

# ATTACHMENT B

MARKED UP PAGES FOR  
PROPOSED CHANGES TO APPENDIX A  
TECHNICAL SPECIFICATIONS OF  
FACILITY OPERATING LICENSES  
NPF-37, NPF-66, NPF-72, AND NPF-77

BYRON STATION UNITS 1 & 2  
REVISED PAGES:

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BRAIDWOOD STATION UNITS 1 & 2  
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\*NOTE: New overflow pages.

and with one of its associated  
crosstie breakers in the open position.

## 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.

REPLACE  
with  
INSERT  
"A"

#### 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.

# INSERT "A"

for page 3/4 8-10:

## ACTION:

- a. With one of the required 125-Volt D.C. buses inoperable due to its normal associated full capacity charger being inoperable, operations may continue provided that within 2 hours the inoperable bus and its associated battery are energized by the opposite unit's 125-Volt D.C. bus and its OPERABLE charger via the crosstie breakers and that within 24 hours the inoperable bus and its charger are restored to OPERABLE status. Otherwise be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
- b. With both of the crosstie breakers closed for a 125-Volt D.C. bus that is required to be OPERABLE and with both units operating (Modes 1, 2, 3, or 4), the 125-Volt D.C. bus may energize the opposite unit's inoperable 125-Volt D.C. bus having an inoperable charger without a load restriction.
- c. With both of the crosstie breakers closed for a 125-Volt D.C. bus that is required to be OPERABLE and with the opposite unit shutdown (Modes 5, 6, or defueled), the crosstie breakers may remain closed for up to 7 days provided items 1 and 2 below are satisfied. Otherwise open one of the crosstie breakers.
- (1) The shutdown unit's bus load is restricted to:
- | Shutdown Unit<br><u>Battery Status</u> | Operating Unit<br><u>Battery Type</u> | Load<br><u>Restriction</u> |
|--|---------------------------------------|----------------------------|
| Inoperable                             | AT&T                                  | 100 Amps                   |
| Inoperable                             | Gould                                 | 63 Amps                    |
| OPERABLE                               | Either                                | None                       |
- (2) If a load restriction applies, then once per 12 hours verify that the shutdown unit's bus loading will not exceed the load restriction.
- d. With one of the required 125-Volt D.C. buses inoperable, except for the allowances of ACTIONS (a), (b), or (c) above, 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.

## 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. 130.5 volts (AT&T) 126 volts (Gould)
- 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  $150 \times 10^{-6}$  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  $150 \times 10^{-6}$  ohm\*, and
  - 4) The battery charger will supply a load equal to the manufacturer's rating for at least 8 hours. the design duty cycle
- 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 ( $400 \times 10^{-6}$  ohm, typical) and 2) the bi-level rack connector ( $50 \times 10^{-6}$  ohm, typical); from the measured cell-to-cell connection resistance.

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both AT&T and Gould:

Gould only:

## 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.~~

DELETE

TABLE 4.E-2 (AT&amp;T)

## BATTERY SURVEILLANCE REQUIREMENTS

PARAMETER	CATEGORY A <sup>(1)</sup>	CATEGORY B <sup>(2)</sup>	
	LIMITS FOR EACH DESIGNATED PILOT CELL	LIMITS FOR EACH CONNECTED CELL	ALLOWABLE <sup>(3)</sup> VALUE FOR EACH CONNECTED CELL
Electrolyte Level	>Minimum level indication mark, and $\leq \frac{3}{4}$ " above maximum level indication mark	>Minimum level indication mark, and $\leq \frac{3}{4}$ " above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	$> \cancel{2.18}$ volts 2.15	$\geq \cancel{2.18}$ volts <sup>(6)</sup> 2.18	$> \cancel{2.07}$ volts 2.14
Specific Gravity <sup>(4)</sup>	$\geq \cancel{1.200}$ <sup>(5)</sup> 1.285	$\geq \cancel{1.195}$ 1.280	Not more than 0.020 below the average of all connected cells
		Average of all connected cells $> \cancel{1.205}$ 1.290	Average of all connected cells $\geq \cancel{1.195}$ <sup>(5)</sup> 1.280

