Cont Isol Vlv 2NM210A |
| 2EMXK-F04A<br>Primary Bkr<br>Backup Fuse | S/G A Upper Shell Sample Inside<br>Cont Isol Vlv 2NM187A |
| 2EMXK-F04B<br>Primary Bkr<br>Backup Fuse | S/G A Blowdown Line Sample<br>Inside Cont Isol Vlv 2NM190A |
| 2EMXK-F04C<br>Primary Bkr<br>Backup Fuse | S/G C Upper Shell Sample<br>Inside Cont Isol Vlv 2NM207A |
| 2EMXK-F06A<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan 2A<br>Inlet Vlv 2VX1A |
| 2EMXK-F07C<br>Primary Bkr<br>Backup Fuse | Electric Hydrogen Recombiner<br>Power Supply Panel 2A |
| 2EMXK-F09A<br>Primary Bkr<br>Backup Fuse | Accumulator 2A Discharge Isol<br>Vlv 2NI54A |
| 2EMXK-F09C<br>Primary Bkr<br>Backup Fuse | NC Pump Oil Fill Header<br>Cont Isol Vlv 2NC196A |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXK-F10A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Damper 2ARF-D-2 |
| 2EMXK-F10B<br>Primary Bkr<br>Backup Fuse | VQ Fans Suction From Containment Isol Vlv 2VQ2A |
| 2EMXK-F10C<br>Primary Bkr<br>Backup Fuse | Cont Air Addition Containment Isol Vlv 2VQ16A |
| 2EMXK-F11A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Fan Motor 2A |
| 2EMXK-F11B<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan Motor 2A |
| 2EMXL-F01B<br>Primary Bkr<br>Backup Fuse | Trn B Alternate Power to ND Letdn Vlv 2ND37A |
| 2EMXL-F01C<br>Primary Bkr<br>Backup Fuse | NI Accum D Sample Line Inside Cont Isol Vlv 2NM81B |
| 2EMXL-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 2D Thermal Barrier Outlet Isol Vlv 2KC413B |
| 2EMXL-F02B<br>Primary Bkr<br>Backup Fuse | Air Handling units Glycol Return Cont Isol Vlv 2NF233B |
| 2EMXL-F02C<br>Primary Bkr<br>Backup Fuse | NI Accum C Sample Line Inside Cont Isol Vlv 2NM78B |
| 2EMXL-F03A<br>Primary Bkr<br>Backup Fuse | S/G D Blowdown Sample Line Inside Cont Isol Vlv 2NM220B |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXL-F03B<br>Primary Bkr<br>Backup Fuse | NI Accum A Sample Line Inside<br>Cont Isol Vlv 2NM72B |
| 2EMXL-F03C<br>Primary Bkr<br>Backup Fuse | NI Accum B Sample Line Inside<br>Cont Isol Vlv 2NM75B |
| 2EMXL-F04A<br>Primary Bkr<br>Backup Fuse | S/G B Upper Shell Sample Inside<br>Cont Isol Vlv 2NM197B |
| 2EMXL-F04B<br>Primary Bkr<br>Backup Fuse | S/G B Blowdown Sample Line Inside<br>Cont Isol Vlv 2NM200B |
| 2EMXL-F04C<br>Primary Bkr<br>Backup Fuse | S/G D Upper Shell Sample Inside<br>Cont Isol Vlv 2NM217B |
| 2EMXL-F06A<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan 2B<br>Inlet Vlv 2VX2B |
| 2EMXL-F06B<br>Primary Bkr<br>Backup Fuse | Backup N2 to PORV 2NC32B<br>from Accum Tnk 2B Vlv 2NI439B |
| 2EMXL-F07C<br>Primary Bkr<br>Backup Fuse | Electric Hydrogen Recombiner<br>Power Supply Panel 2B |
| 2EMXL-F09A<br>Primary Bkr<br>Backup Fuse | Accumulator 2D Discharge<br>Isol Vlv 2NI88B |
| 2EMXL-F10A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Damper<br>2ARF-D-4 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXL-F10B<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 2NC251B |
| 2EMXL-F10C<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 2NC252B |
| 2EMXL-F11A<br>Primary Bkr<br>Backup Fuse | Containment Air Return Fan Motor 2B |
| 2EMXL-F11B<br>Primary Bkr<br>Backup Fuse | Hydrogen Skimmer Fan Motor 2B |
| 2EMXS-F01B<br>Primary Bkr<br>Backup Fuse | NC Pumps Seal Rtn Inside Cont Isol Vlv 2NV89A |
| 2EMXS-F02A<br>Primary Bkr<br>Backup Fuse | ND Pump 2B Suction from NC Loop C Vlv 2ND37A |
| 2EMXS-F02B<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 2NC250A |
| 2EMXS-F03D<br>Primary Bkr<br>Backup Fuse | ND Pump 2A Suction from NC Loop B Vlv 2ND2A |
| 2EMXS-F03E<br>Primary Bkr<br>Backup Fuse | Reactor Vessel Head Vent Vlv 2NC253A |
| 2EMXS-F04B<br>Primary Bkr<br>Backup Fuse | S/G 2D Blowdown Inside Cont Isol Vlv 2BB8A |
| 2EMXS-F04C<br>Primary Bkr<br>Backup Fuse | S/G 2B Blowdown Inside Cont Isol Vlv 2BB19A |

