December 12, 1986

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

Mr. D. L. Farrar
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Dear Mr. Farrar:

The Commission has issued the enclosed Amendment Nos. 5 to Facility Operating License Nos. NPF-37 and NPF-60 for Byron Station , Units 1 and 2, respectively. The amendment consists of changes to the Technical Specifications in response to your applications transmitted by letters dated August 13, 1986 and August 27, 1986.

This amendment replaces "86% of total volume" with "50%" for the water level in the ultimate heat sink cooling tower basin and permits a crosstie between the Unit 1 and Unit 2 Class IE 125-Vdc buses under limiting conditions for operation.

In addition, this amendment deletes pages 3/4 8-9a and 6-5a which, as indicated by the footnotes on these pages, are no longer effective. Page 3/4 8-9a was effective until two years after the issuance of an operating license for Unit 1; thus, it lost its effectiveness on October 31, 1986. Page 6-5a was effective until Unit 2 received an operating license; thus, on November 6, 1986 page 6-5a lost its effectiveness and page 6-5 became effective in its place.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

Leonard N. Olshan, Project Manager
PWR Project Directorate #3
Division of PWR Licensing-A, NRR

Enclosures:
1. Amendment No. 5 to NPF-37 and NPF-60
2. Safety Evaluation

cc: w/enclosures
See next page

PD#3	PD#3	OGC	PD#3
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12/4/86	12/4/86	12/10/86	12/12/86

12/12/86

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-454

BYRON STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.5
License Nos. NPF-37

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Commonwealth Edison Company (the licensee) dated August 13, 1986 and August 27, 1986 comply 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 applications, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 5, and the Environment 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Director
PWR Project Directorate #3
Division of PWR Licensing-A, NRR

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 12, 1986

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. STN 50-455

BYRON STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.5
License No. NPF-60

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Commonwealth Edison Company (the licensee) dated August 13, 1986 and August 27, 1986 comply 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 applications, 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-60 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A (NUREG-1113), as revised through Amendment No. 5, 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 revisions to Appendix A which 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Director
PWR Project Directorate #3
Division of PWR Licensing-A, NRR

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 12, 1986

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 5 FACILITY OPERATING LICENSE NOS. NPF-37 and NPF-60

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

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 7-13	3/4 7-13
3/4 7-14	3/4 7-14
3/4 8-9a	--
3/4 8-10	3/4 8-10
3/4 8-11	3/4 8-11
--	3/4 8-11a
3/4 8-12	3/4 8-12*
3/4 8-13	3/4 8-13
3/4 8-14	3/4 8-14*
6-5a	--

* Overleaf pages added for convenience

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 screenhouse, 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.

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.

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.

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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 5 TO FACILITY OPERATING LICENSE NOS. NPF-37 and NPF-60

COMMONWEALTH EDISON COMPANY

BYRON STATION, UNITS 1 AND 2

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

1.0 INTRODUCTION

By applications dated August 13, 1986 and August 27, 1986, Commonwealth Edison (licensee) requested amendments to the Technical Specifications for Byron Station, Units 1 and 2. The August 13, 1986 application requested that "86% of total volume" be replaced by "50%" for the water level in the ultimate heat sink cooling tower basin. The August 27, 1986 application requested an amendment that would permit a crosstie between Units 1 and 2 Class IE 125-Vdc buses under limiting conditions for operation.

2.0 DISCUSSION AND EVALUATION

2.1 Cooling Tower Basin Level

The licensee intends to increase the physical water level in the cooling tower basin to provide more margin to the low level at which the essential service water diesel driven pumps receive an auto start signal. The increased level is above the range of the existing instrument. The licensee intends to replace this instrument with an instrument with greater range; 86% on the old instrument corresponds exactly with 50% on the new instrument. Thus, the minimum water level in the basin is not being changed by this amendment. Therefore, we find this change acceptable.

2.2 DC Crosstie

Unit 1 and Unit 2 each have two Class 1E 125-Vdc buses which meet the capability, independence, redundancy and testability requirements of GDC 17 and 18 of 10 CFR 50, Appendix A. The present Technical Specifications are applicable to single unit (Unit 1) operation. If one of the 125-Vdc buses is inoperable (LCO 3.8.2.1), the following Action statements apply:

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 unit's 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.

For two unit operation, the licensee proposes to add the following Action statements:

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.

The following surveillance requirement would also be added:

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.

The licensee summarizes the effect of the Technical Specification changes as follows:

1. With both units operating and one battery charger fails, the D.C. crosstie may be used for up to 24 hours to maintain the D.C. bus in an operable status while the battery charger is being repaired.

2. With one unit operating and the other unit shutdown with a battery and its associated battery charger out of service, the D.C. crosstie may be used for up to 7 days to maintain the D.C. bus in an operable status.

The licensee explains that, for the first situation each battery will be connected to its bus and one battery charger will serve both buses. For this situation, use of the D.C. crosstie will not exceed the design parameters of the D.C. system.

For the second situation, the battery charger and battery of the operable D.C. bus will supply both buses. However, the D.C. crosstie will be limited to 63 amps so as not to exceed the capacity of the operable battery.

The licensee states that the D.C. bus loading, when using the crosstie, will be restricted so that the capacity of the operating unit's battery will not be exceeded in the event of a single failure and simultaneous accident and loss of offsite power conditions. These were the conditions assumed for a D.C. bus in previously evaluated accidents, thus the probability or consequences of accidents previously evaluated are not changed by the proposed Technical Specification changes.

The staff made further inquiries by telephone as to the adequacy of one battery charger to supply the normal loads of both D.C. buses simultaneously. The licensee stated that the battery charger has a nominal capability of 400 amperes and a 10 percent overload capability whereas the normal load on each D.C. bus would be less than 100 amperes. Thus, if the battery charger is operable, there would be no net drain on the battery during non-emergency conditions. Further, the licensee advised that a battery charger failure would be immediately detectable through a low voltage relay on the D.C. bus and various alarm relays on the charger. Under this condition, the Technical Specifications would require the battery charger to be restored to OPERABLE status within two hours or actions taken to achieve Hot Standby within the next 6 hours and Cold Shutdown within the following 30 hours.

The licensee also notes that a fault on one of the D.C. buses, during the time that the two buses are crosstied, will not cascade to the other bus because a breaker exists on either side of the crosstie and these breakers are coordinated with the D.C. bus main breakers to assure that the crosstie will isolate before the battery would be isolated.

The staff notes that the existing Technical Specifications require extensive testing on a 7 day cycle to assure that each D.C. bus, battery bank and associated charger is operable. Also, power failure and undervoltage alarms would readily alert the operators to any absolute failure of a D.C. bus or A.C. power supply to the battery charger. Thus, the possibility of an undetected inoperability of a D.C. bus is remote. Such inoperability could be significant if the bus was thought to be operable and was then crosstied as the power source to a D.C. bus that was known to be inoperable.

The staff also notes that loss of all offsite power will not directly affect the D.C. buses or the battery charges to the D.C. batteries because the diesel generators would be available to supply D.C. power to the battery charges.

Our evaluation has disclosed no conditions resulting from the crosstie operation under the Technical Specification changes that would significantly impact the capability, independence, redundancy and testability requirements of GDC 17 and 18 of 10 CFR 50, Appendix A. Similarly, our evaluation has disclosed no conditions that would significantly impact the health and safety of the public. We therefore find the licensee's proposed Technical Specification changes to be acceptable.

ENVIRONMENTAL CONSIDERATION

These amendments involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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 this amendment.

CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: December 12, 1986

PRINCIPAL CONTRIBUTORS:

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