

June 2, 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. MA5020, MA5021, MA5022 AND MA5023 )

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 109 to Facility Operating License No. NPF-37 and Amendment No. 109 to Facility Operating License No. NPF-66 for the Byron Station, Unit Nos. 1 and 2, respectively, and Amendment No. 102 to Facility Operating License No. NPF-72 and Amendment No. 102 to Facility Operating License No. NPF-77 for the Braidwood Station, Unit Nos. 1 and 2, respectively. The amendments are in response to your application dated March 22, 1999.

The amendments revise technical specification 3.9.3 relating to the use of Gamma-Metrics post accident source range neutron flux monitors as an alternative to the Westinghouse source range neutron flux monitors during Mode 6 operations (refueling).

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

John B. Hickman, 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. 109 to NPF-37
- 2. Amendment No. 109 to NPF-66
- 3. Amendment No. 102 to NPF-72
- 4. Amendment No. 102 to NPF-77
- 5. Safety Evaluation

**DISTRIBUTION:** Docket 1/1  
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 OGC, O15B18 J. Hickman  
 W. Beckner, O13H15 J. Calvo  
 C. Norsworthy (RCN)  
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UP-1

O. Kingsley  
Commonwealth Edison Company

cc:

Ms. C. Sue Hauser, Project Manager  
Westinghouse Electric Corporation  
Energy Systems Business Unit  
Post Office Box 355  
Pittsburgh, Pennsylvania 15230

Joseph Gallo  
Gallo & Ross  
1025 Connecticut Ave., N.W., Suite 1014  
Washington, DC 20036

Howard A. Learner  
Environmental law and Policy  
Center of the Midwest  
35 East Wacker Dr., Suite 1300  
Chicago, Illinois 60601

U.S. Nuclear Regulatory Commission  
Byron Resident Inspectors Office  
4448 N. German Church Road  
Byron, Illinois 61010-9750

Regional Administrator, Region III  
U.S. Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Ms. Lorraine Creek  
RR 1, Box 182  
Manteno, Illinois 60950

Chairman, Ogle County Board  
Post Office Box 357  
Oregon, Illinois 61061

Mrs. Phillip B. Johnson  
1907 Stratford Lane  
Rockford, Illinois 61107

George L. Edgar  
Morgan, Lewis and Bochius  
1800 M Street, N.W.  
Washington, DC 20036

Byron/Braidwood Stations

Attorney General  
500 S. Second Street  
Springfield, Illinois 62701

Illinois Department of Nuclear Safety  
Office of Nuclear Facility Safety  
1035 Outer Park Drive  
Springfield, Illinois 62704

Commonwealth Edison Company  
Byron Station Manager  
4450 N. German Church Road  
Byron, Illinois 61010-9794

Commonwealth Edison Company  
Site Vice President - Byron  
4450 N. German Church Road  
Byron, Illinois 61010-9794

U.S. Nuclear Regulatory Commission  
Braidwood Resident Inspectors Office  
RR 1, Box 79  
Braceville, Illinois 60407

Mr. Ron Stephens  
Illinois Emergency Services  
and Disaster Agency  
110 E. Adams Street  
Springfield, Illinois 62706

Chairman  
Will County Board of Supervisors  
Will County Board Courthouse  
Joliet, Illinois 60434

Commonwealth Edison Company  
Braidwood Station Manager  
RR 1, Box 84  
Braceville, Illinois 60407-9619

O. Kingsley  
Commonwealth Edison Company

- 2 -

Byron/Braidwood Stations

Ms. Bridget Little Rorem  
Appleseed Coordinator  
117 N. Linden Street  
Essex, Illinois 60935

Commonwealth Edison Company  
Reg. Assurance Supervisor - Braidwood  
RR 1, Box 84  
Braceville, Illinois 60407-9619

Document Control Desk-Licensing  
Commonwealth Edison Company  
1400 Opus Place, Suite 400  
Downers Grove, Illinois 60515

Commonwealth Edison Company  
Reg. Assurance Supervisor - Byron  
4450 N. German Church Road  
Byron, Illinois 61010-9794

Commonwealth Edison Company  
Site Vice President - Braidwood  
RR 1, Box 84  
Braceville, Illinois 60407-9619

