



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 13, 1999

Mr. Oliver D. Kingsley, President
Nuclear Generation Group
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. MA6002, MA6003, MA6000 AND MA6001)

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 111 to Facility Operating License No. NPF-37 and Amendment No. 111 to Facility Operating License No. NPF-66 for the Byron Station, Unit Nos. 1 and 2, respectively, and Amendment No. 104 to Facility Operating License No. NPF-72 and Amendment No. 104 to Facility Operating License No. NPF-77 for the Braidwood Station, Unit Nos. 1 and 2, respectively. The amendments are in response to Commonwealth Edison Company's application dated June 30, 1999.

The amendments revise the requirements related to the cross-tie of DC power buses between units, remove references to the AT&T batteries which have been replaced at Braidwood Station, and remove references to the 10-day allowed outage time (AOT) required for replacement of the AT&T batteries at Braidwood, Unit 2, which was granted in Amendment Nos. 99 and 99 issued to Braidwood Station, Unit Nos. 1 and 2, on March 26, 1999.

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O.D. Kingsley

- 2 -

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original Signed By

George F. Dick, Jr., Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455,
STN 50-456 and STN 50-457

Enclosures: 1. Amendment No. 111 to NPF-37
2. Amendment No. 111 to NPF-66
3. Amendment No. 104 to NPF-72
4. Amendment No. 104 to NPF-77
5. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

Docket File	PUBLIC
PD32 r/f (2)	CMoore (2)
RScholl (SE only)	GDick (3)
OGC, O15B18	WBeckner, O13H15
ACRS, T2E26	MJordan, RIII
GHill (8), T5C3	SSaba, O8H2

*concurrence provided by memo dtd 9/3/99; no major revisions

**see previous page for concurrence

DOCUMENT NAME: g:\pdiii-2\bfracid-by\amda600

OFFICE	PM:PD32	EA:PD32	SC:EEIB	OGC	SC:PD32
NAME	GDick	CMOORE	*DTHATCHER	**RWEISMAN	AMENDOLA
DATE	10/04/99	10/1/99	09/03/99	09/27/99	10/23/99

OFFICIAL RECORD COPY

O. Kingsley
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cc:

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- 2 -

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-454

BYRON STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 111
License No. NPF-37

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated June 30, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-37 is hereby amended to read as follows:

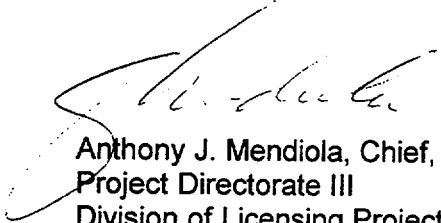
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(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 111 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 13, 1999



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-455

BYRON STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 111
License No. NPF-66

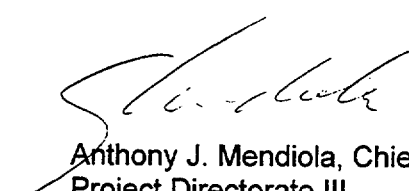
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated June 30, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A (NUREG-1113), as revised through Amendment No. 111 and revised by Attachment 2 to NPF-66, and the Environmental Protection Plan contained in Appendix B, both of which were attached to License No. NPF-37, dated February 14, 1985, are hereby incorporated into this license. Attachment 2 contains a revision to Appendix A which is hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 13, 1999

ATTACHMENT TO LICENSE AMENDMENT NOS. 111 AND 111

FACILITY OPERATING LICENSE NOS. NPF-37 AND NPF-66

DOCKET NOS. STN 50-454 AND STN 50-455

Revise the Appendix A Technical Specifications by removing the page identified below and inserting the attached page. The revised page is identified by the captioned amendment number and contains marginal lines indicating the areas of change.

Remove Page

3.8.5-1

Insert Page

3.8.5-1

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

| LCO 3.8.5 The following shall be OPERABLE:

- a. One DC electrical power subsystem capable of supplying one division of the onsite Class 1E DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution System-Shutdown," with at least one unit crosstie breaker open; and
- b. One source of DC electrical power, other than that required by LCO 3.8.5.a, capable of supplying the remaining onsite Class 1E DC electrical power distribution subsystem(s) when required by LCO 3.8.10.

