D. Skay

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

ISSUANCE OF AMENDMENT (TAC NO. MA6035) SUBJECT:

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 137 to Facility Operating License No. NPF-11 for LaSalle County Station, Unit 1. The amendment is in response to your application dated July 7, 1999, as supplemented on October 14, 1999.

The amendment revises Technical Specification Section 2.1 to reflect a change to the Minimum Critical Power Ratio. The staff has denied the portion of your request to add a methodology to the list of topical reports in Section 6.6 of the Technical Specifications. The basis for the denial is detailed in the enclosed Safety Evaluation. A copy of the Notice of Partial Denial of Amendments to be published in the Federal Register is enclosed for your information.

The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original Signed By

Donna M. Skay, Project Manager, Section 2 Project Directorate III Division of Licensing Project Management Office of Nuclear Reactor Regulation

Docket No. 50-373

Enclosures: 1. Amendment No. 137 to NPF-11

- 2. Safety Evaluation
- 3. Notice of Denial

cc w/encls: See next page

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* safety evaluation dated 10/27/99, incorporated with no significant changes **see previous page for concurrence

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O. Kingsley Commonwealth Edison Company

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Attorney General 500 S. Second Street Springfield, Illinois 62701

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

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

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UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 137 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 July 7, 1999, as supplemented on October 14, 1999, 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-11 is hereby amended to read as follows:

(2) <u>Technical Specifications and Environmental Protection Plan</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 137 , 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 license amendment is effective as of the date of its issuance and shall be implemented prior to the startup of Cycle 9.

FOR THE NUCLEAR REGULATORY COMMISSION

Apthony 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: November 9, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 137

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 number and contain a vertical line indicating the area of change.

REMOVE	INSERT
2-1	2-1
B 2-1	B 2-1

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

THERMAL POWER, Low Pressure or Low Flow

2.1.1 THERMAL POWER shall not exceed 25% of RATED THERMAL POWER with the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With THERMAL POWER exceeding 25% of RATED THERMAL POWER and the reactor vessel steam dome pressure less than 785 psig or core flow less than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.4.

THERMAL POWER, High Pressure and High Flow

2.1.2 The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than 1.11 with two recirculation loop operation and shall not be less than 1.12 with single recirculation loop operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With MCPR less than 1.11 with two recirculation loop operation or less than 1.12 with single recirculation loop operation and the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours and comply with the requirements of Specification 6.4.

REACTOR COOLANT SYSTEM PRESSURE

2.1.3 The reactor coolant system pressure, as measured in the reactor vessel steam dome, shall not exceed 1325 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, and 4.

ACTION:

With the reactor coolant system pressure, as measured in the reactor vessel steam dome, above 1325 psig, be in at least HOT SHUTDOWN with reactor coolant system pressure less than or equal to 1325 psig within 2 hours and comply with the requirements of Specification 6.4.

LA SALLE - UNIT 1

2-1

Amendment No. 137

2.1 SAFETY LIMITS

BASES

2.0 The fuel cladding, reactor pressure vessel, and primary system piping are the principal barriers to the release of radioactive materials to the environs. Safety Limits are established to protect the integrity of these barriers during normal plant operations and anticipated transients. The fuel cladding integrity Safety Limit is set such that no fuel damage is calculated to occur if the limit is not violated. Because fuel damage is not directly observable, a step-back approach is used to establish a Safety Limit such that the MCPR is not less than 1.11. MCPR greater than 1.11 for two recirculation loop operation and 1.12 for single recirculation loop operation represents a conservative margin relative to the conditions required to maintain fuel cladding integrity. The fuel cladding is one of the physical barriers which separate the radioactive materials from the environs. The integrity of this cladding barrier is related to its relative freedom from perforations or cracking. Although some corrosion or use related cracking may occur during the life of the cladding, fission product migration from this source is incrementally cumulative and continuously measurable. Fuel cladding perforations, however, can result from thermal stresses which occur from reactor operation significantly above design conditions and the Limiting Safety System Settings. While fission product migration from cladding perforation is just as measurable as that from use related cracking, the thermally caused cladding perforations signal a threshold beyond which still greater thermal stresses may cause gross rather than incremental cladding deterioration. Therefore, the fuel cladding Safety Limit is defined with a margin to the conditions which would produce onset of transition boiling, MCPR of 1.0. These conditions represent a significant departure from the condition intended by design for planned operation.