Ms. Pamela B. Stroebel  
Senior Vice President and General Counsel  
Commonwealth Edison Company  
P.O. Box 767  
Chicago, Illinois 60690-0767

Mr. David Helwig  
Senior Vice President  
Commonwealth Edison Company  
Executive Towers West III  
1400 Opus Place, Suite 900  
Downers Grove, Illinois 60515

Mr. Gene H. Stanley  
PWR Vice President  
Commonwealth Edison Company  
Executive Towers West III  
1400 Opus Place, Suite 900  
Downers Grove, Illinois 60515

Mr. Christopher Crane  
BWR Vice President  
Commonwealth Edison Company  
Executive Towers West III  
1400 Opus Place, Suite 900  
Downers Grove, Illinois 60515

Mr. R. M. Krich  
Vice President - Regulatory Services  
Commonwealth Edison Company  
Executive Towers West III  
1400 Opus Place, Suite 500  
Downers Grove, Illinois 60515



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. 109  
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 March 22, 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:

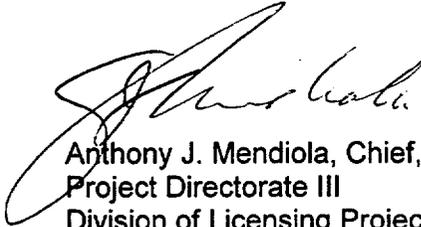
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(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 109 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: June 2, 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. 109  
License No. NPF-66

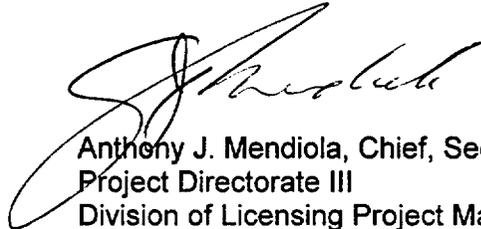
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Commonwealth Edison Company (the licensee) dated March 22, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules 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. 109 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: June 2, 1999

ATTACHMENT TO LICENSE AMENDMENT NOS. 109 AND 109

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 pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

Remove Pages

3.9.3-1  
B 3.9.3-1  
B 3.9.3-2  
B 3.9.3-3  
B 3.9.3-4

Insert Pages

3.9.3-1  
B 3.9.3-1  
B 3.9.3-2  
B 3.9.3-3  
B 3.9.3-4

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODF 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> A.2 Suspend positive reactivity additions.	Immediately
B. Two required source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	<u>AND</u> B.2 Perform SR 3.9:1.1.	Once per 12 hours

## B 3.9 REFUELING OPERATIONS

### B 3.9.3 Nuclear Instrumentation

#### BASES

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#### BACKGROUND

The source range neutron flux monitors are used during refueling operations to monitor the core reactivity condition. The installed source range neutron flux monitors are part of the Nuclear Instrumentation System (NIS). These detectors are located external to the reactor vessel and detect neutrons leaking from the core. The use of portable detectors is permitted, provided the LCO requirements are met.

The installed Westinghouse source range neutron flux monitors are boron trifluoride detectors operating in the proportional region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades (1 to  $1E+6$  cps) (Ref. 1). The installed source range Gamma-Metrics post accident neutron flux monitors are enriched U-235 fission chambers operating in the ion chamber region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades (0.1 to  $1E+5$  cps). The detectors also provide continuous visual indication in the control room to alert operators to a possible dilution accident. The NIS is designed in accordance with the criteria presented in Reference 2. If used, portable detectors must be functionally equivalent to the installed NIS source range monitors. While multiple source range neutron flux monitors are available (i.e., four installed monitors and the potential for the use of portable detectors), only two source range neutron flux monitors are required to be OPERABLE.

BASES

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APPLICABLE  
SAFETY ANALYSES

Two OPERABLE source range neutron flux monitors are required to provide a signal to alert the operator to unexpected changes in core reactivity such as with a boron dilution accident (Ref. 3) or an improperly loaded fuel assembly. The need for a safety analysis for an uncontrolled boron dilution accident is eliminated by isolating all unborated water sources as required by LCO 3.9.2, "Unborated Water Source Isolation Valves."

