

ATTACHMENT 1

Consumers Power Company
Big Rock Point Plant
Docket 50-155

PROPOSED TECHNICAL SPECIFICATION
PAGE CHANGES

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13 Pages

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Limiting Conditions for Operation

11.3.5.3 EMERGENCY POWER SOURCES (Contd)

3. The diesel generator fuel supply shall be adequate for three-day operation.
4. If Specifications A.2 or A.3 are not met, a normal orderly shutdown shall be initiated within one (1) hour and the reactor shall be shut down as described in Section 1.2.5(a) within twelve (12) hours and shut down as described in Section 1.2.5(a) and (b) within the following 24 hours. During refueling operations cease all changes which could affect reactivity.
5. The station battery system and the alternate shutdown battery system shall be operable under all conditions except during cold shutdown. If the station battery or the alternate shutdown battery is operable, no actions shall be taken which result in a reactivity addition, except cooldown, or which might result in the primary coolant system drained.
6. If Specification A.5 is not met a normal orderly shutdown of the reactor shall be initiated within one (1) hour and the reactor shall be shut down as described in Section 1.2.5(a) within twelve (12) hours and shut down as described in Section 1.2.5(a) and (b) within the following 24 hours.

Surveillance Requirements

11.4.5.3 EMERGENCY POWER SOURCES (Contd)

- (4) Overspeed tripping.
- (5) Battery undervoltage alarm.
- (c) Verify the automatic transfer of station power from the 138 kV line to the 46 kV line.
- (d) Verify the automatic transfer of power sources for the 1Y and 2Y instrument and control panels.
- (e) Verify the cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration for the station battery, the RDS batteries and the alternate shutdown battery.
- (f) Verify the cell-to-cell and terminal connections are clear tight, free of corrosion and coated with anti-corrosion material for the station battery, the RDS batteries and the alternate shutdown battery.
- (g) Verify that the battery charger for the station battery and the RDS batteries will supply at least 30 amperes at a minimum of 135 volts for at least 4 hours.

Limiting Conditions for Operation

11.3.5.3 EMERGENCY POWER SOURCES

Applicability:

Applies to the operational status of the emergency power sources.

Objective:

To assure the capability of the emergency power sources to provide power required for emergency equipment in the event of a Loss of Coolant Accident.

Specification:

- A. For all reactor operating conditions except cold shutdown, there shall normally be available one 138 kV line, one 46 kV line, one diesel generator system, one station battery system, and four RDS uninterruptible power supplies including batteries and one alternate shutdown battery system, except as specified below:
1. Refueling operations and related testing may be conducted with the 138 kV line de-energized.
 2. The 46 kV line or the diesel generator may be out of service for repair for periods up to three (3) days during reactor operation and for extended periods during refueling or shutdown operations.

Surveillance Requirements

11.4.5.3 EMERGENCY POWER SOURCES

Applicability:

Applies to the periodic testing requirements for the emergency power sources.

Objective:

To assure the operability of the emergency power sources to provide emergency power in the event of a Loss of Coolant Accident.

Specification:

- A. The emergency power system surveillance will be performed as indicated below. In addition, components on which maintenance has been performed will be tested.
1. During each operating cycle -
 - (a) Test of automatic initiation sensors and load test the emergency diesel to 180-200 kW generator output for at least 20 minutes.
 - (b) Test and calibrate the following instruments and controls associated with diesel generator:
 - (1) Fuel oil level.
 - (2) Oil Pressure tripping.
 - (3) Water temperature tripping.

Limiting Conditions for Operation

11.3.5.3 EMERGENCY POWER SOURCES (Contd)

7. One RDS uninterruptible power supply including battery may be out of service as described in Section 3.1.5 Action 3.
8. During reactor power operation, the 138 kV line may be out of service for repair for periods up to three (3) days.
9. If Specification A.8 is not met, a normal orderly shutdown shall be initiated within one (1) hour and the reactor shall be shut down as described in Section 1.2.5(a) within twelve (12) hours and shut down as described in Section 1.2.5(a) and (b) within the following 24 hours.

B. During power and refueling operations, the 2400 volt bus undervoltage components shall be operable or placed in the tripped condition, except during the monthly channel functional testing period.

Surveillance Requirements

11.4.5.3 EMERGENCY POWER SOURCES (Contd)

- (h) Verify that the capacity of the station battery, the RDS batteries and the alternate shutdown battery is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design time interval when the battery is subjected to a battery service test. The design time interval for the RDS batteries is one hour, eight hours for the station battery, and eight hours for the alternate shutdown battery.

- (i) Test and calibrate the 2400 volt bus undervoltage trip control components as follows:

- (1) The undervoltage relays 127-10XY, XZ and YZ will drop out on decreasing voltage of no lower than 107.1 volts, after a delay of ≤ 6 seconds.
- (2) The auxiliary timing relay 162-104 will be actuated after a 10 ± 0.5 second time delay upon receiving a signal from all three (3) undervoltage relays.