-----NOTE-----

One division may be crosstied to the opposite unit, when the opposite unit is in MODE 1, 2, 3, or 4 with an inoperable battery charger.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTIONS

-----NOTE-----

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable for reasons other than Condition B.	A.1 Declare affected required feature(s) inoperable. <u>OR</u>	Immediately (continued)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-456

BRAIDWOOD STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 104
License No. NPF-72

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated June 30, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-72 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 104 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 13, 1999



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-457

BRAIDWOOD STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 104
License No. NPF-77

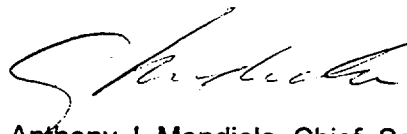
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated June 30, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 104 and the Environmental Protection Plan contained in Appendix B, both of which were attached to License No. NPF-72, dated July 2, 1987, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 13, 1999

ATTACHMENT TO LICENSE AMENDMENT NOS. 104 AND 104

FACILITY OPERATING LICENSE NOS. NPF-72 AND NPF-77

DOCKET NOS. STN 50-456 AND STN 50-457

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove Pages

3.8.4-2
3.8.4-3
3.8.4-4
3.8.4-5
3.8.4-6
3.8.5-1
3.8.5-3
3.8.6-4
3.8.9-2
3.8.9-3

Insert Pages

3.8.4-2
3.8.4-3
3.8.4-4
3.8.4-5

3.8.5-1
3.8.5-3
3.8.6-4
3.8.9-2
3.8.9-3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power division crosstied to opposite-unit DC electrical power subsystem with an inoperable source, while opposite unit is in MODE 5, 6, or defueled.	C.1 -----NOTE----- Only required when opposite unit has an inoperable battery. ----- Verify opposite-unit DC bus load \leq 200 amps.	Once per 12 hours
	<u>AND</u> C.2 Open at least one crosstie breaker between the crosstied divisions.	7 days
D. One DC electrical power subsystem inoperable for reasons other than Condition A, B, or C.	D.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours
E. Required Action and Associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 127.6 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is $\leq 1.5E-4$ ohm for inter-cell connections, $\leq 1.5E-4$ ohm for inter-rack connections, $\leq 1.5E-4$ ohm for inter-tier connections, and $\leq 1.5E-4$ ohm for terminal connections.	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	18 months
SR 3.8.4.4	Remove visible terminal corrosion, verify battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	18 months
SR 3.8.4.5	Verify battery connection resistance is $\leq 1.5E-4$ ohm for inter-cell connections, $\leq 1.5E-4$ ohm for inter-rack connections, $\leq 1.5E-4$ ohm for inter-tier connections, and $\leq 1.5E-4$ ohm for terminal connections.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.4.6 Verify each battery charger supplies a load equal to the manufacturer's rating for ≥ 8 hours.	18 months
<div data-bbox="168 590 358 625">SR 3.8.4.7</div> <div data-bbox="418 596 1110 877"> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. <p>-----</p> <p>Verify battery capacity is adequate to supply, and maintain OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p> </div>	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.8</p> <p>-----NOTE----- This Surveillance shall not be performed in MODE 1, 2, 3, or 4.</p> <p>Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months</p> <p><u>AND</u></p> <p>12 months when battery shows degradation or has reached 85% of the expected life with capacity < 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources – Shutdown

LCO 3.8.5 The following shall be OPERABLE:

- a. One DC electrical power subsystem capable of supplying one division of the onsite Class 1E DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution System–Shutdown," with at least one unit crosstie breaker open; and
- b. One source of DC electrical power, other than that required by LCO 3.8.5.a, capable of supplying the remaining onsite Class 1E DC electrical power distribution subsystem(s) when required by LCO 3.8.10.

-----NOTE-----

One division may be crosstied to the opposite unit, when the opposite unit is in MODE 1, 2, 3, or 4 with an inoperable battery charger.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTIONS

-----NOTE-----

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable for reasons other than Condition B.	A.1 Declare affected required feature(s) inoperable. <u>OR</u>	Immediately (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One DC electrical power division crosstied to opposite-unit DC electrical power subsystem with an inoperable source, while opposite unit is in MODE 5, 6, or defueled.	B.1 -----NOTE----- Only required when opposite unit has an inoperable battery. Verify opposite-unit DC bus load is ≤ 200 amps.	Once per 12 hours
	AND B.2 Open at least one crosstie breaker between the crosstied divisions.	7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.5.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.4.6, SR 3.8.4.7, and SR 3.8.4.8. For DC sources required to be OPERABLE, the following SRs are applicable: <div style="display: flex; justify-content: space-between;"> <div>SR 3.8.4.1</div> <div>SR 3.8.4.5</div> </div> <div style="display: flex; justify-content: space-between;"> <div>SR 3.8.4.2</div> <div>SR 3.8.4.6</div> </div> <div style="display: flex; justify-content: space-between;"> <div>SR 3.8.4.3</div> <div>SR 3.8.4.7</div> </div> <div style="display: flex; justify-content: space-between;"> <div>SR 3.8.4.4</div> <div>SR 3.8.4.8.</div> </div>	In accordance with applicable SRs

Battery Cell Parameters 3.8.6

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark ^(a)	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark ^(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V ^(b)	> 2.07 V
Specific Gravity ^{(c)(d)}	≥ 1.200	≥ 1.195 <u>AND</u> Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells ≥ 1.195

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for average electrolyte temperature.
- (c) Corrected for electrolyte temperature.
- (d) A battery charging current of < 3 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC electrical power distribution subsystem inoperable.	A.1 Restore AC electrical power distribution subsystem to OPERABLE status.	8 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
B. One AC instrument bus electrical power distribution subsystem inoperable.	B.1 Restore AC instrument bus electrical power distribution subsystem to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
C. One DC electrical power distribution subsystem inoperable.	C.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two electrical power distribution subsystems inoperable that result in a loss of safety function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 Verify correct breaker alignments and voltage to AC, DC, and AC instrument bus electrical power distribution subsystems.	7 days



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE NO. NPF-37,
AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE NO. NPF-66,
AMENDMENT NO. 104 TO FACILITY OPERATING LICENSE NO. NPF-72,
AND AMENDMENT NO. 104 TO FACILITY OPERATING LICENSE NO. NPF-77
COMMONWEALTH EDISON COMPANY
BYRON STATION, UNIT NOS. 1 AND 2
BRAIDWOOD STATION, UNIT NOS. 1 AND 2
DOCKET NOS. STN 50-454, STN 50-455, STN 50-456 AND STN 50-457

1.0 INTRODUCTION

By letter dated June 30, 1999, Commonwealth Edison Company (ComEd, the licensee) requested an amendment to Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2, and Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2. The amendments correct an oversight that occurred in Technical Specification (TS) 3.8.5, "DC Sources – Shutdown," during the implementation of the Improved Standard Technical Specification (iSTS).

Also included in the request are administrative changes to Braidwood's TSs to delete a number of references to AT&T batteries since all AT&T batteries have been replaced with batteries manufactured by Charter Power Systems, Inc. (C&D). The request also requested removal of the one-time Allowed Outage Time (AOT) extension approved for Braidwood in Amendment Nos. 99 and 99, because the activities addressed by those amendments (replacement of AT&T batteries) are complete.

2.0 BACKGROUND

During the implementation of the iSTS, an oversight occurred in Limiting Condition for Operation (LCO) 3.8.5, "DC Sources – Shutdown." The present LCO 3.8.5 requires two sources of DC power when required by LCO 3.8.10, "Distribution Systems – Shutdown"; however, neither source is permitted to be powered via the DC cross-tie breakers to the opposite unit. The requested change will permit the use of the DC cross-tie breakers to supply power from the operating unit to one DC bus of the other unit when in Mode 5, Mode 6, or during the movement of irradiated fuel assemblies.

The request also resolves an inconsistency between LCO 3.8.5 and LCO 3.8.4, Condition C. Condition C addresses "one DC electrical power division cross-tied to opposite unit DC electrical power subsystem with an inoperable source, while the opposite unit is in Mode 5, 6, or is defueled." This provision is included explicitly to accommodate maintenance and/or testing of the shutdown unit's DC subsystems.

ComEd replaced all AT&T round cell batteries at Braidwood with C&D batteries. Administrative changes are included in the request to delete various references to AT&T batteries in LCO 3.8.4, "DC Sources – Operating;" LCO 3.8.5, "DC Sources – Shutdown;" LCO 3.8.6, "Battery Cell Parameters;" and LCO 3.8.9, "Distribution Systems – Operating." Also included in the request is the removal of the AOT approved in TS Amendment Nos. 99 and 99 for Braidwood.

