(33)

September 7, 1988

Docket Nos. 50-373 and 50-374

Distribution:
Dockets
NRC & Local PDRs
PDIII-2 r/f
DMuller
LLuther
PShemanski
JStevens
OGC-Rockville
GHolahan
D. Hagan
E. Jordan
B. Grimes
T. Barnhardt (8)
EButcher
ACRS (10)
GPA/PA
ARM/LFMB
PDIII-2 Plant

Mr. Henry E. Bliss
Nuclear Licensing Manager
Commonwealth Edison Company
P.O. Box 767
Chicago, Illinois 60609

Dear Mr. Bliss:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 60 AND 40 TO FACILITY OPERATING LICENSES NPF-11 AND NO. NPF-18 - LASALLE COUNTY STATION, UNITS 1 AND 2 (TAC NOS. 67958 AND 67959)

The U. S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. NPF-11 and Amendment No. 40 to Facility Operating License NPF-18 for the LaSalle County Station, Units 1 and 2. These amendments are in response to your letter dated April 26, 1988 supplemented May 31, 1988.

The amendments revise the LaSalle County Station, Units 1 and 2 Technical Specifications by providing additional requirements for monitoring core performance and other actions to be taken by the reactor operator in the high power/low flow region of the power to flow map.

A copy of the related Safety Evaluation supporting Amendment No. 60 to Facility Operating License Nos. NPF-11 and Amendment No. 40 to Facility Operating License No. NPF-18 is enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Paul Shemanski

Paul Shemanski, Project Manager
Project Directorate III-2
Division of Reactor Projects - III
IV, V and Special Projects

Enclosures:
1. Amendment No. 60 to License No. NPF-11
2. Amendment No. 40 to License No. NPF-18
3. Safety Evaluation

cc w/enclosures:
See next page

P.S. PDIII-2:PM	PDIII-2:LA	PDIII-2:PD	OGC
PShemanski	LLuther	DMuller	srl
8/30/88	8/30/88	8/30/88	9/1/88

DF01 1/1

8809190032 880907
PDR ADOCK 05000373
P PDC

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

September 7, 1988

Docket Nos. 50-373 and 50-374

Mr. Henry E. Bliss
Nuclear Licensing Manager
Commonwealth Edison Company
P.O. Box 767
Chicago, Illinois 60609

Dear Mr. Bliss:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 60 AND 40 TO FACILITY OPERATING LICENSES NPF-11 AND NO. NPF-18 - LASALLE COUNTY STATION, UNITS 1 AND 2 (TAC NOS. 67958 AND 67959)

The U. S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 60 to Facility Operating License No. NPF-11 and Amendment No. 40 to Facility Operating License NPF-18 for the LaSalle County Station, Units 1 and 2. These amendments are in response to your letter dated April 26, 1988 supplemented May 31, 1988.

The amendments revise the LaSalle County Station, Units 1 and 2 Technical Specifications by providing additional requirements for monitoring core performance and other actions to be taken by the reactor operator in the high power/low flow region of the power to flow map.

A copy of the related Safety Evaluation supporting Amendment No. 60 to Facility Operating License Nos. NPF-11 and Amendment No. 40 to Facility Operating License No. NPF-18 is enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Paul S Shemanski

Paul Shemanski, Project Manager
Project Directorate III-2
Division of Reactor Projects - III
IV, V and Special Projects

Enclosures:
1. Amendment No. 60 to License No. NPF-11
2. Amendment No. 40 to License No. NPF-18
3. Safety Evaluation

cc w/enclosures:
See next page

Mr. Henry E. Bliss
Commonwealth Edison Company

LaSalle County Nuclear Power Station
Units 1 & 2

cc:

Philip P. Steptoe, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60603

Assistant Attorney General
100 West Randolph Street
Suite 12
Chicago, Illinois 60601

Resident Inspector/LaSalle, NPS
U.S. Nuclear Regulatory Commission
Rural Route No. 1
P. O. Box 224
Marseilles, Illinois 61341

Chairman
LaSalle County Board of Supervisors
LaSalle County Courthouse
Ottawa, Illinois 61350

Attorney General
500 South 2nd Street
Springfield, Illinois 62701

Chairman
Illinois Commerce Commission
Leland Building
527 East Capitol Avenue
Springfield, Illinois 62706

Mr. Michael C. Parker, Chief
Division of Engineering
Illinois Department of Nuclear Safety
1035 Outer Park Drive, 5th Floor
Springfield, Illinois 62704

Regional Administrator, Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road, Bldg. #4
Glen Ellyn, Illinois 60137

John W. McCaffrey
Chief, Public Utilities Division
SOIC
100 West Randolph Street
Chicago, Illinois 60601

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 60
License No. NPF-11

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

   A. The application for amendment filed by the Commonwealth Edison Company (the licensee), dated April 26, 1988 supplemented May 31, 1988 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 removing License Condition 2.C.(34) which is obsolete and by changes to the Technical Specifications as indicated in the enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-11 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 60 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective on the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Daniel R. Muller

Daniel R. Muller, Director
Project Directorate III-
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: September 7, 1988

ENCLOSURE TO LICENSE AMENDMENT NO. 60

FACILITY OPERATING LICENSE NO. NPF-11

DOCKET NO. 50-373

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment No. 60 and contain a vertical line indicating the area of change.