## 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.

ADD INSERT "B"  
as new overflow  
Page 3/4 8-12a

INSERT "B"

TABLE 4.E-2

(GOULD)

BATTERY SURVEILLANCE REQUIREMENTS

PARAMETER	CATEGORY A <sup>(1)</sup>	CATEGORY B <sup>(2)</sup>	
	LIMITS FOR EACH DESIGNATED PILOT CELL	LIMITS FOR EACH CONNECTED CELL	ALLOWABLE <sup>(3)</sup> VALUE FOR EACH CONNECTED CELL
Electrolyte Level	>Minimum level indication mark, and $\leq \frac{1}{8}$ " above maximum level indication mark	>Minimum level indication mark, and $\leq \frac{1}{8}$ " above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	$\geq 2.13$ volts	$\geq 2.13$ volts <sup>(6)</sup>	$> 2.07$ volts
Specific Gravity <sup>(4)</sup>	$\geq 1.200$ <sup>(5)</sup>	$\geq 1.195$	Not more than 0.020 below the average of all connected cells
		Average of all connected cells $> 1.205$	Average of all connected cells $\geq 1.195$ <sup>(5)</sup>

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. ~~Be~~

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.

and with one of its associated cross-tie breakers in the open position

REPLACE WITH  
INSERT "C"

#### 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.

DELETE

\*Use of the D.C. cross-tie breakers is covered in Technical Specification 3.8.2.1 Action Statement c.



## INSERT "C"

for page 3/4 8-13:

### ACTION:

- a. With both of the crosstie breakers closed for the 125-Volt D.C. bus that is required to be OPERABLE and with the opposite unit operating (Modes 1, 2, 3, or 4), the shutdown unit's operable 125-Volt D.C. bus may energize the operating unit's inoperable 125-Volt D.C. bus having an inoperable charger without a load restriction.
- b. With both of the crosstie breakers closed for the 125-Volt D.C. bus that is required to be OPERABLE and with both units shutdown (Modes 5, 6, or defueled), the 125-Volt D.C. bus may energize the opposite unit's 125-Volt D.C. bus for up to 7 days provided items 1 and 2 below are satisfied. Otherwise open one of the crosstie breakers.

- (1) The opposite unit's bus load is restricted to:

<u>Opposite Bus</u>	<u>Operable Bus</u>	<u>Load</u>
<u>Battery Status</u>	<u>Battery Type</u>	<u>Restriction</u>
Inoperable	AT&T	100 Amps
Inoperable	Gould	63 Amps
OPERABLE	Either	None

- (2) If a load restriction applies, then once per 12 hours verify that the opposite shutdown unit's bus loading will not exceed the load restriction.
- c. With the required 125-Volt D.C. bus inoperable, except for the allowances of ACTIONS (a) or (b) above, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity additions, or movement of irradiated fuel; initiate corrective action to restore the required bus 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.

## ELECTRIC POWER SYSTEMS

### BASES

#### A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION (Continued)

The Surveillance Requirement for demonstrating the OPERABILITY of the station batteries is based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

ADD  
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"D"

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

ADD  
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"E"

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.05 volts, ensures the battery's capability to perform its design function.

2.18 volts (AT&T) 2.13 volts (Gould)

2.18 volts (AT&T) 2.13 volts (Gould)

2.14 volts (AT&T) 2.07 volts (Gould)

## **INSERT "D"**

**for page B 3/4 8-2:**

Verification of the crosstie loading limits in Specifications 3.8.2.1 and 3.8.2.2 ensures that the OPERABLE battery will have sufficient capacity to energize the design basis loads of its D.C. bus while maintaining the limited D.C. loads of the inoperable D.C. bus on a shutdown unit.

