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