2.1.1 THERMAL POWER, Low Pressure or Low Flow

For certain conditions of pressure and flow, the ANFB correlation is not valid for all critical power calculations. The ANFB corelation is not valid for bundle mass velocities less than 0.10 X 10⁶ lbs/hr-ft² (equivalent to a core flow of less than 10%) or pressures less than 590 psia. Therefore, the fuel cladding integrity Safety Limit is established by other means. This is done by establishing a limiting condition on core THERMAL POWER with the following basis. Since the pressure drop in the bypass region is essentially all elevation head, the core pressure drop at low power and flows will always be greater than 4.5 psi. Analyses show that with a bundle flow of 28 X 10³ lbs/hr (approximately a mass velocity of 0.25 X 10⁶ lbs/hr-ft²), bundle pressure drop is nearly independent of bundle power and has a value of 3.5 psi. Thus, the bundle flow with a 4.5 psi driving head will be greater than 28 X 10³ lbs/hr. Full-scale ATLAS test data taken at pressures from 14.7 to 800 psia indicate that the fuel assembly critical power at this flow is approximately 3.35 Mwt. With the design peaking factors, this corresponds to a THERMAL POWER limit of 25% of RATED THERMAL POWER for reactor pressure below 785 psig is conservative.

LA SALLE - UNIT 1

Amendment No. 137



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 137 TO FACILITY OPERATING LICENSE NO. NPF-11

COMMONWEALTH EDISON COMPANY

LASALLE COUNTY STATION, UNIT 1

DOCKET NO. 50-373

1.0 INTRODUCTION

By letter dated July 7, 1999, as supplemented by a letter dated October 14, 1999, Commonwealth Edison Company (ComEd, the licensee) proposed changes to the Technical Specifications (TS) for the LaSalle County Station, Unit 1, Cycle 9, operation (L1C9). The proposed changes include the minimum critical power ratio (MCPR) safety limits and approved methodologies in the core operating limits report (COLR). The LaSalle, Unit 1, Cycle 9, core has 764 fuel assemblies, of which there are 372 fresh ATRIUM-9B bundles, 247 once-burned GE9B bundles, and 145 twice-burned GE9B bundles. The October 14, 1999, letter provided clarifying information and did not change the staff's initial proposed no significant hazards consideration determination.

2.0 EVALUATION

2.1 TS 2.1 - THERMAL POWER, High Pressure and High Flow

The licensee proposed changing the safety limit minimum critical power ratio (SLMCPR) values from 1.08 to 1.11 for two recirculation loop operation and from 1.09 to 1.12 for single recirculation loop operation in TS 2.1.2 and its Action statement. The change is necessary due to a change in fuel type for this cycle from GE fuel to a mixed core of GE and ATRIUM-9B fuel and Siemens methodology.

The licensee described the methodology used to calculate the SLMCPR value in its submittals. The Cycle 9 SLMCPR analysis was performed by Siemens Power Corporation using the plant- and cycle-specific fuel and core parameters and NRC-approved methodologies (References 1, 2, 3 and 4). The Cycle 9 SLMCPR is impacted by the transition to a new fuel type (ATRIUM-9B) and methodology, a larger batch fraction, and a change to a 24-month operating cycle.

The staff has reviewed the licensee's justification for the SLMCPR value of 1.11 for two recirculation loop operation and 1.12 for single loop operation for Cycle 9. The licensee's analysis uses the approach stated in the approved methodologies (References 1, 2, 3 and 4). The SLMCPR is calculated based on parameters dependent on the fuel design and core design (loading pattern, control rod patterns, cycle exposure). The staff has reviewed the fuel and core design information provided by the licensee and the list of methodologies that were used. The

Cycle 9 SLMCPR will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition which satisfies the requirements of General Design Criterion 10 of Appendix A to 10 CFR Part 50, Cycle 9, SLMCPR analysis for LaSalle County Station, Unit 1, using the plant- and cycle-specific calculation in conjunction with the approved methodologies is acceptable for LaSalle, Unit 1.

The licensee also proposed to change the SLMCPR values in Bases 2.0 to reflect the proposed changes of the MCPR Safety Limit values in TS 2.1.2. The staff has reviewed the proposed Bases and found that the proposed changes are consistent with the changes to TS 2.1.2.