REMOVE	INSERT
VI	VI
XIX	XIX
3/4 4-1	3/4 4-1
3/4 4-1a	3/4 4-1a
3/4 4-1b	3/4 4-1b
- - -	3/4 4-4a
- - -	3/4 4-4b
- - -	3/4 4-4c
B 3/4 4-1	B 3/4 4-1
B 3/4 4-2	B 3/4 4-2
----	B 3/4 4-2a

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

LIST OF FIGURES

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

RECIRCULATION LOOPS

LIMITING CONDITION FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2

ACTION

a. With only one (1) reactor coolant system recirculation loop in operation, comply with Specification 3.4.1.5 and:

   1. Within four (4) hours:

      a) Place the recirculation flow control system in the Master Manual mode or lower, and

      b) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit by 0.01 to 1.08 per Specification 2.1.2, and

      c) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Limiting Condition for Operation by 0.01 per Specification 3.2.3, and,

      d) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block and Rod Block Monitor Trip Setpoints and Allowable Values to those applicable to single recirculation loop operation per Specifications 2.2.1, 3.2.2, and 3.3.6.

   2. The provisions of Specification 3.0.4 are not applicable.

   3. Otherwise, be in at least HOT SHUTDOWN within the next twelve (12) hours.

b. With no reactor coolant recirculation loops in operation:

   1. Take the ACTION required by Specification 3.4.1.5, and

   2. Be in at least HOT SHUTDOWN within the next six (6) hours.

SURVEILLANCE REQUIREMENTS

4.4.1.1 Each reactor coolant system recirculation loop flow control valve shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that the control valve fails "as is" on loss of hydraulic pressure at the hydraulic power units, and

b. Verifying that the average rate of control valve movement is:

   1. Less than or equal to 11% of stroke per second opening, and

   2. Less than or equal to 11% of stroke per second closing.

THIS PAGE INTENTIONALLY LEFT BLANK

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

THERMAL HYDRAULIC STABILITY

LIMITING CONDITION FOR OPERATION

3.4.1.5 Forced core circulation shall be maintained with:

a. Total core flow greater than or equal to 45% of rated core flow, or

b. THERMAL POWER within Region III of Figure 3.4.1.5-1, or

c. THERMAL POWER within Region II of Figure 3.4.1.5-1 AND APRM and LPRM noise levels not exceeding the larger of: i) Three (3) times the established baseline noise levels or, ii) 10% peak-to-peak indicated noise level.

APPLICABILITY: OPERATIONAL CONDITION 1

ACTION

a. In Region I of Figure 3.4.1.5-1:

1. With at least 1 reactor coolant recirculation loop in operation immediately initiate action to:

   a) Decrease THERMAL POWER by control rod insertion, completing the power decrease within two (2) hours to exit Region I or,

   b) Increase core flow with the operating Recirculation Loop(s), to exit Region I within two (2) hours.

2. With no reactor coolant recirculation loops in operation:

   a) Immediately reduce CORE THERMAL POWER by inserting control rods, observing the indicated APRM and LPRM noise levels, and complete power reduction to below 36% of RATED CORE THERMAL POWER within two (2) hours, and

   b) If indicated LPRM or APRM noise levels exceed 10% peak-to-peak, immediately place the reactor mode switch in the SHUTDOWN position.

   c) Comply with Specification 3.4.1.1 ACTION b.2

ACTION (Continued)

b. In Region II of Figure 3.4.1.5-1, with APRM or LPRM neutron flux noise levels exceeding the larger of: i) Three (3) times the established baseline noise levels, or ii) 10% peak-to-peak noise indication.

   1. Immediately initiate corrective action by inserting control rods or increasing core flow to restore the noise levels to within the required limit within 2 hours, otherwise.

   2. Insert control rods to reduce THERMAL POWER and/or increase core flow to enter Region III of Figure 3.4.1.5-1 within the next 2 hours.

SURVEILLANCE REQUIREMENTS

4.4.1.5 When operating within Region II of Figure 3.4.1.5-1, verify:

1. That the APRM and LPRM neutron flux noise levels do not exceed the larger of: i) Three (3) times the established baseline levels or, ii) 10% peak-to-peak indicated noise level:

   a. At least once per 12 hours, and

   b. Initiate the surveillance within 15 minutes after entering the region or completing an increase of at least 5% of RATED THERMAL POWER, completing the surveillance within the next 30 minutes.

