

REACTIVITY CONTROL SYSTEMS

FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 At least two of the following three boron injection flow paths and one associated heat tracing circuit shall be OPERABLE:

- a. Two flow paths from the boric acid storage tanks required to be OPERABLE pursuant to Specifications 3.1.2.8 and 3.1.2.9 via either a boric acid pump or a gravity feed connection, and a charging pump to the Reactor Coolant System, and
- b. The flow path from the refueling water tank via a charging pump to the Reactor Coolant System.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only one of the above required boron injection flow paths to the Reactor Coolant System OPERABLE, restore at least two boron injection flow paths to the Reactor Coolant System to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least 3% $\Delta k/k$ at 200°F within the next 6 hours; restore at least two flow paths to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.2 At least two of the above required flow paths shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that the temperature of the heat traced portion of the flow path from the concentrated boric acid tanks is above the temperature limit line shown on Figure 3.1-1.
- b. 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.
- c. At least once per 18 months ~~during shutdown~~ by verifying on a SIAS test signal that 1) each automatic valve in the flow path actuates to its correct position, and 2) each boric acid pump starts.

CALVERT CLIFFS - UNIT 1

3/4 3-26

Amendment No. 89, 99, 109, 113

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

| <u>INSTRUMENT</u> | <u>MINIMUM CHANNELS OPERABLE</u> | <u>APPLICABLE MODES</u> | <u>ALARM/TRIP SETPOINT</u> | <u>MEASUREMENT RANGE</u> | <u>ACTION</u> |
|--------------------------------|----------------------------------|-------------------------|----------------------------|---|---------------|
| 1. AREA MONITORS | | | | | |
| a. Containment | | | | | |
| i. Purge & Exhaust Isolation | 3 | 6 | ≤ 220 mr/hr | 10 ⁻¹ - 10 ⁴ mr/hr | 16 |
| b. Containment Area High Range | 2 | 1, 2, 3, & 4 | ≤ 10 R/hr | 1 - 10 ⁸ R/hr | 30 |
| 2. PROCESS MONITORS | | | | | |
| a. Containment | | | | | |
| i. Gaseous Activity | | | | | |
| a) RCS Leakage Detection | 1 | 1, 2, 3, & 4 | Not Applicable | 1 - 10 ⁶ cpm | 14 |
| ii. Particulate Activity | | | | | |
| a) RCS Leakage Detection | 1 | 1, 2, 3, & 4 | Not Applicable | 1 - 10 ⁶ cpm | 14 |
| b. Noble Gas Effluent Monitors | | | | | |
| i. Main Vent Wide Range | 1 | 1, 2, 3, & 4 | * | 10 ⁻⁷ to 10 ⁺⁵ μCi/cc | 30 |
| ii. MAIN STEAM HEADER | 2 | 1, 2, 3, & 4 | * | 10 ⁻² TO 10 ⁵ R/HR | 30 |

*Alarm setpoint to be specified in a controlled document (e.g., setpoint control manual)



TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| <u>INSTRUMENT</u> | <u>CHANNEL CHECK</u> | <u>CHANNEL CALIBRATION</u> | <u>CHANNEL FUNCTIONAL TEST</u> | <u>MODES IN WHICH SURVEILLANCE REQUIRED</u> |
|--------------------------------|----------------------|----------------------------|--------------------------------|---|
| 1. AREA MONITORS | | | | |
| a. Containment | | | | |
| i. Purge & Exhaust Isolation | S | R | M | 6 |
| b. Containment Area High Range | S | R | M | 1, 2, 3, & 4 |
| 2. PROCESS MONITORS | | | | |
| a. Containment | | | | |
| i. Gaseous Activity | | | | |
| a) RCS Leakage Detection | S | R | M | 1, 2, 3, & 4 |
| ii. Particulate Activity | | | | |
| a) RCS Leakage Detection | S | R | M | 1, 2, 3, & 4 |
| b. Noble Gas Effluent Monitors | | | | |
| i. Main Vent Wide Range | S | R | M | 1, 2, 3, & 4 |
| ii. MAIN STEAM HEADER | S | R | M | 1, 2, 3, & 4 |

*The CHANNEL CHECK shall be accomplished by comparing samples independently drawn from the main vent.