## **INSERT "E"**

**for page B 3/4 8-2:**

The battery service test is a special test of battery capability, as-found, to satisfy the design requirements (battery duty cycle) of the D.C. electrical power system. The discharge rate and length of the battery service test corresponds to the design duty cycle requirements as specified in UFSAR Subsection 8.3.2.1.1.

## 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:

- 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
- 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:

- 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.
- 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.
- 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:
  - With a normal full capacity charger inoperable, comply with action statement (b) above.
  - 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.

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with  
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"A"

#### 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.

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

- At least once per 7 days by verifying that:
  - The parameters in Table 4.8-2 meet the Category A limits, and
  - The total battery terminal voltage is greater than or equal to 126 volts on float charge.

BRAIDWOOD - UNITS 1 & 2

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130.5 volts (AT&T) 126 volts (Gould)

# INSERT "A"

for page 3/4 8-10:

## ACTION:

- a. With one of the required 125-Volt D.C. buses inoperable due to its normal associated full capacity charger being inoperable, operations may continue provided that within 2 hours the inoperable bus and its associated battery are energized by the opposite unit's 125-Volt D.C. bus and its OPERABLE charger via the crosstie breakers and that within 24 hours the inoperable bus and its charger are restored to OPERABLE status. Otherwise be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
- b. With both of the crosstie breakers closed for a 125-Volt D.C. bus that is required to be OPERABLE and with both units operating (Modes 1, 2, 3, or 4), the 125-Volt D.C. bus may energize the opposite unit's inoperable 125-Volt D.C. bus having an inoperable charger without a load restriction.
- c. With both of the crosstie breakers closed for a 125-Volt D.C. bus that is required to be OPERABLE and with the opposite unit shutdown (Modes 5, 6, or defueled), the crosstie breakers may remain closed for up to 7 days provided items 1 and 2 below are satisfied. Otherwise open one of the crosstie breakers.
- (1) The shutdown unit's bus load is restricted to:
- | Shutdown Unit<br><u>Battery Status</u> | Operating Unit<br><u>Battery Type</u> | Load<br><u>Restriction</u> |
|--|---------------------------------------|----------------------------|
| Inoperable                             | AT&T                                  | 100 Amps                   |
| Inoperable                             | Gould                                 | 63 Amps                    |
| OPERABLE                               | Either                                | None                       |
- (2) If a load restriction applies, then once per 12 hours verify that the shutdown unit's bus loading will not exceed the load restriction.
- d. With one of the required 125-Volt D.C. buses inoperable, except for the allowances of ACTIONS (a), (b), or (c) above, 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.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

- 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  $150 \times 10^{-6}$  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  $150 \times 10^{-6}$  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; *the design duty cycle*
- 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. *Delete*

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.~~

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

*both AT&T and Gould:*

BRAIDWOOD - UNITS 1 & 2

3/4 8-11

AMENDMENT NO. 5

*Gould only:*



TABLE 4.8-2

(AT&amp;T)

## BATTERY SURVEILLANCE REQUIREMENTS

PARAMETER	CATEGORY A <sup>(1)</sup>		CATEGORY B <sup>(2)</sup>	
	LIMITS FOR EACH DESIGNATED PILOT CELL	LIMITS FOR EACH CONNECTED CELL	ALLOWABLE <sup>(3)</sup> VALUE FOR EACH CONNECTED CELL	
Electrolyte Level	>Minimum level indication mark, and $< \frac{1}{4}$ " above maximum level indication mark	>Minimum level indication mark, and $< \frac{1}{4}$ " above maximum level indication mark	Above top of plates, and not overflowing	
Float Voltage	$\geq \frac{2.13}{2.18}$ volts	$\geq \frac{2.13}{2.18}$ volts <sup>(6)</sup>	$> \frac{2.07}{2.14}$ volts	
Specific Gravity <sup>(4)</sup>	$\geq \frac{1.200}{1.285}$ <sup>(5)</sup>	$\geq \frac{1.195}{1.280}$ Average of all connected cells $> \frac{1.205}{1.290}$	Not more than 0.020 below the average of all connected cells  Average of all connected cells $\geq \frac{1.195}{1.280}$ <sup>(5)</sup>	