**TABLE 16.8-1B**

**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2EMXS-F05A<br>Primary Bkr<br>Backup Fuse | S/G 2A Blowdown Inside Cont Isol Vlv 2BB56A |
| 2EMXS-F05B<br>Primary Bkr<br>Backup Fuse | S/G 2C Blowdown Inside Cont Isol Vlv 2BB60A |
| 2EMXS-F05C<br>Primary Bkr<br>Backup Fuse | Pzr Liquid Sample Line Inside Cont Isol Vlv 2NM3A |
| 2EMXS-F06A<br>Primary Bkr<br>Backup Fuse | Pzr Steam Sample Line Inside Cont Isol Vlv 2NM6A |
| 2EMXS-F06B<br>Primary Bkr<br>Backup Fuse | NC Hot Leg A Sample Line Inside Cont Isol Vlv 2NM22A |
| 2EMXS-F06C<br>Primary Bkr<br>Backup Fuse | NC Hot Leg C Sample Line Inside Cont Isol Vlv 2NM25A |
| 2MXM-F01A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Pump Motor Drain Tank Pump Motor |
| 2MXM-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 2B Oil Lift Pump Motor 1 |
| 2MXM-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 2C Oil Lift Pump Motor 1 |
| 2MXM-F03A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Power Transformer ICT2A |
| 2MXM-F03B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B6 Fan Motor A & B |