2.2 TS 6.6.A.6.b - Core Operating Limits Report

The licensee proposed to add an approved topical report to Item 26 of TS 6.6.A.6.b. The proposed Item 26 is topical report RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model, EMF-85-74(P), Supplement 1 (P)(A) and Supplement 2 (P)(A), Siemens Power Corporation, February 1998. The licensee proposes to use this methodology to support RODEX2A licensing applications to 62 GWd/MTU rod-average burnup and fuel rod/asembly/channel growth models and analytical methods up to 54 GWd/MTU assembly-average burnup. The extended burnup limits will support future operation with ATRIUM-9B fuel. The staff has reviewed the proposed change and determined that because this methodology will not be used for Cycle 9 operation, it should not be added to the COLR or TS Section 6 at this time. The staff has determined that only the analytical methods used to determine the current core operating limits should be included in Section 6.6.A.6.b of the TS. Therefore, the proposed change is not acceptable.

2.3 Summary

The staff has reviewed the proposed changes and found: (1) the proposed changes to the values of the SLMCPR in TS 2.1.2 and Bases 2.0 are acceptable because the analysis was in accordance with the approaches stated in the approved methodologies, and (2) the proposed changes to TS 6.6.A.6.b to add an approved topical report is not acceptable because it is not relevant to L1C9 operation.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes 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 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding

(64 FR 43768). Accordingly, the 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 the amendment.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: T. Huang

Date: November 9, 1999

6.0 <u>REFERENCES</u>

- 1. ANFB Critical Power Correlation, ANF-1125 (P)(A) and Supplements 1 and 2, Advanced Nuclear Fuels Corporation, April 1990.
- Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors/Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors: Methodology for Analysis of Assembly Channel Bowing Effects/NRC Correspondence, XN-NF-524(P)(A), Revision 2, and Supplement 1; Revision 2, Supplement 2, Advanced Nuclear Fuels Corporation, November 1990.
- 3. ANFB Critical Power Correlation Determination of ATRIUM-9B Additive Constant Uncertainties, ANF-1125(P)(A), Supplement 1, Appendix E, Revision 0, Siemens Power Corporation, September 1998.
- 4. ANFB Critical Power Correlation Application for Coresident Fuel, EMF-1125(P)(A), Supplement 1, Appendix C, Siemens Power Corporation, August 1997.

UNITED STATES NUCLEAR REGULATORY COMMISSION COMMONWEALTH EDISON COMPANY DOCKET NO. 50-373

NOTICE OF PARTIAL DENIAL OF AMENDMENT TO FACILITY OPERATING LICENSE AND OPPORTUNITY FOR HEARING

The U.S. Nuclear Regulatory Commission (the Commission) has partially denied a request by Commonwealth Edison Company (ComEd, the licensee), for an amendment to Facility Operating License No. NPF-11 issued to ComEd for operation of LaSalle County Station, Unit 1, located in LaSalle County, Illinois. Notice of Consideration of Issuance of this amendment was published in the FEDERAL REGISTER on August 11, 1999 (64 FR 43768).

The purpose of the licensee's amendment request was to revise Technical Specification (TS) Section 2.1 to reflect a change to the Minimum Critical Power Ratio and to add an NRCapproved Siemens Power Corporation methodology to the list of topical reports used to determine the core operating limits.

The NRC staff has concluded that the portion of the licensee's request to add a methodology to the list of topical reports in Section 6.6 of the TS can not be granted. The basis for the partial denial is detailed in the Safety Evaluation related to Amendment No. 137 dated November 9, 1999.

By December 16, 1999, the licensee may demand a hearing with respect to the partial denial described above. Any person whose interest may be affected by this proceeding may file a written petition for leave to intervene.

A request for hearing or petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, or may be delivered to the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, by the above date.

A copy of any petitions should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to Ms. Pamela Stroebel, Commonwealth Edison Company, P.O. Box 767, Chicago, Illinois 60690-0767.

For further details with respect to this action, see (1) the application for amendment dated July 7, 1999, as supplemented on October 14, 1999, and (2) Amendment No. 137 to Facility Operating License No. NPF-11, and (3) the Commissions related Safety Evaluation.

These documents are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, or are accessible electronically through the ADAMS Public Electronic Reading Room link at the NRC Web site (http://www.nrc.gov).

Dated at Rockville, Maryland, this 9th day of November 1999.

FOR THE NUCLEAR REGULATORY COMMISSION

Anthony J. Mendiola, Acting Director Project Directorate III Division of Licensing Project Management Office of Nuclear Reactor Regulation