## 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.

ADD INSERT "B"  
as new overflow  
page 3/4 8-12a

INSERT "B"

TABLE 4.8-2

(GOULD)

BATTERY SURVEILLANCE REQUIREMENTS

PARAMETER	CATEGORY A <sup>(1)</sup>	CATEGORY B <sup>(2)</sup>	
	LIMITS FOR EACH DESIGNATED PILOT CELL	LIMITS FOR EACH CONNECTED CELL	ALLOWABLE <sup>(3)</sup> VALUE FOR EACH CONNECTED CELL
Electrolyte Level	>Minimum level indication mark, and $\leq \frac{1}{8}$ " above maximum level indication mark	>Minimum level indication mark, and $\leq \frac{1}{8}$ " above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	$\geq 2.13$ volts	$\geq 2.13$ volts <sup>(6)</sup>	$> 2.07$ volts
Specific Gravity <sup>(4)</sup>	$\geq 1.200$ <sup>(5)</sup>	$\geq 1.195$  Average of all connected cells $> 1.205$	Not more than 0.020 below the average of all connected cells  Average of all connected cells $\geq 1.195$ <sup>(5)</sup>

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 ~~De~~

APPLICABILITY: MODES 5 and 6. and with one of its associated cross-tie breakers in the open position

#### 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.

REPLACE WITH  
INSERT "C"

#### 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.

DELETE

\*Use of the D.C. cross-tie breakers is covered in Technical Specification 3.8.2.1, Action Statement c.

## INSERT "C"

for page 3/4 8-13:

### ACTION:

- a. With both of the crosstie breakers closed for the 125-Volt D.C. bus that is required to be OPERABLE and with the opposite unit operating (Modes 1, 2, 3, or 4), the shutdown unit's operable 125-Volt D.C. bus may energize the operating unit's inoperable 125-Volt D.C. bus having an inoperable charger without a load restriction.
- b. With both of the crosstie breakers closed for the 125-Volt D.C. bus that is required to be OPERABLE and with both units shutdown (Modes 5, 6, or defueled), the 125-Volt D.C. bus may energize the opposite unit's 125-Volt D.C. bus for up to 7 days provided items 1 and 2 below are satisfied. Otherwise open one of the crosstie breakers.

(1) The opposite unit's bus load is restricted to:

<u>Opposite Bus</u> <u>Battery Status</u>	<u>Operable Bus</u> <u>Battery Type</u>	<u>Load</u> <u>Restriction</u>
Inoperable	AT&T	100 Amps
Inoperable	Gould	63 Amps
OPERABLE	Either	None

- (2) If a load restriction applies, then once per 12 hours verify that the opposite shutdown unit's bus loading will not exceed the load restriction.
- c. With the required 125-Volt D.C. bus inoperable, except for the allowances of ACTIONS (a) or (b) above, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity additions, or movement of irradiated fuel; initiate corrective action to restore the required bus 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.

## ELECTRIC POWER SYSTEMS

### BASES

#### A.C. SOURCES, D.C. SOURCES, AND ONSITE POWER DISTRIBUTION (Continued)

The Surveillance Requirement for demonstrating the OPERABILITY of the station batteries is based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.05 volts, ensures the battery's capability to perform its design function.

2.18 volts (AT&T) 2.13 volts (Gould)

2.18 volts (AT&T) 2.13 volts (Gould)

2.14 volts (AT&T) 2.07 volts (Gould)

ADD  
INSERT  
"D"

ADD  
INSERT  
"E"

## **INSERT "D"**

**for page B 3/4 8-2:**

Verification of the crosstie loading limits in Specifications 3.8.2.1 and 3.8.2.2 ensures that the OPERABLE battery will have sufficient capacity to energize the design basis loads of its D.C. bus while maintaining the limited D.C. loads of the inoperable D.C. bus on a shutdown unit.