2. That core flow is greater than or equal to 39% of rated core flow at least once per 12 hours.

#Detector levels A and C of one LPRM string per core octant plus detector levels A and C of one LPRM string in the center region of the core should be monitored.

Power vs. Flow

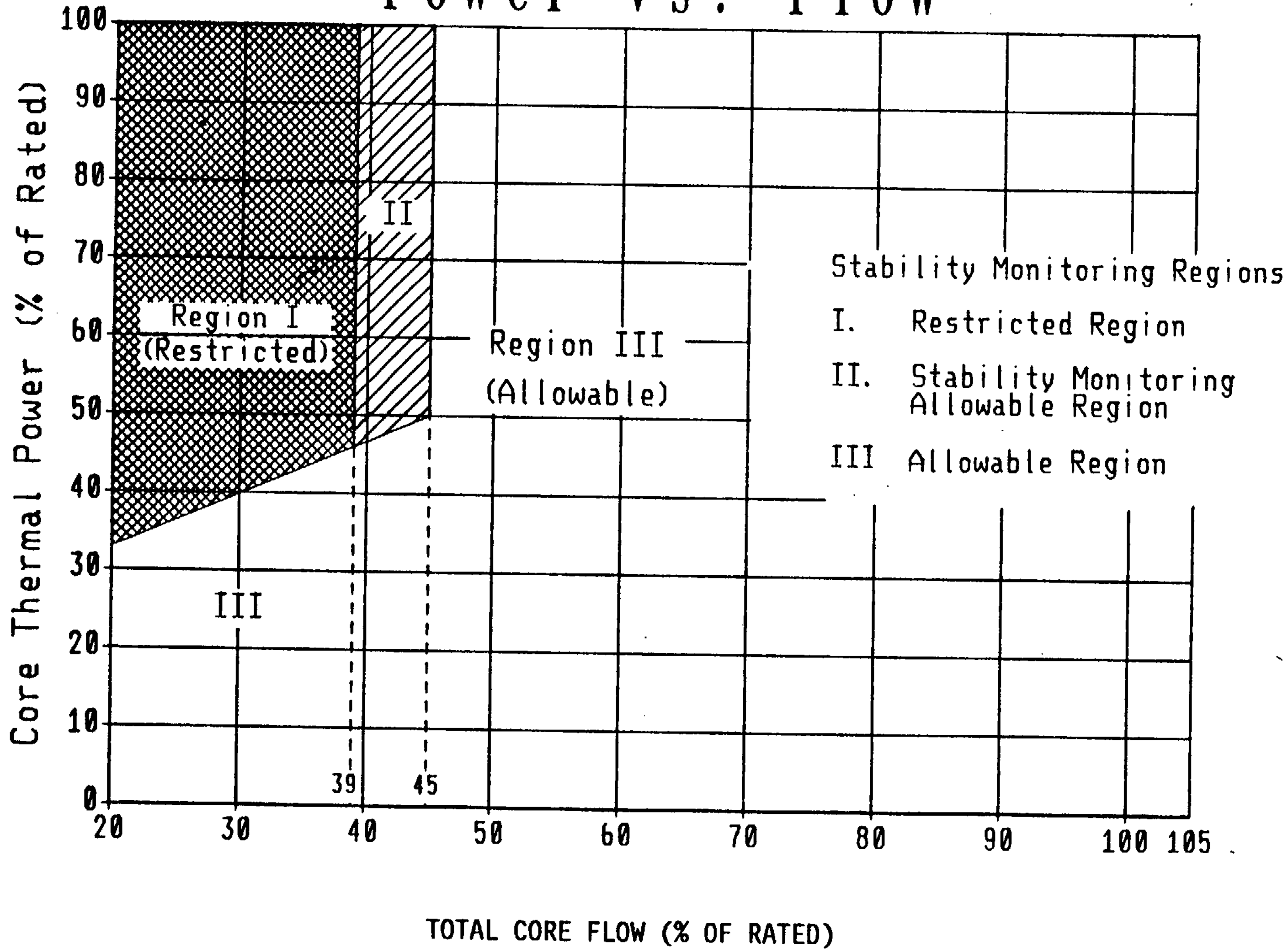

Figure 3.4.1.5-1

3/4.4.1 RECIRCULATION SYSTEM

Operation with one reactor recirculation loop inoperable has been evaluated and been found to be acceptable, provided the unit is operated in accordance with the single recirculation loop operation Technical Specifications herein.