CALVERT CLIFFS - UNIT 1

3/4 3-28

Amendment No. 99, 109, 113



INSTRUMENTATION

BASES

by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

~~The Iodine and Particulate samplers were installed to meet the requirements of NUREG-0797 Item II.F.1. The samplers' operation was not assumed in any accident analysis.~~

DELETE

3/4.3.3.2 INCORE DETECTORS

The OPERABILITY of the incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.3.3. SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes," April 1974.

3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is 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.

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system consisting of either:
 1. Two 500 Kv offsite power circuits, or as necessary
 2. The 69 Kv SMECO offsite power circuit described in the January 14, 1977 Safety Evaluation and one 500 Kv offsite power circuit, and
- b. Two separate and independent diesel generators (one of which may be a swing diesel generator capable of serving either Unit 1 or Unit 2) ~~each~~ with:
 1. Separate day fuel tanks containing a minimum volume of 375 gallons of fuel / FOR EACH DIESEL GENERATOR,
 2. A common fuel storage system consisting of two independent storage tanks each containing a minimum volume of 18,250 gallons of fuel, and
 3. A separate fuel transfer pump / FOR EACH DIESEL GENERATOR.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With two offsite circuits of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and 4.8.1.1.2.a.4 within 24 hours, unless the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one diesel generator inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours.- Restore two diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- c. With two offsite circuits and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. With three of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one off-site source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

f. SURVEILLANCE REQUIREMENTS

INSERT
FROM ATTACHED PAGE

4.8.1.1.1 Each required independent circuit between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Demonstrated OPERABLE, as follows:

1. For each 500 Kv offsite circuit, at least once per 7 days by verifying correct breaker alignments and indicated power availability,

- f. With one Diesel Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the remaining tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 36,500 gallons) within one hour and at least once per 8 hours thereafter, and 2) verifying the flowpath from the OPERABLE fuel oil storage tank to the diesel generators within one hour. Restore two storage tanks to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (NOTE: If the tank is drained, maintain an 8,000 gallon alternate fuel source parked onsite.)

INSERT
ACTION S.
ON TG. 3/4 8-2

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE:

- a. 125-volt D.C. bus No. 11, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.
- b. 125-volt D.C. bus No. 12, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.
- c. 125-volt D.C. bus No. 21, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.
- d. 125-volt D.C. bus No. 22, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With one 125-volt bus inoperable, restore the inoperable bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one 125-volt D.C. battery inoperable and the associated 125-volt D.C. bus not being supplied by the Reserve Battery: ~~except during surveillance testing per Specification 4.8.2.3.2.d.1:~~
 1. Restore the inoperable battery to OPERABLE status within 2 hours, or replace the inoperable battery with the OPERABLE Reserve Battery within the next 2 hours, or
 2. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With both 125-volt battery chargers from the same D.C. bus inoperable:
 - ~~1. Except when necessary during surveillance testing per Specification 4.8.2.3.2.d.1, restore at least one 125-volt D.C. battery charger to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~
 - ~~2. During surveillance testing per Specification 4.8.2.3.2.d.1, restore at least one 125-volt D.C. battery charger to OPERABLE status within 4 hours or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

~~d. With single cells having a voltage decrease of more than 0.10 volts from the previous performance discharge test (4.8.2.3.2.f.) value, but still > 2.10 volts per surveillance requirement 4.8.2.3.2.b.1., either restore/replace cells or replace the affected battery with the Reserve Battery within 24 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.3.2 Each 125-volt battery bank and charger and the Reserve Battery shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The parameters in Table 4.8-1 meet the Category A limits, and
 2. The total battery terminal voltage is greater than or equal to 125 volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 1. The parameters in Table 4.8-1 meet the Category B limits,
 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohms, and
 3. The average electrolyte temperature of six connected cells is above 60°F.
- c. At least once per 18 months by verifying that:
 1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
 2. The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,
 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohms, and

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 18 months by verifying that the battery capacity is adequate to supply and maintain in OPERABLE ~~status all of the actual or simulated emergency loads~~ for the design duty cycle when the battery is subjected to a battery service test.

and maintain
at least
105 volts

At the completion of this test, the battery shall be charged to at least 95% capacity in \leq 24 hours, excluding the stabilization time.