3.0 EVALUATION

3.1 DC Cross-Tie Breakers Between Units

The proposed TS change will allow one required source of DC for a unit in Mode 5, 6, or during the movement of irradiated fuel assemblies to be provided by the DC bus cross-tie from the opposite unit, or by the associated battery and either the associated charger or a temporary charger, or the associated charger alone. This change removes the requirement from LCO 3.8.5, Item b, to have at least one cross-tie breaker open. This cross-tie breaker requirement will now apply only to LCO 3.8.5, Item a.

The present TS 3.8.5, "DC Sources – Shutdown," of Byron and Braidwood, reads as follows:

3.8.5 DC Sources – Shutdown

LCO 3.8.5 The following shall be OPERABLE with at least one unit cross-tie breaker per division open:

- a. One DC electrical power subsystem capable of supplying one division of the onsite Class 1E DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution System – Shutdown"; and
- b. One source of DC electrical power, other than that required by LCO 3.8.5.a, capable of supplying the remaining onsite Class 1E DC electrical power distribution subsystem(s) when required by LCO 3.8.10.

The requested changes will read as follows:

LCO 3.8.5 The following shall be OPERABLE:

- a. One DC electrical power subsystem capable of supplying one division of the onsite Class 1E DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution System – Shutdown," with at least one unit cross-tie breaker open; and
- b. One source of DC electrical power, other than that required by LCO 3.8.5.a, capable of supplying the remaining onsite Class 1E DC electrical power distribution subsystem(s) when required by LCO 3.8.10.

The applicability, actions, and surveillance requirements will not change.

The licensee analyzed the impact of the change on the plant operation and summarized four cases:

- 3.1.1 Case 1: One unit shutdown in Mode 5, 6, or moving irradiated fuel assemblies, and the other unit is operating in Mode 1, 2, 3, or 4; and one of the shutdown unit's DC source becomes inoperable (maintenance or failure of the battery or the charger).

When the inoperable source is cross-tied to the opposite bus, the operating unit will be in LCO 3.8.4, condition C, and associated required action must be performed. Required action C.1 requires that the DC bus load of the opposite unit is verified to be equal or less than 200 amps once per 12 hours when the opposite unit has an inoperable battery. Required action C.2 is to "open at least one cross-tie breaker between the cross-tied divisions with a completion time of 7 days," and ensures that measures are being taken to restore the inoperable battery or battery charger.

If the DC bus on the shutdown unit that is cross-tied is the bus credited in LCO 3.8.5, Item a, the shutdown unit will be in LCO 3.8.5, Condition A, and the required actions must be performed. Action A.1 specifies that the shutdown unit either immediately declare the affected required feature(s) inoperable or immediately follow required actions A.2.1 – A.2.5 to suspend core alteration, suspend movement of irradiated fuel assemblies, initiate action to suspend positive reactivity additions, initiate action to restore required DC electrical power subsystems to operable status, and declare affected Low Temperature Overpressure Protection feature(s) inoperable. These actions minimize the probability of the occurrence of postulated events and ensure that actions are immediately taken to restore the DC power.

- 3.1.2 Case 2: Both units are shutdown and a shutdown unit's DC source (battery or charger) becomes inoperable (maintenance or failure).

When the bus with an inoperable source is cross-tied to the opposite unit, the requested TS change to LCO 3.8.5 will permit the continuation of evolutions of the shutdown unit with the inoperable source, as long as the cross-tied bus on the unit with the inoperable source is the

bus credited for LCO 3.8.5, Item b. The other shutdown unit will be in LCO 3.8.5, Condition B, with Required Action B.1 to verify the opposite unit's DC bus load is less than or equal to 200 amps once per 12 hours. Action B.1 is modified by a note stating that "only required when opposite unit has an inoperable battery." The load limit of 200 amps ensures that the unit specific DC subsystem will not be overloaded in the event of a concurrent event on both units.

LCO 3.8.5, Required Action B.2, requires the associated cross-tie breaker to be opened within 7 days so measures are taken to restore the inoperable battery charger to operable, and reestablish independence of the DC subsystems. These provisions exist in the present TS and existed in the TS prior to the conversion to the iSTS.

3.1.3 Case 3: One unit is shutdown in Mode 5, 6, or moving irradiated fuel assembly. The other unit is operating in Mode 1, 2, 3, or 4, and one of the operating unit battery chargers becomes inoperable (maintenance or failure).