An inoperable jet pump is not, in itself, a sufficient reason to declare a recirculation loop inoperable, but it does present a hazard in case of a design-basis-accident by increasing the blowdown area and reducing the capability of reflooding the core, thus, the requirement for shutdown of the facility with a jet pump inoperable. Jet pump failure can be detected by monitoring jet pump performance on a prescribed scheduled for significant degradation. During dual loop operation, the jet pump operability surveillance should be performed with balanced drive flow (drive flow mismatch less than 5%) to ensure an accurate indication of jet pump performance.

Recirculation loop flow mismatch limits are in compliance with the ECCS LOCA analysis design criterion. The limits will ensure an adequate core flow coastdown from either recirculation loop following a LOCA. Where the recirculation loop flow mismatch limits cannot be maintained during the recirculation loop operation, continued operation is permitted in the single recirculation loop operation mode.

In order to prevent undue stress on the vessel nozzles and bottom head region, the recirculation loop temperatures shall be within 50°F of each other prior to startup of an idle loop. The loop temperature must also be within 50°F of the reactor pressure vessel coolant temperature to prevent thermal shock to the recirculation pump and recirculation nozzles. Since the coolant in the bottom of the vessel is at a lower temperature than the water in the upper regions of the core, undue stress on the vessel would result if the temperature difference were greater than 145°F.

The possibility of thermal hydraulic instability in a BWR has been investigated since the startup of early BWRs. Based on tests and analytical models, it has been identified that the high power-low flow corner of the power-to-flow map is the region of least stability margin. This region may be encountered during startups, shutdowns, sequence exchanges, and as a result of a recirculation pump(s) trip event.

Region I of Figure 3.4.1.5-1 represents a region of the power/flow map where instability in neutron flux have been observed. Operation in this region is prohibited to ensure that stable reactor conditions are maintained. Actions to immediately exit Region I are intended to prevent lower priority (i.e., non-emergency) concerns from delaying exit from the region. Observation of neutron flux indications, while not requiring formal surveillance, is needed to avoid reliance on automatic protective systems. A manual reactor scram is required if instabilities are evidenced in Region I with no recirculation pumps operating.

Operation within a designated surveillance region (Region II of Figure 3.4.1.5-1) requires monitoring of APRM and LPRM noise levels. Observed instabilities require immediate corrective action due to the potential for increasing oscillations.

3/4.4.2 SAFETY/RELIEF VALVES

The safety valve function of the safety/relief valves operate to prevent the reactor coolant system from being pressurized above the Safety Limit of 1325 psig in accordance with the ASME Code. Analysis has shown that with the safety function of one of the eighteen safety/relief valves inoperable the reactor pressure is limited to within ASME III allowable values for the worst case upset transient. Therefore, operation with any 17 SRV's capable of opening is allowable, although all installed SRV's must be closed and have position indication to ensure that integrity of the primary coolant boundary is known to exist at all times.

Demonstration of the safety/relief valve lift settings will occur only during shutdown and will be performed in accordance with the provisions of Specification 4.0.5.

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

3/4.4.3.1 LEAKAGE DETECTION SYSTEMS

The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the reactor coolant pressure boundary. These detection systems are consistent with the recommendations of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973.

3/4.4.3.2 OPERATIONAL LEAKAGE

The allowable leakage rates from the reactor coolant system have been based on the predicted and experimentally observed behavior of cracks in pipes. The normally expected background leakage due to equipment design and the detection capability of the instrumentation for determining system leakage was also considered. The evidence obtained from experiments suggests that for leakage somewhat greater than that specified for unidentified leakage the probability is small that the imperfection or crack associated with such leakage would grow rapidly. However, in all cases, if the leakage rates exceed the values specified or the leakage is located and known to be PRESSURE BOUNDARY LEAKAGE, the reactor will be shutdown to allow further investigation and corrective action.

The Surveillance Requirements for RCS pressure isolation valves provide added assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS pressure isolation valves is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

3/4.4.4 CHEMISTRY

The water chemistry limits of the reactor coolant system are established to prevent damage to the reactor materials in contact with the coolant. Chloride limits are specified to prevent stress corrosion cracking of the stainless steel. The effect of chloride is not as great when the oxygen concentration in the coolant is low, thus the higher limit on chlorides is permitted during POWER OPERATION. During shutdown and refueling operations, the temperature necessary for stress corrosion to occur is not present so high concentrations of chlorides are not considered harmful during these periods.

CHEMISTRY (Continued)

Conductivity measurements are required on a continuous basis since changes in this parameter are an indication of abnormal conditions. When the conductivity is within limits, the pH, chlorides and other impurities affecting conductivity must also be within their acceptable limits. With the conductivity meter inoperable, additional samples must be analyzed to ensure that the chlorides are not exceeding the limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-374

LASALLE COUNTY STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 40
License No. NPF-18

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

   A. The application for amendment filed by the Commonwealth Edison Company (the licensee), dated April 26, 1988 supplemented May 31, 1988 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-18 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 40 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective on the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Daniel R. Muller

Daniel R. Muller, Director
Project Directorate III-
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: September 7, 1988

ENCLOSURE TO LICENSE AMENDMENT NO. 40

FACILITY OPERATING LICENSE NO. NPF-18

DOCKET NO. 50-374

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment No. and contain a vertical line indicating the area of change.