**TABLE 16.8-1B**

**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXM-F03C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Equipment Access Door Hoist Motor 2A |
| 2MXM-F04D<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR10 |
| 2MXM-F04E<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR13 |
| 2MXM-F05A<br>Primary Bkr<br>Backup Fuse | 175 Ton Polar Crane and 25 Ton Aux Crane No. R014 and R016 |
| 2MXM-F05C<br>Primary Bkr<br>Backup Fuse | Upper Containment Welding Feeder |
| 2MXM-F06A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2A7 Fan Motor A & B |
| 2MXM-F06B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B8 Fan Motor A & B |
| 2MXM-F06C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2A9 Fan Motor A & B |
| 2MXM-F06D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B10 Fan Motor A & B |
| 2MXM-F07B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2A13 Fan Motor A & B |
| 2MXM-F07C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B14 Fan Motor A & B |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXM-F08D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration<br>Floor Cool Defrost Heater 2A |
| 2MXM-F09A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A1 Fan Motor A & B |
| 2MXM-F09B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B2 Fan Motor A & B |
| 2MXM-F09C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A3 Fan Motor A & B |
| 2MXM-F09D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B4 Fan Motor A & B |
| 2MXM-F10A<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment<br>Sump Pump Motor 2A1 |
| 2MXM-F10B<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment<br>Sump Pump Motor 2B1 |
| 2MXN-F01F<br>Primary Bkr<br>Backup Fuse | Stud Tensioner<br>Hoist 2B |
| 2MXN-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 2B Oil Lift Pump Motor 2 |
| 2MXN-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 2C Oil Lift Pump Motor 2 |
| 2MXN-F02E<br>Primary Bkr<br>Backup Fuse | Stud Tensioner Hoist 2C |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXN-F03A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Power Transformer ICT2B |
| 2MXN-F03B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Bridge Crane 2 Crane No. R012 |
| 2MXN-F03E<br>Primary Bkr<br>Backup Fuse | Stud Tensioner Hoist 2A |
| 2MXN-F04D<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR5 |
| 2MXN-F04E<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR6 |
| 2MXN-F05A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration Floor Cool Defrost Heater 2B |
| 2MXN-F05B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration Floor Cool Pump Motor 2B |
| 2MXN-F05C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Equipment Access Door Hoist Motor 2B |
| 2MXN-F06A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B1 Fan Motor A & B |
| 2MXN-F06B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2A2 Fan Motor A & B |
| 2MXN-F06C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B3 Fan Motor A & B |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXN-F06D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A4 Fan Motor A & B |
| 2MXN-F07B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B5 Fan Motor A & B |
| 2MXN-F07C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A6 Fan Motor A & B |
| 2MXN-F08A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B7 Fan Motor A & B |
| 2MXN-F08B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A8 Fan Motor A & B |
| 2MXN-F08C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B9 Fan Motor A & B |
| 2MXN-F08D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A10 Fan Motor A & B |
| 2MXN-F09A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B11 Fan Motor A & B |
| 2MXN-F09B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A12 Fan Motor A & B |
| 2MXN-F09C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B13 Fan Motor A & B |
| 2MXN-F09D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A14 Fan Motor A & B |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXN-F10A<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment Sump Pump Motor 2A2 |
| 2MXN-F10B<br>Primary Bkr<br>Backup Fuse | Containment Floor and Equipment Sump Pump Motor 2B2 |
| 2MXN-F10C<br>Primary Bkr<br>Backup Fuse | Incore Instrumentation Sump Pump Motor 2 |
| 2MXN-F10D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling Unit 2B15 Fan Motor A & B |
| 2MXO-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Air Return Fan Motor 2C |
| 2MXO-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor 2A |
| 2MXO-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation Unit 2C Fan Motor |
| 2MXO-F04C<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation Unit 2C Fan Motor |
| 2MXO-F05C<br>Primary Bkr<br>Backup Fuse | Containment Pipe Tunnel Booster Fan Motor 2A |
| 2MXP-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Return Air Fan 2B |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXP-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor 2B |
| 2MXP-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation Unit 2B Fan Motor |
| 2MXP-F04D<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation Unit 2B Fan Motor |
| 2MXP-F05C<br>Primary Bkr<br>Backup Fuse | Containment Pipe Tunnel Booster Fan Motor 2B |
| 2MXQ-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Return Air Fan Motor 2A |
| 2MXQ-F01B<br>Primary Bkr<br>Backup Fuse | Incore Instrument Room Ventilation Unit 2A Fan Motor |
| 2MXQ-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor 2C |
| 2MXQ-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation Unit 2A Fan Motor |
| 2MXQ-F04C<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation Unit 2A Fan Motor |
| 2MXR-F01A<br>Primary Bkr<br>Backup Fuse | Upper Containment Return Air Fan Motor 2D |