## **INSERT "E"**

**for page B 3/4 8-2:**

The battery service test is a special test of battery capability, as-found, to satisfy the design requirements (battery duty cycle) of the D.C. electrical power system. The discharge rate and length of the battery service test corresponds to the design duty cycle requirements as specified in UFSAR Subsection 8.3.2.1.1.

# ATTACHMENT C

## EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATIONS FOR PROPOSED CHANGES TO APPENDIX A TECHNICAL SPECIFICATIONS OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77

Commonwealth Edison has evaluated the proposed amendment and determined that it involves no significant hazards considerations. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or
2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or
3. Involve a significant reduction in a margin of safety.

The proposed amendment includes the following changes: (1) changes to allow for the replacement of the present 125 Volt DC Gould batteries with new 125 Volt DC AT&T batteries; (2) restatement of the design duty cycle; (3) restatement of the crosstie breaker limitation; and (4) revision of the crosstie loading limitation.

- A. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The replacement AT&T battery has been selected to meet or exceed the design, functional, and operational requirements of those of the present Gould battery, including crosstie load limitations. The crosstie breaker limitation change to allow crosstie between two shutdown units is consistent with the Safety Evaluations issued with Technical Specification Amendment 5 for both Braidwood and Byron Stations. The remaining changes are administrative in nature or provide clarification to maintain consistency with other Technical Specifications and the Standard Technical Specifications.

The overall design, function, and operation of the DC system and equipment has not been altered by these changes. The proposed changes do not affect any accident initiators or precursors and do not alter the design assumptions for the systems or components used to mitigate the consequences of an accident as analyzed in UFSAR Chapter 15. Therefore, there is no increase in the probability or consequences of an accident previously evaluated.

- B. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The replacement AT&T battery will provide the same functions as those of the present Gould battery and will be operated with the same types of operational controls. These limits will include battery float terminal voltage, individual cell voltage and electrolyte specific gravity, and crosstie loading. Crosstie conditions are allowed under the present Technical Specifications. The remaining changes are administrative in nature or provide clarification to maintain consistency with other Technical Specifications and the Standard Technical Specifications.

The DC system and its equipment will continue to perform the same functions and be operated in the same fashion. The proposed change does not create any new or common failure modes. The proposed changes do not introduce any new accident initiators or precursors, or any new design assumptions for the systems or components used to mitigate the consequences of an accident. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated has not been created.

- C. The proposed change does not involve a significant reduction in a margin of safety.

The replacement AT&T battery will meet or exceed the design, functional, and qualification requirements of those of the present Gould batteries. The proposed Technical Specification limitations for the AT&T battery are derived from the same methodology and margins as those for the Gould battery. Increasing the crosstie loading limit takes advantage of the larger AT&T battery capacity with its increased design margin. The proposed change to the crosstie loading limit will continue to conservatively envelop the postulated design requirements. The remaining changes are administrative in nature or provide clarification to maintain consistency with other Technical Specifications and the Standard Technical Specifications.

The inherent design conservatism of the DC system and its equipment has not been altered. The DC system and its equipment will continue to be operated with the same degree of conservatism. Therefore, there is no reduction in the margin of safety.

Therefore, based upon the above evaluation, Commonwealth Edison has concluded that these changes involve no significant hazards considerations.

## ATTACHMENT D

### ENVIRONMENTAL ASSESSMENT FOR PROPOSED CHANGES TO APPENDIX A TECHNICAL SPECIFICATIONS OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77

Commonwealth Edison has evaluated the proposed amendment and determined that it meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). This determination is based upon the following: The proposed amendment changes requirements regarding the installation and use of facility components located within the restricted area (as defined in 10 CFR 20) and surveillance requirements; and the proposed amendment involves no significant hazards considerations, no change in the amount or type of any effluent that may be released offsite, and no increase in individual or cumulative occupational radiation exposure. Pursuant to 10 CFR 51.22(b), neither an environmental impact statement nor an environmental assessment is necessary for the proposed amendment.