REMOVE	INSERT
VI	VI
XIX	XIX
3/4 4-1	3/4 4-1
3/4 4-2	3/4 4-2
3/4 4-2a	3/4 4-2a
- - -	3/4 4-5a
- - -	3/4 4-5b
- - -	3/4 4-5c
B 3/4 4-1	B 3/4 4-1
- - -	B 4/4 4-1a

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

LIST OF FIGURES

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

RECIRCULATION LOOPS

LIMITING CONDITION FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2

ACTION

a. With only one (1) reactor coolant system recirculation loop in operation, comply with Specification 3.4.1.5 and:

   1. Within four (4) hours:

      a) Place the recirculation flow control system in the Master Manual mode or lower, and

      b) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit by 0.01 to 1.08 per Specification 2.1.2, and

      c) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Limiting Condition for Operation by 0.01 per Specification 3.2.3, and,

      d) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block and Rod Block Monitor Trip Setpoints and Allowable Values to those applicable to single recirculation loop operation per Specifications 2.2.1, 3.2.2, and 3.3.6, and

      e) Reduce the MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATION RATE (MAPLHGR) limit to a value of 0.85 times the two recirculation loop operation limit per Specification 3.2.1.

   2. The provisions of Specification 3.0.4 are not applicable.

   3. Otherwise, be in at least HOT SHUTDOWN within the next twelve (12) hours.

b. With no reactor coolant recirculation loops in operation:

   1. Take the ACTION required by Specification 3.4.1.5, and

   2. Be in at least HOT SHUTDOWN within the next six (6) hours.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.1.1 Each reactor coolant system recirculation loop flow control valve shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that the control valve fails "as is" on loss of hydraulic pressure at the hydraulic power units, and

b. Verifying that the average rate of control valve movement is:

   1. Less than or equal to 11% of stroke per second opening, and

   2. Less than or equal to 11% of stroke per second closing.

THIS PAGE INTENTIONALLY LEFT BLANK

3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

THERMAL HYDRAULIC STABILITY

LIMITING CONDITION FOR OPERATION

3.4.1.5 Forced core circulation shall be maintained with:

a. Total core flow greater than or equal to 45% of rated core flow, or

b. THERMAL POWER within Region III of Figure 3.4.1.5-1, or

c. THERMAL POWER within Region II of Figure 3.4.1.5-1 AND APRM and LPRM noise levels not exceeding the larger of: i) Three (3) times the established baseline noise levels or, ii) 10% peak-to-peak indicated noise level.

APPLICABILITY: OPERATIONAL CONDITION 1

ACTION

a. In Region I of Figure 3.4.1.5-1:

   1. With at least 1 reactor coolant recirculation loop in operation immediately initiate action to:

      a) Decrease THERMAL POWER by control rod insertion, completing the power decrease within two (2) hours to exit Region I or,

      b) Increase core flow with the operating Recirculation Loop(s), to exit Region I within two (2) hours.

   2. With no reactor coolant recirculation loops in operation:

      a) Immediately reduce CORE THERMAL POWER by inserting control rods, observing the indicated APRM and LPRM noise levels, and complete power reduction to below 36% of RATED CORE THERMAL POWER within two (2) hours, and

      b) If indicated LPRM or APRM noise levels exceed 10% peak-to-peak, immediately place the reactor mode switch in the SHUTDOWN position.

      c) Comply with Specification 3.4.1.1 ACTION b.2

ACTION (Continued)

b. In Region II of Figure 3.4.1.5-1, with APRM or LPRM neutron flux noise levels exceeding the larger of: i) Three (3) times the established baseline noise levels, or ii) 10% peak-to-peak noise indication.

   1. Immediately initiate corrective action by inserting control rods or increasing core flow to restore the noise levels to within the required limit within 2 hours, otherwise.

   2. Insert control rods to reduce THERMAL POWER and/or increase core flow to enter Region III of Figure 3.4.1.5-1 within the next 2 hours.

SURVEILLANCE REQUIREMENTS

4.4.1.5 When operating within Region II of Figure 3.4.1.5-1, verify:

1. That the APRM and LPRM neutron flux noise levels do not exceed the larger of: i) Three (3) times the established baseline levels or, ii) 10% peak-to-peak indicated noise level:

   a. At least once per 12 hours, and

   b. Initiate the surveillance within 15 minutes after entering the region or completing an increase of at least 5% of RATED THERMAL POWER, completing the surveillance within the next 30 minutes.

