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Docket Nos. STN 50-454
and STN 50-455

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Dear Mr. Farrar:

Enclosed are the replacement pages for Amendment No. 5 to Facility Operating License Nos. NPF-37 and NPF-60 for Byron Station, Units 1 and 2, respectively. The pages that were sent out with Amendment No. 5 on December 12, 1986 were incorrectly reproduced on only one side. We regret any confusion this error may have caused.

Sincerely,

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Enclosure:
As stated

cc: See next page

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PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.5 Two independent ultimate heat sinks (UHS) cooling towers shall be OPERABLE, each with

- a. A minimum water level in the UHS cooling tower basin of 873.75 feet Mean Sea Level (MSL) (50%),
- b. With only Unit 1 operating, fans OA, OB, OE, and OF are required to be OPERABLE. With only Unit 2 operating, fans OC, OD, OG, and OH are required to be OPERABLE. With both Units 1 and 2 operating, 3 fans with power supplied from each unit are required to be OPERABLE (total of 6 fans),
- c. One OPERABLE essential service water makeup pump per train,
- d. An essential service water pump discharge temperature of less than or equal to 80°F with less than 4 fans running in high speed; or less than or equal to 98°F with all 4 fans running in high speed,
- e. A minimum Rock River water level at or above 670.6 feet MSL, USGS datum, at the river greenhouse, and
- f. Two OPERABLE deep wells with:
 - (1) Rock River water level forecast by National Weather Service to exceed 702.0 feet MSL, or
 - (2) Rock River water level at or below 670.6 feet MSL, or
 - (3) Tornado watch issued by National Weather Service that includes Byron site area.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

- a. With a water level of less than 873.75 feet MSL (50%) in either UHS cooling tower basin, restore the water level to 873.75 feet MSL in each UHS cooling tower basin within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one of the fans contained in the applicable combination listed above inoperable, restore the listed fans to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
- c. With one essential service water makeup pump inoperable, restore the essential service water makeup pump 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.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

- d. With the essential service water pump discharge water temperature not meeting the above requirement, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With the minimum Rock River water level not meeting the above requirement, notify the NRC within 1 hour in accordance with the procedure of 10 CFR 50.72 of actions or contingencies to ensure an adequate supply of cooling water to the Byron Station for a minimum of 30 days, verify the Rock River flow within 1 hour, and:
 - (1) If Rock River flow is less than 700 cubic feet per second (cfs) be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours, or
 - (2) If Rock River flow is equal to or greater than 700 cfs continue verification procedure every 12 hours or until Rock River water level exceeds 670.6 feet MSL or
 - (3) If Rock River level is equal to or less than 664.7 feet MSL be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours
- f. With one deep well inoperable and:
 - (1) The Rock River water level predicted, through National Weather Service flood forecasts, to exceed 702 feet MSL, or
 - (2) The Rock River water level at or below 670.6 feet MSL, or
 - (3) A tornado watch issued by the NWS that includes the area for the Byron Station.

Notify the NRC within 1 hour in accordance with the procedure of 10 CFR 50.72 of actions or contingencies to ensure an adequate supply of cooling water to the Byron Station for a minimum of 30 days and restore both wells to OPERABLE status before the Rock River water level exceeds 702 feet MSL or the minimum Rock River level or flow falls below 664.7 feet MSL or 700 cfs, respectively, or within 72 hours, whichever occurs first, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.5 The UHS shall be determined OPERABLE at least once per:

- a. 24 hours by verifying the water level in each UHS cooling tower basin to be greater than or equal to 873.5 feet MSL. (50%),

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum the following D.C. electrical sources shall be OPERABLE:

- a. 125-Volt D.C. Bus 111 fed from Battery 111 for Unit 1 (Bus 211 fed from Battery 211 for Unit 2), and its associated full capacity charger, and
- b. 125-Volt D.C. Bus 112 fed from Battery 112 for Unit 1 (Bus 212 fed from Battery 212 for Unit 2), and its associated full capacity charger.

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

ACTION:

- a. With one of the required battery banks and/or chargers inoperable, restore the inoperable battery bank and/or battery 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 the normal full capacity charger inoperable: 1) restore the affected battery and/or battery bus to operable status with the opposite units full capacity charger within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours, and 2) restore the normal full capacity charger to operable status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. Use of the D.C. crosstie breakers between opposite unit D.C. buses (bus 111 and 211, or bus 112 and 212) shall be limited to the following:
 - (1) With a normal full capacity charger inoperable, comply with action statement (b) above.
 - (2) With a D.C. bus inoperable or not energized on a shutdown unit (Mode 5 or 6), the affected D.C. bus may be energized from the operating unit (Mode 1, 2, 3 or 4) opposite D.C. bus via the crosstie breakers after limiting the D.C. loads on the affected D.C. bus; operation may then continue for up to 7 days or open the crosstie breakers.