2. Monthly

- (a) Test start diesel generator and operate at least the fire pump as a load to 480 V Bus 2B for at least 20 minutes.

Limiting Conditions for Operation

Surveillance Requirements

11.4.5.3 EMERGENCY POWER SOURCES (Contd)

- (b) Verify that the cell voltage is ≥ 2.0 volts and specific gravity is ≥ 1.2 of each cell of the station battery; and verify that the cell voltage is ≥ 6.0 volts and specific gravity is ≥ 1.2 on each cell of the RDS batteries; and verify that the cell voltage is ≥ 2.1 volts and specific gravity is ≥ 1.2 of each cell of the alternate shutdown battery.
- (c) Test operate the rod position motor generator set.
- (d) Perform a channel functional test of the 2400 volt bus undervoltage trip system.

3. Weekly -

- (a) Verify the electrolyte level of each RDS battery pilot cell, the station battery pilot cell and the alternate shutdown battery pilot cell is between the minimum and maximum level indication marks.
- (b) Verify the pilot cell specific gravity for RDS, station and alternate shutdown batteries corrected to $(77)^{\circ}\text{F}$, is ≥ 1.2 .
- (c) Verify the station battery pilot cell voltage is ≥ 2.0 volts. The RDS battery pilot cell voltage is ≥ 6.0 volts. The alternate shutdown battery pilot cell voltage ≥ 2.1 volts.

Limiting Conditions for Operation

Surveillance Requirements

11.4.5.3 EMERGENCY POWER SOURCES (Contd)

- (d) Verify the overall battery voltage is ≥ 125 volts for the station battery, the RDS batteries and the alternate shutdown battery.
- (e) Test start the diesel generator and run for warm-up period.
- (f) Verify that the diesel generator battery electrolyte level above plates and overall battery voltage is ≥ 24 volts.

4. Quarterly - Verify the following:

- (a) That the specific gravity of the diesel generator battery is appropriate for continued service.
- (b) That the diesel generator battery and battery rack show no visual indication of physical damage or abnormal deterioration; and
- (c) That the diesel generator battery terminal connections are clean, tight, free of corrosion and coated with anticorrosion material.

Limiting Conditions for Operation

Surveillance Requirements

11.4.5.3 EMERGENCY POWER SOURCES (Contd)

5. Sixty months - At least once per 60 months during shutdown, verify that the RDS batteries, the alternate shutdown battery and the station battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed subsequent to the satisfactory completion of the required battery service test of Part 11.4.5.3.A.1.(h).

Bases:

Normal station power can be provided by the station turbine generator, the 138 kV transmission line or the 46 kV line. These sources are adequate to provide emergency a-c power. When none of these sources is available, a single emergency diesel generator rated at 200 kW starts automatically to provide emergency a-c power to 480 V Bus 2B. The weekly starting test is based on Manufacturer's Bulletin 33743-1 for relubrication protection of moving parts. Diesel generator initiation and output circuit breaker closure is accomplished by two voltage sensors: One to detect loss of normal power on Bus 2B; and, the other to provide assurance of generator output prior to automatic closure of the generator output breaker. Additional breaker interlocks are provided to assure that the normal Buses 1A and 2A are isolated prior to closing the generator output breaker. This prevents overloading of the generator during the switching period. An undervoltage trip at $\leq 89.25\%$ of normal voltage isolates the 2400 volt bus prior to any postulated equipment degradation.

The operability of the diesel battery and charger is verified by the weekly starting test of the diesel and by the weekly verification of the electrolyte level and overall battery voltage.

The diesel fuel oil tank is sized for ten-day full-load operation. Three-day supply is considered adequate to provide fuel makeup.

A single station battery supplies power for normal station services and is sized for emergency uses including valves and controls of Loss of Coolant Accidents. The battery can be charged from the emergency diesel generator output if normal station power sources are not available.

The primary core spray valves and the primary containment spray valve are operated and controlled by power from the station battery. The backup core spray valves and backup containment spray valve are operated by power from normal station power sources or the emergency diesel generator.

RDS uninterruptible power supplies (UPS) A, B, C, and D (each consisting of a battery, battery charger and an inverter) supply each division (except division 5) with electrical power. Each UPS has outputs of 120 V a-c, 60 Hz, and 125 V d-c. One of these batteries supplies control power for the emergency diesel generator. Divisions 1 & 2 and 3 & 4 normally receive power from 480 V a-c Buses 1A and 2A, respectively. In the event of loss of power to either or both buses, provision is included for supplying input power from 480 V a-c Bus 2B which is tied to the emergency diesel generator. If all 480 V a-c power is lost, the RDS UPS is capable of sustaining its outputs for one hour. The station battery had adequate capacity to carry normal loads plus an assumed failure (locked rotor current) of the d-c lube

Bases (Contd)

oil pump for 54 minutes without the battery charger and still provide sufficient power for equipment required to operate during a LOCA. If steps are taken to reduce nonessential loads during a loss of off-site power (such as part of the emergency lights), additional time (up to five hours) can be gained from the time of the loss of the charger until the battery would no longer have sufficient power for equipment required to operate during a LOCA. The station battery and the four (4) RDS batteries will be considered operable if they are essentially fully charged and the battery charger is in service. Additionally, prior to the startup following the 1977 refueling outage, successful completion of service testing and performance discharge testing within each operating cycle and each sixty months, respectively, will further establish battery reliability.