2. That core flow is greater than or equal to 39% of rated core flow at least once per 12 hours.

#Detector levels A and C of one LPRM string per core octant plus detector levels A and C of one LPRM string in the center region of the core should be monitored.

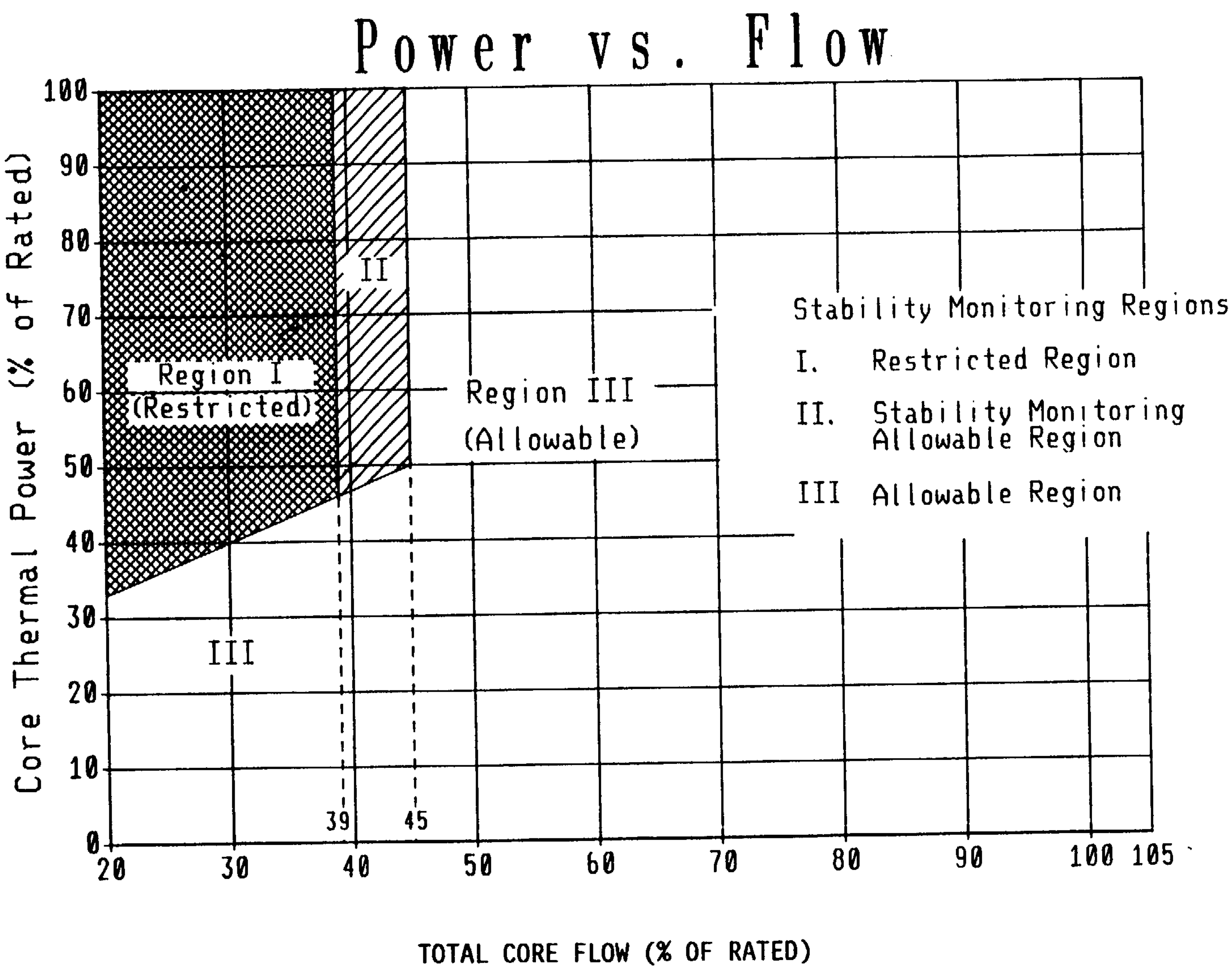

Figure 3.4.1.5-1

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.1 RECIRCULATION SYSTEM

Operation with one reactor recirculation loop inoperable has been evaluated and been found to be acceptable provided the unit is operated in accordance with the single recirculation loop operation Technical Specifications herein.

An inoperable jet pump is not, in itself, a sufficient reason to declare a recirculation loop inoperable, but it does present a hazard in case of a design-basis-accident by increasing the blowdown area and reducing the capability of reflooding the core; thus, the requirement for shutdown of the facility with a jet pump inoperable. Jet pump failure can be detected by monitoring jet pump performance on a prescribed scheduled for significant degradation. During dual loop operation, the jet pump operability surveillance should be performed with balanced drive flow (drive flow mismatch less than 5%) to ensure an accurate indication of jet pump performance.