- e. At least once per 18 months, the battery charger* shall be demonstrated capable of recharging the battery at a rate of \leq 400 amperes while supplying normal D.C. loads or equivalent or greater dummy load.
- f. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Surveillance Requirement 4.8.2.3.2.d.
- g. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

*Not applicable to the charger associated with the Reserve Battery.

TABLE 4.8-1

BATTERY SURVEILLANCE REQUIREMENTS

| Parameter | CATEGORY A ⁽¹⁾ | | CATEGORY B ⁽²⁾ |
|---------------------|--|--|--|
| | Limits for each designated pilot cell | Limits for each connected cell | Allowable ⁽³⁾ value for each connected cell |
| Electrolyte Level | >Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark | >Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark | Above top of plates, and not overflowing |
| Float Voltage | ≥ 2.13 volts | ≥ 2.13 volts(a) | > 2.07 volts |
| Specific Gravity(b) | ≥ 1.200 (c) | ≥ 1.195 Average of all connected cells > 1.205 | Not more than 0.020 below the average of all connected cells Average of all connected cells ≥ 1.195 (c) |

- (1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.
- (2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.
- (3) Any Category B parameter not within its allowable value, declare the battery inoperable.
- (a) Corrected for average electrolyte temperature.
- (b) Corrected for electrolyte temperature and level.
- (c) Or battery charging current is less than 2 amps when on charge.

CALVERT CLIFFS - UNIT 2

3/4 3-26

Amendment No. 70, 81, 92, 96

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

| <u>INSTRUMENT</u> | <u>MINIMUM CHANNELS OPERABLE</u> | <u>APPLICABLE MODES</u> | <u>ALARM/TRIP SETPOINT</u> | <u>MEASUREMENT RANGE</u> | <u>ACTION</u> |
|--------------------------------|----------------------------------|-------------------------|----------------------------|--|---------------|
| 1. AREA MONITORS | | | | | |
| a. Containment | | | | | |
| i. Purge & Exhaust Isolation | 3 | 6 | ≤ 220 mr/hr | 10 ⁻⁴ - 10 ⁴ mr/hr | 16 |
| b. Containment Area High Range | 2 | 1, 2, 3 & 4 | ≤ 10 R/hr | 1 - 10 ⁸ R/hr | 30 |
| 2. PROCESS MONITORS | | | | | |
| a. Containment | | | | | |
| i. Gaseous Activity | | | | | |
| a) RCS Leakage Detection | 1 | 1, 2, 3 & 4 | Not Applicable | 10 ¹ - 10 ⁶ cpm | 14 |
| ii. Particulate Activity | | | | | |
| a) RCS Leakage Detection | 1 | 1, 2, 3 & 4 | Not Applicable | 10 ¹ - 10 ⁶ cpm | 14 |
| b. Noble Gas Effluent Monitors | | | | | |
| i. Main Vent Wide Range | 1 | 1, 2, 3 & 4 | * | 10 ⁻⁷ to 10 ⁵ μCi/cc | 30 |
| ii. Main Steam Header | 2 | 1, 2, 3 & 4 | * | 10 ⁻² to 10 ⁵ R/hr | 30 |

*Alarm setpoint to be specified in a controlled document (e.g., setpoint control manual).

TABLE 3.3-6 (Continued)

TABLE NOTATION

- ACTION 14 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.
- ACTION 16 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.
- ACTION 30 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, initiate the preplanned alternate method of monitoring the appropriate parameter(s), within 72 hours, and:
- 1) either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or
 - 2) prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to OPERABLE status.