An alternate shutdown battery supplies power to the main steam isolation valve, the emergency condenser outlet valves and other alternate shutdown equipment. The battery is sized such that loss of the charger does not affect operability of the battery for up to six (6) days at a minimum of 25°F (nine (9) days at a minimum of 40°F).

PLANT SYSTEMS

3/4.7.13 ALTERNATE SHUTDOWN SYSTEM

LIMITING CONDITIONS FOR OPERATION

- 3.7.13 The alternate shutdown system (ASD) equipment shown in Table 3.3.9 shall be operable.

APPLICABILITY

During power operation.

ACTION

- a. With any item, other than the #1 control rod drive pump power or the two emergency condenser indicating lights, in Table 3.3.9 inoperable, either restore to operable status within seven days or a normal orderly shutdown shall be initiated within one (1) hour and the reactor shall be shutdown as described in Section 1.2.5(a) within 12 hours and shutdown as described in Section 1.2.5(a) and (b) within the following 24 hours.
- b. With the #1 control rod drive pump power or either of the two emergency condenser indicating lights inoperable, either restore to operable status within sixty days or a normal orderly shutdown shall be initiated within one (1) hour and the reactor shall be shutdown as described in Section 1.2.5(a) within 12 hours and shutdown as described in Section 1.2.5(a) and (b) within the following 24 hours.

SURVEILLANCE REQUIREMENTS

- 4.7.13.1 The ASD monitoring instruments shall be demonstrated OPERABLE by performing a check and a calibration per Table 4.3-9.
- 4.7.13.2 Each transfer switch, power supply and control circuit shall be demonstrated OPERABLE at least once per 18 months by operating each actuated component from both the control room and the remote location.

TABLE 3.3-9

ALTERNATE SHUTDOWN SYSTEM EQUIPMENT

<u>INSTRUMENT</u>		<u>READOUT LOCATION</u>
1.	Steam Drum Level/LI-6819	Panel C31
2.	Steam Drum Pressure/PI-6819	Panel C31
3.	Emergency Condenser Low Level Alarm Indicating Light/LS-3550	Panel C31
4.	Emergency Condenser Firewater Makeup Flow Indicating Light/FS-4947	Panel C31
<u>TRANSFER SWITCHES/POWER SUPPLIES/CONTROL CIRCUITS</u>		<u>SWITCH LOCATION</u>
1.	Emergency Condenser Outlet Valve Control MO-7053	MO-7053 Motor Starter
2.	Emergency Condenser Outlet Valve Control MO-7063	MO-7063 Motor Starter
3.	Main Steam Isolation Valve Control MO-7050	MO-7050 Motor Starter
4.	ECS Firewater Makeup Valve Control SV-4947	Panel C31
5.	Control Rod Drive Pump No. 1 Power	Equipment Lock

Proposed

TABLE 4.3.-9

ALTERNATE SHUTDOWN SYSTEM INSTRUMENT SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>SURVEILLANCE</u>	<u>FREQUENCY</u>	<u>METHOD</u>
1. Steam Drum Level, LI-6819	A. Check	Quarterly	compare to known level
	B. Calibration	Every 18 months	apply known differential pressures to transmitters
2. Steam Drum Pressure, PI-6819	A. Check	Quarterly	compare to known pressure
	B. Calibration	Every 18 months	apply known pressures to transmitter
3. Emergency Condenser Makeup Line Flow Switch Indicating Light FS-4947	A. Check	Quarterly	initiate flow in line
	B. Calibration	Every 18 months	apply known flow through flow switch
4. Emergency Condenser Low Level Alarm Indicating Light, LS-3550 (Panel C31)	A. Check	Quarterly	simulate low level
	B. Calibration	Every 18 months	apply known differential pressure to switch

BASES

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

3/4.7.11 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, 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.

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.

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. The requirement for a twenty-four hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

3/4.7.12 PENETRATION FIRE BARRIERS

The functional integrity of the penetration fire barriers ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The penetration fire barriers are a passive element in the facility fire protection program and are subject to periodic inspections.

During periods of time when the barriers are not functional, routine fire watch patrols in conjunction with OPERABLE fire detection instrumentation or a continuous fire watch are required to be maintained in the vicinity of the affected barrier until the barrier is restored to functional status.

3/4.7.13 ALTERNATE SHUTDOWN SYSTEM

The requirements for the Alternate Shutdown System provide assurance that shutdown and cooldown to approximately 212°F can be achieved in the event of major fire in critical areas of the plant. This capability is in accordance with the criteria of Appendix R to 10 CFR 50.