Recirculation loop flow mismatch limits are in compliance with the ECCS LOCA analysis design criterion. The limits will ensure an adequate core flow coastdown from either recirculation loop following a LOCA. Where the recirculation loop flow mismatch limits cannot be maintained during the recirculation loop operation, continued operation is permitted in the single recirculation loop operation mode.

In order to prevent undue stress on the vessel nozzles and bottom head region, the recirculation loop temperatures shall be within 50°F of each other prior to startup of an idle loop. The loop temperature must also be within 50°F of the reactor pressure vessel coolant temperature to prevent thermal shock to the recirculation pump and recirculation nozzles. Since the coolant in the bottom of the vessel is at a lower temperature than the water in the upper regions of the core, undue stress on the vessel would result if the temperature difference was greater than 145°F.

The possibility of thermal hydraulic instability in a BWR has been investigated since the startup of early BWRs. Based on tests and analytical models, it has been identified that the high power-low flow corner of the power-to-flow map is the region of least stability margin. This region may be encountered during startups, shutdowns, sequence exchanges, and as a result of a recirculation pump(s) trip event.

Region I of Figure 3.4.1.5-1 represents a region of the power/flow map where instability in neutron flux have been observed. Operation in this region is prohibited to ensure that stable reactor conditions are maintained. Actions to immediately exit Region I are intended to prevent lower priority (i.e., non-emergency) concerns from delaying exit from the region. Observation of neutron flux indications, while not requiring formal surveillance, is needed to avoid reliance on automatic protective systems. A manual reactor scram is required if instabilities are evidenced in Region I with no recirculation pumps operating.

Operation within a designated surveillance region (Region II of Figure 3.4.1.5-1) requires monitoring of APRM and LPRM noise levels. Observed instabilities require immediate corrective action due to the potential for increasing oscillations.

3/4.4.2 SAFETY/RELIEF VALVES

The safety valve function of the safety/relief valves operate to prevent the reactor coolant system from being pressurized above the Safety Limit of 1325 psig in accordance with the ASME Code. A total of 18 OPERABLE safety/relief valves is required to limit reactor pressure to within ASME III allowable values for the worst case upset transient.

Demonstration of the safety/relief valve lift settings will occur only during shutdown and will be performed in accordance with the provisions of Specification 4.0.5.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. NPF-11 AND

AMENDMENT NO. 40 TO FACILITY OPERATING LICENSE NO. NPF-18

COMMONWEALTH EDISON COMPANY

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

The proposed amendments to Operating License No. NPF-11 and Operating License No. NPF-18 would revise the LaSalle Units 1 and 2 Technical Specifications by providing additional requirements for monitoring core performance and other actions to be taken by the reactor operator in the high power/low flow region of the power to flow map. In addition, Amendment No. to Operating License No. NPF-11 (Unit 1) removes NPF-11 License Condition 2.C.(34) which is now obsolete.

2.0 DISCUSSION AND EVALUATION

The LaSalle Unit 1 Cycle 3 (L1C3) Reload Analysis was transmitted to the NRC on January 19, 1988. The L1C3 Reload Core was calculated to have a stability decay ratio of 0.75 which is less than the NRC criteria of 0.80 for stability monitoring Technical Specifications. Based on that calculation, no stability monitoring Technical Specifications changes were included.

Subsequently, an event occurred on March 9, 1988 at LaSalle Unit 2 which caused neutron flux oscillations during natural circulation conditions. Since the LaSalle 2 Cycle 2 (L2C2) Core Stability decay ratio was calculated to be 0.60, the event served to question the stability margin calculation for L1C3. Due to this event and the continuing investigation regarding decay ratio calculations, both units at LaSalle will be treated as having "high decay ratio" cores. Technical Specification changes for stability monitoring and actions to be taken by an operator if oscillations are observed have been provided as an extra margin of safety.

The April 26, 1988 letter adds a new specification for recirculation system thermal hydraulic stability. It also clarifies the specification on the reactor recirculation system and revises the bases to reflect these changes. The new specification, as well as the clarifications, follow the guidance of General Electric SIL-380 and similar approaches in other standardized Technical Specifications. These specifications are similar for Units 1 and 2.

Specification 3/4.4.1.5 consolidates the requirements for thermal hydraulic stability. The important aspects of this specification are:

(1) Definition of the power/flow region in Roman numerals. This reduces the confusion generated by use of the descriptive titles alone, i.e., "surveillance region - restricted zone", "surveillance region - allowable zone", and "allowable region", which appear in the existing specification.

(2) The actions are contained in a region oriented format. With the old recirculation loop specification doubling as a stability specification, the relative importance of the power/flow map regions was obscured behind the recirc pump status criteria. The new region oriented format is more straightforward and concentrates operator attention to actions required to assure thermal hydraulic stability is maintained.