SURVEILLANCE REQUIREMENTS

4.8.2.1.1 Each D.C. bus shall be determined OPERABLE and energized from its battery at least once per 7 days by verifying correct breaker alignment.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.2.1.2 Each 125-volt battery bank and its associated charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 - 1) The parameters in Table 4.8-2 meet the Category A limits, and
 - 2) The total battery terminal voltage is greater than or equal to 126 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 145 volts, by verifying that:
 - 1) The parameters in Table 4.8-2 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} ohm*, and
 - 3) The average electrolyte temperature of all 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} ohm*, and
 - 4) The battery charger will supply a load equal to the manufacturer's rating for at least 8 hours.

- d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for 240 minutes when the battery is subject to a battery service test;

*Obtained by subtracting the normal resistance of: 1) the cross room rack connector (400×10^{-6} ohm, typical) and 2) the bi-level rack connector (50×10^{-6} ohm, typical); from the measured cell-to-cell connection resistance.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- e. At least once per 60 months, during shutdown, 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 Specification 4.8.2.1.2d.;
 - f. At least once per 18 months during shutdown, by giving performance discharge tests of battery capacity 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.
- 4.8.2.1.3 At least once per 12 hours, when in specification 3.8.2.1.c.(2), verify the total crosstie loading will not exceed 63 amps.

TABLE 4.8-2

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 ⁽⁶⁾	> 2.07 volts
Specific Gravity ⁽⁴⁾	≥ 1.200 ⁽⁵⁾	≥ 1.195	Not more than 0.020 below the average of all connected cells
		Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195 ⁽⁵⁾

TABLE NOTATIONS

- (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 indicates an inoperable battery.
- (4) Corrected for electrolyte temperature and level.
- (5) Or battery charging current is less than 2 amps when on charge.
- (6) Corrected for average electrolyte temperature.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, one 125-volt D.C. bus fed from its battery and its associated full-capacity charger shall be OPERABLE.*

APPLICABILITY: MODES 5 and 6.

ACTION:

With the required battery bank and/or full-capacity charger inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes or movement of irradiated fuel; initiate corrective action to restore the required battery bank and full-capacity charger to OPERABLE status as soon as possible, and within 8 hours, depressurize and vent the Reactor Coolant System through at least a 2 square inch vent.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The above required 125-volt D.C. bus fed from its battery and its associated charger shall be demonstrated OPERABLE per Specifications 4.8.2.1.1 and 4.8.2.1.2.

*Use of the D.C. crosstie breakers is covered in Technical Specification 3.8.2.1 Action Statement c.

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following electrical busses shall be energized in the specified manner for the applicable unit:

- a. A.C. ESF Busses consisting of:

<u>UNIT 1</u>	<u>UNIT 2</u>
Division 11	Division 21
1) 4160-Volt Bus 141,	1) 4160-Volt Bus 241
2) 480-Volt Bus 131X, and	2) 480-Volt Bus 231X, and
3) 480-Volt Bus 131Z.	3) 480-Volt Bus 231Z.

- b. A.C. ESF Busses consisting of:

<u>UNIT 1</u>	<u>UNIT 2</u>
Division 12	Division 22
1) 4160-Volt Bus 142	1) 4160-Volt Bus 242
2) 480-Volt Bus 132X, and	2) 480-Volt Bus 232X, and
3) 480-Volt Bus 132Z.	3) 480-Volt Bus 232Z.

- c. 120-Volt A.C. Instrument Bus 111 for Unit 1 (Bus 211 for Unit 2) energized from its associated inverter connected to D.C. Bus 111 for Unit 1 (Bus 211 for Unit 2),
- d. 120-Volt A.C. Instrument Bus 113 for Unit 1 (Bus 213 for Unit 2) energized from its associated inverter connected to D.C. Bus 111 for Unit 1 (Bus 211 for Unit 2),
- e. 120-Volt A.C. Instrument Bus 112 for Unit 1 (Bus 212 for Unit 2) energized from its associated inverter connected to D.C. Bus 112 for Unit 1 (Bus 212 for Unit 2), and
- f. 120-Volt A.C. Instrument Bus 114 for Unit 1 (Bus 214 for Unit 2) energized from its associated inverter connected to D.C. Bus 112 for Unit 1 (Bus 212 for Unit 2).

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

ACTION:

- a. With one of the required divisions of A.C. ESF busses not fully energized, reenergize the division within 8 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 A.C. instrument bus either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: 1) reenergize the A.C. instrument bus within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours, and 2) reenergize the A.C. instrument bus from its associated inverter connected to its associated D.C. bus within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.