In this case, the operating unit is in LCO 3.8.4, Condition A. Required Action A.1 allows the use of the cross-tie to the opposite unit within two hours to restore the electrical power to the affected division. Action A.2 requires the battery charger to be restored to OPERABLE within 24 hours. The two-hour time is adequate to evaluate the cause of the battery charger failure, to determine if the DC bus of the opposite unit is available for support, and to perform the cross-tie procedure. The 24 hours to limit the cross-tied condition is a reasonable time for repairs.

3.1.4 Case 4: Use of temporary battery charger in conjunction with the associated battery on a shutdown unit.

If the DC bus on the shutdown unit credited in LCO 3.8.5, Item b, is using a temporary charger, then shutdown unit evolutions may continue without restriction. If the DC bus on the shutdown unit credited in LCO 3.8.5, Item a, is using a temporary charger, then the shutdown unit will be in LCO 3.8.5, Condition A, as described above.

The staff agrees with the licensee's analysis of these four cases and finds that it demonstrates the acceptability of the proposed changes for various operational modes. In addition, the Byron and Braidwood Updated Final Safety Analysis Report, Section 8.3.2.1.1, states that the interconnection between each unit's Class 1E 125V DC systems via the cross-tie is limited by procedural and administrative controls. The criteria specifying the allowable combinations of maintenance and test operations are governed by the plant TS.

The cross-tie between the 125V DC ESF buses are each provided with two normally locked open, manually operated circuit breakers. No interlocks are provided since the interconnected buses are not redundant. The cross-tie load is limited to 200 amps and the breakers are coordinated with the DC bus main breakers to assure that due to a fault the cross-tie will be isolated. The cross-tie breaker "closed" is alarmed to alert the operator when the units are cross-tied.

The TSs in effect prior to the implementation of the iSTS, LCO 3/4.8.2.1, "DC Sources – Operating," and LCO 3/4.8.2.2, "DC Sources – Shutdown," allowed operation as proposed by this change. Previously, LCO 3/4.8.2.2, required only one DC bus on a shutdown unit to be

operable with the associated DC bus cross-ties open. The operation with a DC cross-tie closed is within the design bases of Byron and Braidwood Stations and maintains the ability to mitigate the consequences of any accident or transient. The limitation not to use the cross-tie during shutdown conditions was an oversight during the conversion to the iSTS.

Based on the design and proposed operation of the cross-tie feature, the staff concludes that this change is acceptable.

3.2 References to AT&T Round Cell Batteries

At Braidwood, ComEd had installed AT&T round cell high-specific gravity-type batteries, which exhibited loss of capacity when discharged and recharged. The licensee replaced the AT&T batteries with C&D batteries, and requested that all references to AT&T batteries in TS Section 3.8, "Electrical Power Systems," be deleted. This is considered an administrative change and is acceptable.

3.3 Allowed Outage Time Extension

By license Amendment Nos. 99 and 99, the licensee was allowed a 10-day completion time for replacement of the AT&T batteries at Braidwood Unit 2. This activity is complete and, therefore, the deletion of required action C.2 in LCO 3.8.9, "Distribution Systems – Operating," is acceptable.

3.4 Other Administrative Changes

The following TS administrative changes are also included in the licensee's request:

- a. In LCO 3.8.4, "Required Action C.1," and in LCO 3.8.5, "Required Action B.1," the change deletes " ≤ 100 amps for AT&T (≤ 200 amps for C&D)" and is replaced by " ≤ 200 amps."
- b. In LCO 3.8.4, Condition D is deleted, Condition E is renumbered to Condition D, and Condition F is renumbered to Condition E. Whenever Conditions are renumbered, the associated Required Actions are also renumbered.
- c. In Surveillance Requirements 3.8.4.1, 3.8.4.7, and 3.8.4.8, and Table 3.8.6-1, "Battery Cell Parameters Requirements," references to AT&T and C&D are deleted.

The staff agrees that these changes are appropriate since AT&T batteries are no longer installed at Braidwood, and the changes, therefore, are acceptable.

4.0 SUMMARY

The staff has reviewed the licensee's requests for TS changes to the requirements related to the cross-tie of DC buses, and several administrative changes. The proposed changes are acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (64 FR 43767). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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