(3) Elimination of operation within an Action statement. The new stability specification contains a provision in the LCO to allow operation inside the stability surveillance region. Previously, operation within the surveillance region (Region II) would allow indefinite periods of operation within the action statements.

(4) Immediate actions within Region I to observe APRM and LPRM noise level and exit the Region:

(a) When operating with no recirculation pumps on, the specification requires reducing power with control rods to a fixed power level which is conservatively below the 80% flow control line at any achievable flow. With one or two recirc pumps on, flow may be increased to exit Region I with a recirc pump that is already operating.

(b) APRM and LPRM noise levels are to be observed during the reduction in core power by control rod insertion. The specification requires that the operator be cognizant of neutron flux noise present in the indicators available to him during the normal course of control rod insertions and to immediately exit the Region. If these observations of the APRMs and LPRMs result in indications of flux oscillations of greater than 10% peak-to-peak, a manual scram is required which is achieved by the operator placing the reactor mode switch into the SHUTDOWN position. This noise level observation does not require a formally documented surveillance since the surveillance requirement applies to Region II only and the operators attention must be concentrated on existing Region I as soon as possible.

(5) The wording of the surveillance requirement for Region II in the stability monitoring Technical Specifications is rearranged such that the wording clearly specifies that the surveillance must be initiated with 15 minutes and completed within the next 30 minutes. This clarification is intended to assist in preventing mistakes and interpretation of the time requirements of the surveillance.

(6) Specification 3.4.1.1 (Reactor Recirculation) is also cross-referenced in this specification to assist the operator in identifying other applicable specifications.

(7) In order to facilitate rapid recognition of instability, a fixed noise criteria was added in addition to the existing criteria of 3 times the baseline noise levels. This fixed criteria of 10% meter indication (peak-to-peak noise) has been justified by General Electric and is a logical and easily remembered criteria for the operator. The APRM and LPRM noise meters cannot be accurately read to within less than 2 to 3 meter units. Therefore baseline noise indication of less than 3 meter units would not be meaningful for stability monitoring.

The Reactor Recirculation Loops Specification (3/4.4.1.1) has also been revised to cross reference the Thermal Hydraulic Stability Technical Specification (3/4.1.5). This is to make the specifications "user friendly" and minimize the possibility that a required action in another specification might be forgotten.

The Bases have been revised to provide guidance that in Region I the operators top priority is to observe neutron flux indication and exit the Region promptly. If neutron flux oscillations are observed, the operator is to scram the unit by placing the reactor mode switch to the SHUTDOWN position.

License Condition 2.C.(34) to NPF-11 was added to allow contained operation with one recirculation loop inoperable. That License Condition imposed in Amendment 11 reads "Through the First Fuel Cycle of Plant Operation, Technical Specification 3.4.1.1 is modified for One Recirculation Loop Out-of-Service with Provisions...". The Safety Evaluation for the amendment imposing the license condition indicates that "The approval for single loop operation up to power level of 50 percent is authorized during Cycle 1 until staff concerns stemming from Browns Ferry Unit 1 Single Loop Operation are satisfied".

The Safety Evaluation for Cycle 2 Full Power Operation indicates in Section 2.6 THERMAL-HYDRAULIC STABILITY, that a review had been made at LaSalle Cycle 2 Reload and that "Thus, one loop operation is generally acceptable for LaSalle without restrictions other than those presented in Specification 3/4.1.1". The Safety Evaluation also references Generic Letter 86-02 "Technical Resolution of Generic Issue B-19 Thermal Hydraulic Stability", January 23, 1986 and Generic Letter 86-09 "Technical Resolution of Generic Issue No. B-59 (N-1) Loop Operation in BWRs and PWRs", March 31, 1986. Thus, each of the concerns identified in the amendment imposing the license condition were discussed and indicated as being resolved in Amendment 40.

Based on this information, License Condition 2.C.(34) to NPF-11 should have been deleted in Amendment 40. Since it was not, and LaSalle Unit 1 is now on Cycle 3, it is clear that the license condition is not longer necessary and can be deleted.

The proposed revisions are intended to assure increased operator awareness of the core, neutron flux and thermal hydraulic status. Significantly more conservative actions are dictated than previous specifications, including a reactor scram under certain specified conditions. These actions are evaluated to bound all existing safety requirements and therefore will not increase the probability or consequence of an accident previously evaluated. The staff finds this acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation and use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of an 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 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.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the FEDERAL REGISTER (53 FR 20041) on June 1, 1988, and consulted with the state of Illinois. No public comments were received, and the state of Illinois did not have any comments.

The staff 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, 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.

5.0 REFERENCES

Letters for C. Allen, Commonwealth Edison to USNRC dated April 26 and May 31, 1988

Principal Contributor: Paul Shemanski, NRR/PDIII-2

Dated: September 7, 1988