The source range neutron flux monitors have no safety function in MODE 6 and are not assumed to function during any UFSAR design basis accident or transient. The source range neutron flux monitors provide the only on-scale monitoring of the neutron flux level during refueling. Therefore, they are being retained in the Technical Specifications.

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LCO

This LCO requires that two source range neutron flux monitors be OPERABLE to ensure that redundant monitoring capability is available to detect changes in core reactivity. To be OPERABLE, each monitor must provide visual indication.

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APPLICABILITY

In MODE 6, two source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODE 2 below the intermediate range neutron flux interlock setpoint (P-6), and in MODES 3, 4, and 5 with the Rod Control System capable of rod withdrawal or with all rods not fully inserted, the installed Westinghouse source range neutron flux monitors are required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation."

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BASES

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ACTIONS

A.1 and A.2

With only one required source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, CORE ALTERATIONS and positive reactivity additions must be suspended immediately. Performance of Required Action A.1 or A.2 shall not preclude completion of movement of a component to a safe position or normal heatup/cooldown of the coolant volume for the purpose of system temperature control.

B.1 and B.2

With no required source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. Therefore, action to restore a monitor to OPERABLE status shall be initiated immediately and continued until a source range neutron flux monitor is restored to OPERABLE status.

Since CORE ALTERATIONS and positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of once per 12 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration and ensures that unplanned changes in boron concentration would be identified. The 12 hour Frequency is reasonable, considering the low probability of a change in core reactivity during this time period.

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.9.3.1

SR 3.9.3.1 is the performance of a CHANNEL CHECK, which is a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that the two indication channels should be consistent with core conditions. Changes in fuel loading and core geometry can result in significant differences between source range channels, but each channel should be consistent with its local conditions.

The Frequency of 12 hours is consistent with the CHANNEL CHECK Frequency specified similarly for the same instruments in LCO 3.3.1.

SR 3.9.3.2

SR 3.9.3.2 is the performance of a CHANNEL CALIBRATION every 18 months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the source range neutron flux monitors consists of obtaining the detector discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

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REFERENCES

1. UFSAR, Table 7.5-2.
2. 10 CFR 50, Appendix A, GDC 13, GDC 26, GDC 28, and GDC 29.
3. UFSAR, Section 15.4.6.



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. 102  
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 March 22, 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:

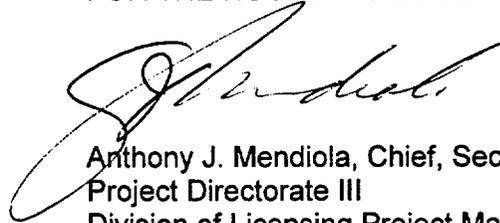
9906080064 990602  
PDR ADOCK 05000454  
P PDR

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 102 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: June 2, 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. 102  
License No. NPF-77

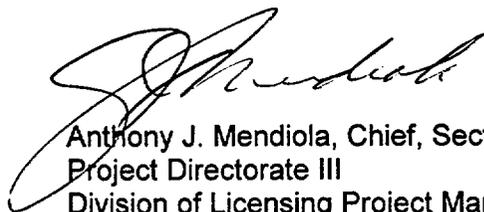
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Commonwealth Edison Company (the licensee) dated March 22, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules 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. 102 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: June 2, 1999

ATTACHMENT TO LICENSE AMENDMENT NOS. 102 AND 102

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 area of change.

Remove Pages

3.9.3-1  
B 3.9.3-1  
B 3.9.3-2  
B 3.9.3-3  
B 3.9.3-4

Insert Pages

3.9.3-1  
B 3.9.3-1  
B 3.9.3-2  
B 3.9.3-3  
B 3.9.3-4

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> A.2 Suspend positive reactivity additions.	Immediately
B. Two required source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	<u>AND</u> B.2 Perform SR 3.9.1.1.	Once per 12 hours

## B 3.9 REFUELING OPERATIONS

### B 3.9.3 Nuclear Instrumentation

#### BASES

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##### BACKGROUND

The source range neutron flux monitors are used during refueling operations to monitor the core reactivity condition. The installed source range neutron flux monitors are part of the Nuclear Instrumentation System (NIS). These detectors are located external to the reactor vessel and detect neutrons leaking from the core. The use of portable detectors is permitted, provided the LCO requirements are met.