CALVERT CLIFFS - UNIT 2

3/4 3-28

Amendment No. 81, 82, 83

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| <u>INSTRUMENT</u> | <u>CHANNEL CHECK</u> | <u>CHANNEL CALIBRATION</u> | <u>CHANNEL FUNCTIONAL TEST</u> | <u>MODES IN WHICH SURVEILLANCE REQUIRED</u> |
|--------------------------------|----------------------|----------------------------|--------------------------------|---|
| 1. AREA MONITORS | | | | |
| a. Containment | | | | |
| i. Purge & Exhaust Isolation | S | R | M | 6 |
| b. Containment Area High Range | S | R | M | 1, 2, 3 & 4 |
| 2. PROCESS MONITORS | | | | |
| a. Containment | | | | |
| i. Gaseous Activity | | | | |
| a) RCS Leakage Detection | S | R | M | 1, 2, 3 & 4 |
| ii. Particulate Activity | | | | |
| a) RCS Leakage Detection | S | R | M | 1, 2, 3 & 4 |
| b. Noble Gas Effluent Monitors | | | | |
| i. Main Vent Wide Range | S | R | M | 1, 2, 3 & 4 |
| ii. MAIN STEAM HEADER | S | R | M | 1, 2, 3 & 4 |

~~*The CHANNEL CHECK shall be accomplished by comparing samples independently drawn from the main vent.~~

INSTRUMENTATION

BASES

by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

~~The iodine and particulate samplers were installed to meet the requirements of NUREG-0737 Item II.F.1. The samplers' operation was not assumed in any accident analysis.~~

DELETE

3/4.3.3.2 INCORE DETECTORS

The OPERABILITY of the incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes," April 1974.

3/4.3.3.4: METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is 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, Rev. 1 (Proposed), "Meteorological Programs in Support of Nuclear Power Plants," September 1980.

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

TABLE 3.3-9

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

| <u>INSTRUMENT</u> | <u>READOUT LOCATION</u> | <u>MEASUREMENT RANGE</u> | <u>MINIMUM CHANNELS OPERABLE</u> |
|---|-------------------------|---|----------------------------------|
| 1. Wide Range Neutron Flux * | 2C43 | 0.1 cps-200% | 1 |
| 2. Reactor Trip Breaker Indication | Cable Spreading Room | OPEN-CLOSE | 1/trip breaker |
| 3. Reactor Coolant Cold Leg Temperature | 2C43 | 212-705°F | 1 |
| 4. Pressurizer Pressure | 2C43 | 0- ⁴⁰⁰⁰ 1600 psia | 1 |
| 5. Pressurizer Level | 2C43 | 0-360 inches | 1 |
| 6. Steam Generator Pressure | 2C43 | 0-1200 psig | 1/steam generator |
| 7. Steam Generator Level | 2C43 | -401 to +63.5 inches | 1/steam generator |

*When the 2C43 instrumentation is inoperable, the wide range neutron flux monitors located in the auxiliary feedwater pump room may be utilized to meet this requirement. During the period when the instruments are utilized to meet the above requirement, they will be subject to the surveillance requirements of Table 4.3-6.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system consisting of either:
 1. Two 500 Kv offsite power circuits, or as necessary
 2. The 69 Kv SMECO offsite power circuit described in the January 14, 1977 Safety Evaluation and one 500 Kv offsite power circuit, and
- b. Two separate and independent diesel generators (one of which may be a swing diesel generator capable of serving either Unit 1 or Unit 2) each with:
 1. Separate day fuel tanks containing a minimum volume of 375 gallons of fuel, ~~FOR EACH DIESEL GENERATOR,~~
 2. A common fuel storage system consisting of two independent storage tanks each containing a minimum volume of 18,250 gallons of fuel, and
 3. A separate fuel transfer pump, ~~FOR EACH DIESEL GENERATOR.~~

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With two offsite circuits of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and 4.8.1.1.2.a.4 within 24 hours, unless the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one diesel generator inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore two diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- c. With two offsite circuits and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. E
Z
- d. With three of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPEPABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one off-site source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Z
Z
- e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel gnerators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. E
- f. |

INSERT
FROM ATTACHED PAGE

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each required independent circuit between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Demonstrated OPERABLE, as follows:

1. For each 500 Kv offsite circuit, at least once per 7 days by verifying correct breaker alignments and indicated power availability, E

- f. With one Diesel Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the remaining tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 36,500 gallons) within one hour and at least once per 8 hours thereafter, and 2) verifying the flowpath from the OPERABLE fuel oil storage tank to the diesel generators within one hour. Restore two storage tanks to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (NOTE: If the tank is drained, maintain an 8,000 gallon alternate fuel source parked onsite.)