**TABLE 16.8-1B**

**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXR-F01B<br>Primary Bkr<br>Backup Fuse | Incore Instrument Room Ventilation Unit 2B Fan Motor |
| 2MXR-F02B<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor 2D |
| 2MXR-F03A<br>Primary Bkr<br>Backup Fuse | Lower Containment Ventilation Unit 2D Fan Motor |
| 2MXR-F04C<br>Primary Bkr<br>Backup Fuse | Upper Containment Ventilation Unit 2D Fan Motor |
| 2MXY-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 2A Oil Lift Pump Motor 1 |
| 2MXY-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 2D Oil Lift Pump Motor 1 |
| 2MXY-F02C<br>Primary Bkr<br>Backup Fuse | Reactor Building Lower Containment Welding Machine Receptacle 2RCPL0185 |
| 2MXY-FO2D<br>Primary Bkr<br>Backup Fuse | Upper Containment Reactor Building Welding Receptacle 2RCPL0193 |
| 2MXY-F03A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Drain Tank Pump Motor 2A |
| 2MXY-F03D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Refrigeration Floor Cool Pump Motor 2A |
| 2MXY-F05A<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR8 |
| 2MXY-F05B<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR11 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXY-F05C<br>Primary Bkr<br>Backup Fuse | Lighting Transformer<br>2LR14 |
| 2MXY-F06A<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A5 Fan Motor A & B |
| 2MXY-F06B<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A11 Fan Motor A & B |
| 2MXY-F06C<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2B12 Fan Motor A & B |
| 2MXY-F06D<br>Primary Bkr<br>Backup Fuse | Ice Condenser Air Handling<br>Unit 2A15 Fan Motor A & B |
| 2MXY-F07C<br>Primary Bkr<br>Backup Fuse | EXH Reactor Building Equipment<br>Hatch Jib Cranes R035 & R036 |
| 2MXY-F08A<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly<br>Motor 2A |
| 2MXY-F08B<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly<br>Motor 2C |
| 2MXY-F08C<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly<br>Motor 2E |
| 2MXY-F08D<br>Primary Bkr<br>Backup Fuse | Lower Containment Auxiliary<br>Charcoal Filter Unit Fan Motor 2A |
| 2MXZ-F02A<br>Primary Bkr<br>Backup Fuse | NC Pump 2A Oil Lift Pump<br>Motor 2 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXZ-F02B<br>Primary Bkr<br>Backup Fuse | NC Pump 2D Oil Lift Pump Motor 2 |
| 2MXZ-F03A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Drain Tank Pump Motor 2B |
| 2MXZ-F04B<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR1 |
| 2MXZ-F04C<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR2 |
| 2MXZ-F04D<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR3 |
| 2MXZ-F05A<br>Primary Bkr<br>Backup Fuse | Reactor Coolant Pump Jib Hoist No. R023 TH R026 |
| 2MXZ-F05C<br>Primary Bkr<br>Backup Fuse | Lower Containment Auxiliary Charcoal Filter Unit Fan Motor 2B |
| 2MXZ-F06A<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly Motor 2B |
| 2MXZ-F06B<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly Motor 2D |
| 2MXZ-F06C<br>Primary Bkr<br>Backup Fuse | Incore Drive Assembly Motor 2F |
| 2MXZ-F06D<br>Primary Bkr<br>Backup Fuse | Lower Containment Reactor Building Welding Receptacle 2RCPL0194 |
| 2MXZ-F07B<br>Primary Bkr<br>Backup Fuse | Lighting Transformer 2LR4 |