The installed Westinghouse source range neutron flux monitors are boron trifluoride detectors operating in the proportional region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades (1 to  $1E+6$  cps) (Ref. 1). The installed source range Gamma-Metrics post accident neutron flux monitors are enriched U-235 fission chambers operating in the ion chamber region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades (0.1 to  $1E+5$  cps). The detectors also provide continuous visual indication in the control room to alert operators to a possible dilution accident. The NIS is designed in accordance with the criteria presented in Reference 2. If used, portable detectors must be functionally equivalent to the installed NIS source range monitors. While multiple source range neutron flux monitors are available (i.e., four installed monitors and the potential for the use of portable detectors), only two source range neutron flux monitors are required to be OPERABLE.

BASES

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APPLICABLE  
SAFETY ANALYSES

Two OPERABLE source range neutron flux monitors are required to provide a signal to alert the operator to unexpected changes in core reactivity such as with a boron dilution accident (Ref. 3) or an improperly loaded fuel assembly. The need for a safety analysis for an uncontrolled boron dilution accident is eliminated by isolating all unborated water sources as required by LCO 3.9.2, "Unborated Water Source Isolation Valves."

The source range neutron flux monitors have no safety function in MODE 6 and are not assumed to function during any UFSAR design basis accident or transient. The source range neutron flux monitors provide the only on-scale monitoring of the neutron flux level during refueling. Therefore, they are being retained in the Technical Specifications.

---

LCO

This LCO requires that two source range neutron flux monitors be OPERABLE to ensure that redundant monitoring capability is available to detect changes in core reactivity. To be OPERABLE, each monitor must provide visual indication.

---

APPLICABILITY

In MODE 6, two source range neutron flux monitors must be OPERABLE to determine changes in core reactivity. There are no other direct means available to check core reactivity levels. In MODE 2 below the intermediate range neutron flux interlock setpoint (P-6), and in MODES 3, 4, and 5 with the Rod Control System capable of rod withdrawal or with all rods not fully inserted, the installed Westinghouse source range neutron flux monitors are required to be OPERABLE by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation."

---

BASES

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ACTIONS

A.1 and A.2

With only one required source range neutron flux monitor OPERABLE, redundancy has been lost. Since these instruments are the only direct means of monitoring core reactivity conditions, CORE ALTERATIONS and positive reactivity additions must be suspended immediately. Performance of Required Action A.1 or A.2 shall not preclude completion of movement of a component to a safe position or normal heatup/cooldown of the coolant volume for the purpose of system temperature control.

B.1 and B.2

With no required source range neutron flux monitor OPERABLE, there are no direct means of detecting changes in core reactivity. Therefore, action to restore a monitor to OPERABLE status shall be initiated immediately and continued until a source range neutron flux monitor is restored to OPERABLE status.

Since CORE ALTERATIONS and positive reactivity additions are not to be made, the core reactivity condition is stabilized until the source range neutron flux monitors are OPERABLE. This stabilized condition is determined by performing SR 3.9.1.1 to ensure that the required boron concentration exists.

The Completion Time of once per 12 hours is sufficient to obtain and analyze a reactor coolant sample for boron concentration and ensures that unplanned changes in boron concentration would be identified. The 12 hour Frequency is reasonable, considering the low probability of a change in core reactivity during this time period.

BASES

---

SURVEILLANCE  
REQUIREMENTS

SR 3.9.3.1

SR 3.9.3.1 is the performance of a CHANNEL CHECK, which is a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that the two indication channels should be consistent with core conditions. Changes in fuel loading and core geometry can result in significant differences between source range channels, but each channel should be consistent with its local conditions.

The Frequency of 12 hours is consistent with the CHANNEL CHECK Frequency specified similarly for the same instruments in LCO 3.3.1.