INSERT
ACTION 5.
ON PAGE 3/4 8-2

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE:

- a. 125-volt D.C. bus No. 11, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.
- b. 125-volt D.C. bus No. 12, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.
- c. 125-volt D.C. bus No. 21, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.
- d. 125-volt D.C. bus No. 22, the associated 125-volt D.C. battery bank or as necessary the Reserve Battery, and one associated full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With one 125-volt bus inoperable, restore the inoperable bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one 125-volt D.C. battery inoperable and the associated 125-volt D.C. bus not being supplied by the Reserve Battery; ~~except during surveillance testing per Specification 4.8.2.3.2.d.1:~~
 1. Restore the inoperable battery to OPERABLE status within 2 hours, or replace the inoperable battery with the OPERABLE Reserve Battery within the next 2 hours, or
 2. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With both 125-volt battery chargers from the same D.C. bus inoperable~~X~~
 - ~~1. Except when necessary during surveillance testing per Specification 4.8.2.3.2.d.1, restore at least one 125-volt D.C. battery charger to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~
 - ~~2. During surveillance testing per Specification 4.8.2.3.2.d.1, restore at least one 125-volt D.C. battery charger to OPERABLE status within 4 hours or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

- ~~d. With single cells having a voltage decrease of more than 0.10 volts from the previous performance discharge test (4.8.2.3.2.f.) value, but still > 2.10 volts per surveillance requirement 4.8.2.3.2.b.1., either restore/replace cells or replace the affected battery with the Reserve Battery within 24 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.3.2 Each 125-volt battery bank and charger and the Reserve Battery shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The parameters in Table 4.8-1 meet the Category A limits, and
 2. The total battery terminal voltage is greater than or equal to 125 volts on float charge.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 1. The parameters in Table 4.8-1 meet the Category B limits,
 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohms, and
 3. The average electrolyte temperature of six connected cells is above 60°F.
- c. At least once per 18 months by verifying that:
 1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
 2. The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,
 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohms, and

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 18 months by verifying that the battery capacity is adequate to supply ~~and maintain in OPERABLE status all of the actual or simulated emergency loads~~ for the design duty cycle when the battery is subjected to a battery service test.

and maintain
at least
105 volts

At the completion of this test, the battery shall be charged to at least 95% capacity in \leq 24 hours, excluding the stabilization time.

- e. At least once per 18 months, the battery charger* shall be demonstrated capable of recharging the battery at a rate of \leq 400 amperes while supplying normal D.C. loads or equivalent or greater dummy load.
- f. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Surveillance Requirement 4.8.2.3.2.d.
- g. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

*Not applicable to the charger associated with the Reserve Battery.

TABLE 4.8-1

BATTERY SURVEILLANCE REQUIREMENTS

| Parameter | CATEGORY A ⁽¹⁾ | | CATEGORY B ⁽²⁾ |
|---------------------|--|--|--|
| | Limits for each designated pilot cell | Limits for each connected cell | Allowable ⁽³⁾ value for each connected cell |
| Electrolyte Level | >Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark | >Minimum level indication mark, and $\leq \frac{1}{4}$ " above maximum level indication mark | Above top of plates, and not overflowing |
| Float Voltage | ≥ 2.13 volts | ≥ 2.13 volts(a) | > 2.07 volts |
| Specific Gravity(b) | ≥ 1.200 (c) | ≥ 1.195 Average of all connected cells > 1.205 | Not more than 0.020 below the average of all connected cells Average of all connected cells ≥ 1.195 (c) |

- (1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.
- (2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.
- (3) Any Category B parameter not within its allowable value, declare the battery inoperable.
 - (a) Corrected for average electrolyte temperature.
 - (b) Corrected for electrolyte temperature and level.
 - (c) Or battery charging current is less than 2 amps when on charge.