**TABLE 16.8-1B**

**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 2. 600 VAC MCC (Continued) | |
| 2MXZ-F07C<br>Primary Bkr<br>Backup Fuse | 5 Ton Jib Crane in Containment<br>Crane No. R006 |
| 2MXZ-F07D<br>Primary Bkr<br>Backup Fuse | Reactor Cavity Manipulator<br>Crane No. R008 & R028 |
| 2MXZ-F08A<br>Primary Bkr<br>Backup Fuse | Steam Generator Drain Pump<br>Motor 2 |
| 2MXZ-F08C<br>Primary Bkr<br>Backup Fuse | 15 Ton Equipment Access Hatch<br>Hoist Crane No. R010 |
| 2MXZ-F08D<br>Primary Bkr<br>Backup Fuse | Control Rod Drive 2 Ton Jib<br>Hoist Crane No. R018 |
| 2MXZ-F08E<br>Primary Bkr<br>Backup Fuse | Reactor Side Fuel Handling<br>Control Console |
| SMXG-F06B<br>Primary Bkr<br>Backup Fuse | Standby Makeup Pump Drain Isol<br>Vlv 2NV876 |
| SMXG-R05B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters 28, 55 & 56 |
| SMXG-F06C<br>Primary Bkr<br>Backup Fuse | Standby Makeup Pump to Seal<br>Water Line Isol Vlv 2NV877 |
| 3. 600 VAC Pressurizer Heater Power Panels | |
| PHP2A-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>1, 2, & 22 |
| PHP2A-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>5, 6, & 27 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 3. 600 VAC Pressurizer Heater Power Panels (Continued) | |
| PHP2A-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>9, 10 & 32 |
| PHP2A-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>11, 12 & 35 |
| PHP2A-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>13, 14 & 37 |
| PHP2A-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>17, 18 & 42 |
| PHP2B-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>26, 53 & 54 |
| PHP2B-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>31, 59 & 60 |
| PHP2B-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>36, 65 & 66 |
| PHP2B-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>41, 71 & 21 |
| PHP2B-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>46, 77 & 78 |
| PHP2C-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>7, 8 & 30 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 3. 600 VAC Pressurizer Heater Power Panels (Continued) | |
| PHP2C-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>19, 20 & 45 |
| PHP2C-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>24, 51 & 52 |
| PHP2C-F01D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>29, 57 & 58 |
| PHP2C-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>34, 63 & 64 |
| PHP2C-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>39, 69 & 70 |
| PHP2C-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>44, 75 & 76 |
| PHP2D-F01A<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>3, 4 & 25 |
| PHP2D-F01B<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>15, 16 & 40 |
| PHP2D-F01C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>23, 49 & 50 |
| PHP2D-F02C<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>33, 61 & 62 |
| PHP2D-F02D<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>38, 67 & 68 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 3. 600 VAC Pressurizer Heater Power Panels (Continued) | |
| PHP2D-F02E<br>Primary Bkr<br>Backup Fuse | Pressurizer Heaters<br>43, 73 & 74 |
| 4. 250 VDC Reactor Building Deadlight Panelboard | |
| 2DLD-2<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 2LR1,<br>2LR2, 2LR3, 2LR4 |
| 2DLD-3<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 2LR13,<br>2LR14 |
| 2DLD-4<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 2LR5,<br>2LR6 |
| 2DLD-5<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 2LR10,<br>2LR11 |
| 2DLD-10<br>Primary Bkr<br>Backup Fuse | Lighting Panelboard No. 2LR8 |
| 5. 120 VAC Panelboards | |
| 2ELB1-5<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 2ELB1-7<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 2ELB1-13<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 2ELB1-15<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 5. 120 VAC Panelboards (Continued) | |
| 2ELB1-17<br>Primary Bkr<br>Backup Fuse | Emergency A.C. Lighting |
| 2KPM-1<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 2A Space Heater |
| 2KPM-2<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 2C Space Heater |
| 2KPM-7-1<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit<br>2A Fan Motor Space Heater |
| 2KPM-8-1<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit<br>2C Fan Motor Space Heater |
| 2KPM-24<br>Primary Bkr<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>2A, 2B, 2C, 2D Space Heaters |
| 2KPM-24-10<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>2A Space Heaters |
| 2KPM-24-11<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>2B Space Heaters |
| 2KPM-24-12<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>2C Space Heaters |
| 2KPM-24-13<br>Primary Fuse<br>Backup Fuse | Control Rod Drive Vent Fan Motor<br>2D Space Heaters |
| 2KPM-33<br>Primary Bkr<br>Backup Fuse | NI Temperature Transmitters<br>2NITT5800, 2NITT5810<br>2NITT5820, 2NITT5830 |
| 2KPM-33-06<br>Primary Fuse | NI Temperature Transmitter<br>2NITT5800 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 5. 120 VAC Panelboards (Continued) | |
| 2KPM-33-07<br>Primary Fuse | NI Temperature Transmitter 2NITT5810 |
| 2KPM-33-08<br>Primary Fuse | NI Temperature Transmitter 2NITT5820 |
| 2KPM-33-09<br>Primary Fuse | NI Temperature Transmitter 2NITT5830 |
| 2KPN-1<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 2B Space Heater |
| 2KPN-2<br>Primary Bkr<br>Backup Fuse | NC Pump Motor 2D Space Heater |
| 2KPN-7-1<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit 2B Fan Motor Space Heater |
| 2KPN-08<br>Primary Bkr<br>Backup Fuse | Lower Containment Vent Unit 2D Fan Motor Space Heater, NC Pump Seal Stand Pipe Vent and Drain Valves 2NV105, 2NV106, 2NV110, 2NV111, 2NV115, 2NV116, 2NV120, 2NV121 |
| 2KPN-08-01<br>Primary Fuse<br>Backup Fuse | Lower Containment Vent Unit 2D Fan Motor Space Heater |
| 2KPN-08-02<br>Primary Fuse<br>Backup Fuse | NC Pump 2A Standpipe Drain and Overflow Valves 2NV105 and 2NV106 |
| 2KPN-08-03<br>Primary Fuse<br>Backup Fuse | NC Pump 2B Standpipe Drain and Overflow Valves 2NV110 and 2NV111 |
| 2KPN-08-04<br>Primary Fuse<br>Backup Fuse | NC Pump 2C Standpipe Drain and Overflow Valves 2NV115 and 2NV116 |