SR 3.9.3.2

SR 3.9.3.2 is the performance of a CHANNEL CALIBRATION every 18 months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the source range neutron flux monitors consists of obtaining the detector discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage. Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

---

REFERENCES

1. UFSAR, Table 7.5-2.
2. 10 CFR 50, Appendix A, GDC 13, GDC 26, GDC 28, and GDC 29.
3. UFSAR, Section 15.4.6.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NO. NPF-37,  
AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NO. NPF-66,  
AMENDMENT NO. 102 TO FACILITY OPERATING LICENSE NO. NPF-72,  
AND AMENDMENT NO. 102 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 March 22, 1999, Commonwealth Edison Company (ComEd, the licensee) requested Technical Specification (TS) changes to permit the use of the Gamma-Metrics Post Accident Neutron Monitors (PANMs) source range neutron flux detectors in addition to the Westinghouse source range neutron flux monitors to satisfy the TS 3.9.3 Limiting Condition for Operation (LCO) which requires two source range neutron flux monitors be operable during Mode 6 operations (refueling). Specifically, the proposed change would modify TS 3.9.3, "REFUELING OPERATIONS, Nuclear Instrumentation," to insert the word "required" into Conditions A. and B. Condition A would now state: "One required source range neutron flux monitor inoperable." Condition B would now state: "Two required source range neutron flux monitors inoperable."

NUREG-1431, Revision 1, "Standard Technical Specifications Westinghouse Plants," dated April 1995, included use of the word "required" as an option for plants with more than the TS required minimum number of source range neutron flux monitors.

2.0 EVALUATION

During refueling (Mode 6), two operable source range monitors are required to provide redundancy during fuel movement or other actions that may cause positive reactivity changes, including removal of upper internal components. The proposed change would permit the use of either the Gamma-Metrics PANM or the Westinghouse Boron Trifluoride (BF<sub>3</sub>) Proportional Counter neutron flux monitors.

The Gamma-Metrics PANM source range monitor is an enriched U-235 fission chamber detector which has a sensitivity of four cps/neutron-volts (cps/nv) for thermal neutrons and a

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sensitivity of two cps/nv for fast neutrons. The Westinghouse (BF<sub>3</sub>) source range monitor, on the other hand, has a sensitivity of 13 cps/nv. The Gamma-Metrics PANM source range monitor has a comparable range and accuracy (1 E-1 to 1 E+5 cps with an accuracy of 2 percent of full scale) to that of the Westinghouse (BF<sub>3</sub>) source range monitor (1 E 0 cps to 1 E+6 cps with an accuracy of 3 percent of full scale). Although the Gamma-Metrics PANM source range neutron flux monitors do not have the ability to provide audible count rate indication, the current TS do not require audible count rate indication in the containment and the control room during operational Mode 6. Both monitors satisfy the TS Bases background information of six decades of indication. Each portion of the Westinghouse source range neutron flux monitors has two trains, each is assigned to an independent engineered safeguards features (ESF) division. These trains are physically and electrically separated in accordance with applicable IEEE Standards. Each portion of the Gamma-Metrics PANM instrumentation has two trains, each assigned to an ESF division. These trains are physically and electrically separated in accordance with applicable IEEE Standards. The Westinghouse and Gamma-Metrics PANM source range neutron flux monitors are functionally equivalent and both are Safety Category I (Class 1E) systems. Based on the above, the proposed change will maintain two BF<sub>3</sub> SR monitors for visually monitoring core reactivity as currently discussed in the Bases for the affected TS.

The licensee did not propose any changes to the current TS Required Action(s), Completion Time(s), Surveillance(s), or Surveillance Frequency(ies). As such, the licensee will be required to perform applicable surveillances to ensure that the Gamma-Metrics PANM source range neutron flux monitors meet the same operability requirements as the Westinghouse source range neutron flux monitors.

Although both the Westinghouse and Gamma-Metrics PANM source range neutron flux monitors provide visual indication in the control room, this proposed change to the TS would result in a reduction in the alarming capabilities since the PANM source range monitor does not have this capability. However, there are no specific requirements to have or maintain operability of alarming capability. The primary safety function of the source range monitors while shut down is to notify the operators of, and initiate compensatory actions for, inadvertent boron dilution. However, dilution during Refueling Mode has been precluded through administrative control of the valves in the possible dilution flow paths. Therefore, this loss of redundancy is not considered to result in significant safety concerns.

Based on the above, the staff considers the proposed changes to TSs to be acceptable.

### 3.0 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.

### 4.0 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 14944). 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.

#### 5.0 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.

Principal Contributor: John B. Hickman

Date: June 2, 1999