**TABLE 16.8-1B**
**UNIT 2 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES**

| DEVICE NUMBER & LOCATION | SYSTEM POWERED |
|---|---|
| 5. 120 VAC Panelboards (Continued) | |
| 2KPN-08-05<br>Primary Fuse<br>Backup Fuse | NC Pump 2D Standpipe Drain and Overflow Valves 2NV120 and 2NV121 |
| 2KPN-11<br>Primary Bkr<br>Backup Fuse | Misc Control Power for 2ATC 24 |
| 6. DC Welding Circuits | |
| 2EQCB0001<br>Primary Bkr - AA<br>Backup Bkr - AB | Lower Containment DC Welding Circuit |
| 2EQCB0002<br>Primary Bkr - AA<br>Backup Bkr - AB | Upper Containment DC Welding Circuit |

**TESTING REQUIREMENTS (con't)**

iii. At least once per 6 months by performance of a system flush of the outside distribution loop to verify no flow blockage by fully opening the hydraulically most remote hydrant,

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

Exception: Valves that are cycled as part of the ASME Section XI, Subsection IWV (Inservice Testing of Valves in Nuclear Power Plants) program (RF389B, RF447B, RF457B) are exempt from this requirement.

v. At least once per 18 months by verifying that each valve (manual, power-operated, or automatic) in the flow path which is inaccessible during plant operations is in its correct position,

vi. 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:

1) Verifying that each pump develops at least 2500 gpm at a net pressure of 144 psig by testing at three points on the pump performance curve,

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

3) Verifying that each fire suppression pump starts within 10 psig of its intended starting pressure (A pump, primary switch-95 psig; B pump, primary switch -90 psig; and C pump, primary switch-85 psig).

vii. At least once per 3 years by performing a flow test of the system in accordance with Chapter 8, Section 16 of the Fire Protection Handbook, 15th Edition, published by the National Fire Protection Association.

**REFERENCES:**

1) Catawba FSAR, Section 9.5.1
2) Catawba SER, Section 9.5.1
3) Catawba SER, Supplement 2, Section 9.5.1

**REFERENCES (cont'd)**

4) Catawba SER, Supplement 3, Section 9.5.1
5) Catawba Fire Protection Review, as revised
6) Catawba Fire Protection Commitment Index
7) Startup and Normal Operation of Fire Protection System - OP/1/A/6400/02A

**BASES:**

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, $CO_2$ , and fire hose stations. 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.

The ability to demonstrate that the valves in the RF/RY flow path can be cycled is critical to maintaining the system properly. The containment isolation valves (RF389B and RF447B) and the annulus sprinkler system isolation valve (RF457B) are required to be cycled or stroked at least once every quarter as part of the Catawba IWV program. Therefore, credit can be taken for cycling these valves under the IWV program, and they do not need to be cycled annually to meet the SLC criteria.

The proper positioning of RF/RY valves is critical to delivering fire suppression water at the fire source as quickly as possible. The option of increasing or decreasing the frequency of valve position verification allows the ability to optimize plant operational resources. Should an adverse trend develop with RF/RY valve positions, the frequency of verification shall be increased. Similarly if the RF/RY valve position trends are positive, the frequency of verification could be decreased. Through programmed trending of RF/RY as found valve positions, the RF/RY System will be maintained at predetermined reliability standards. The RF/RY System Engineer is responsible for trending and determining verification frequencies based on the following:

Initially the frequency will be monthly.

Annually review the results of the completed valve position verification procedures.

- If the results demonstrate that the valves are found in the correct position at least 99% of the time, the frequency of conducting the valve position verification may be decreased from - monthly to quarterly or - quarterly to semiannually or -

semiannually to annually - as applicable. The frequency shall not be extended beyond annually (plus grace period).

- If the results demonstrate that the valves are not found in the correct position at least 99% of the time, the frequency of conducting the valve position verification shall be increased from - annually to semiannually or - semiannually to quarterly or - quarterly to monthly - as applicable. The valve position verification need not be conducted more often that monthly.

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.

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.

This Selected Licensee Commitment is part of the Catawba Fire Protection Program and therefore subject to the provisions of the Catawba Facility Operating License Conditions #6 for NPF-52 and #8 for NPF-35.

## 16.9 AUXILIARY SYSTEMS - FIRE PROTECTION SYSTEMS

## 16.9-2 SPRINKLER SYSTEMS

**COMMITMENT:**

Sprinkler systems in Table 16.9-1 shall be OPERABLE:

**APPLICABILITY:**

Whenever equipment protected by the Sprinkler System is required to be OPERABLE.

**REMEDIAL ACTION:**

a. With one or more of the above required Sprinkler Systems inoperable, within 1 hour, in accordance with the "Fire Watch Code" given in Table 16.9-1, established a continuous fire watch or an hourly fire watch.

b. Verify backup fire suppression (fire extinguisher, nearby fire hose station) is available, and if not, establish backup fire suppression equipment for the affected area. This must be accomplished within the 1 hour given above.

**TESTING REQUIREMENTS:**

a. Each of the above required Sprinkler Systems shall be demonstrated OPERABLE:

   i. By verifying that each valve (manual or power-operated) in the flow path, which is accessible during plant operations, is in the correct position. The frequency of the verification shall be determined by the performance based criteria stated in the Bases Section.

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

   Exception: Valves that are cycled as part of the ASME Section XI, Subsection IWV (Inservice Testing of Valves in Nuclear Power Plants) program (RF389B, RF447B, RF457B) are exempt from this requirement.

   iii. At least once per 18 months by verifying that each valve (manual or power-operated) in the flow path which is inaccessible during plant operations is in its correct position and

**TESTING REQUIREMENTS: (cont'd)**

iv. At least once per 18 months:

1) By performing a system functional test which includes an inspector's test connection flow test and cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

2) By a visual inspection of each Sprinkler System starting at the system isolation valve to verify the system's integrity; and

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

**REFERENCES:**

1) Catawba FSAR, Section 9.5.1
2) Catawba SER, Section 9.5.1
3) Catawba SER, Supplement 2, Section 9.5.1
4) Catawba SER, Supplement 3, Section 9.5.1
5) Catawba Fire Projection Review, as revised
6) Catawba Fire Protection Commitment Index

**BASES:**

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, sprinklers, $CO_2$, and fire hose stations. 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.

The ability to demonstrate that the valves in the RF/RY flow path can be cycled is critical to maintaining the system properly. The containment isolation valves (RF389B and RF447B) and the annulus sprinkler system isolation valve (RF457B) are required to be cycled or stroked at least once every quarter as part of the Catawba IWV program. Therefore, credit can be taken for cycling these valves under the IWV program, and they do not need to be cycled annually to meet the SLC criteria.

The proper positioning of RF/RY valves is critical to delivering fire suppression water at the fire source as quickly as possible. The option of increasing or decreasing the frequency of valve position verification allows the ability to

**BASES (cont'd)**

optimize plant operational resources. Should an adverse trend develop with RF/RY valve positions, the frequency of verification shall be increased. Similarly if the RF/RY valve position trends are positive, the frequency of verification could be decreased. Through programmed trending of RF/RY as found valve positions, the RF/RY System will be maintained at predetermined reliability standards. The RF/RY System Engineer is responsible for trending and determining verification frequencies based on the following:

Initially the frequency will be monthly.

Annually review the results of the completed valve position verification procedures.

- If the results demonstrate that the valves are found in the correct position at least 99% of the time, the frequency of conducting the valve position verification may be decreased from - monthly to quarterly or - quarterly to semiannually or - semiannually to annually - as applicable. The frequency shall not be extended beyond annually (plus grace period).

- If the results demonstrate that the valves are not found in the correct position at least 99% of the time, the frequency of conducting the valve position verification shall be increased from - annually to semiannually or - semiannually to quarterly or - quarterly to monthly - as applicable. The valve position verification need not be conducted more often that monthly.

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.

This Selected Licensee Commitment is part of the Catawba Fire Protection Program and therefore subject to the provisions of Section 2.C. of the Catawba Facility Operating Licenses.