May 15, 1989

Docket No.: 50-374

Mr. Thomas J. Kovach
Nuclear Licensing Manager
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Kovach:

SUBJECT: CORRECTION TO AMENDMENT NO. 41

Amendment No. 41 to Facility Operating License No. NPF-18 for LaSalle County Station Unit 2, was issued January 6, 1989. Several pages of this amendment had typographical and/or editorial errors. Enclosed are corrected copies of these pages to be incorporated into the LaSalle Unit 2 Technical Specifications (TS).

Sincerely,

Paul C. Shemanski

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

Enclosure:
As stated

cc w/enclosure
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Commonwealth Edison Company

LaSalle County Nuclear Power Station
Units 1 & 2

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3/4.2.3 MINIMUM CRITICAL POWER RATIO

LIMITING CONDITION FOR OPERATION

3.2.3 The MINIMUM CRITICAL POWER RATIO (MCPR) shall be equal to or greater than the MCPR limit determined from:

a. Single Recirculation Loop Operation
Figure 3.2.3-1a (Curve A for a RBM setpoint of 106% or Curve B for a RBM setpoint of 110%) plus 0.01, times the k_f determined from Figure 3.2.3-2.

b. Two Recirculation Loop Operation
Figure 3.2.3-1a (Curve A for a RBM setpoint of 106% or Curve B for a RBM setpoint of 110%) times the k_f determined from Figure 3.2.3-2.

c. Two Recirculation Loop Operation with Main Turbine Bypass Inoperable
Figure 3.2.3-1b times the k_f determined from Figure 3.2.3-2, for two recirculation loop operation, with the main turbine bypass system inoperable per Specification 3.7.10 (any RBM setpoint determined per Specification Table 3.3.6-2 may be used).

d. Two Recirculation Loop Operation with End-of-Cycle Recirculation Pump Trip System Inoperable
Figure 3.2.3-1b times the k_f determined from Figure 3.2.3-2, for two recirculation loop operation, with the end-of-cycle recirculation pump trip system inoperable as directed by Specification 3.3.4.2 (any RBM setpoint determined per Specification Table 3.3.6-2 may be used).

APPLICABILITY:

OPERATIONAL CONDITION 1, when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER.

ACTION

a. With MCPR less than the applicable MCPR limit as determined for one of the above conditions:

   1. Initiate corrective action within 15 minutes, and

   2. Restore MCPR to within the required limit within 2 hours.

   3. Otherwise, reduce THERMAL POWER to less than 25% of RATED THERMAL POWER within the next 4 hours.

b. When operating in a condition not identified above, reduce THERMAL POWER to less than 25% of RATED THERMAL POWER within 4 hours.

3/4.2 POWER DISTRIBUTION LIMITS

BASES

The specifications of this section assure that the peak cladding temperature following the postulated design basis loss-of-coolant accident will not exceed the 2200°F limit specified in 10 CFR 50.46.

3/4.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE

This specification assures that the peak cladding temperature following the postulated design basis loss-of-coolant accident will not exceed the limit specified in 10 CFR 50.46. This specification also assures that fuel rod mechanical integrity is maintained during normal and transient operations.

The peak cladding temperature (PCT) following a postulated loss-of-coolant accident is primarily a function of the average heat generation rate of all the rods of a fuel assembly at any axial location and is dependent only secondarily on the rod to rod power distribution within an assembly. The peak clad temperature is calculated assuming a LHGR for the highest powered rod which is equal to or less than the design LHGR corrected for densification. This LHGR times 1.02 is used in the heatup code along with the exposure dependent steady-state gap conductance and rod-to-rod local peaking factor. The Technical Specification AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) is this LHGR of the highest powered rod divided by its local peaking factor.

The calculational procedure used to establish the APLHGR values for the initial cycle and first reload fuel shown on Figure 3.2.1-1 and 3.2.1-2 are based on a loss-of-coolant accident analysis. The analysis was performed using General Electric (GE) calculational models which are consistent with the requirements of Appendix K to 10 CFR Part 50. A complete discussion of each code employed in the analysis is presented in Reference 1. Differences in this analysis compared to previous analyses performed with Reference 1 are: (1) the analysis assumes a fuel assembly planar power consistent with 102% of the MAPLHGR shown in Figure 3.2.1-1, (2) fission product decay is computed assuming an energy release rate of 200 MeV/fission; (3) pool boiling is assumed after nucleate boiling is lost during the flow stagnation period; and (4) the effects of core spray entrainment and counter-current flow limitation as described in Reference 2, are included in the reflooding calculations.

The APLHGR values for the reload fuel shown in Figure 3.2.1-3 are based on the fuel thermal-mechanical design analysis. The improved SAFER/GESTR-LOCA analysis (Reference 3) performed for Cycle 3 used bounding MAPLHGR values of 13.0 and 14.0 kw/ft, independent of nodal exposure. These MAPLHGR values are higher than the expected "thermal-mechanical MAPLHGR" for both BP8x8R and GE8x8EB fuel. Therefore, SAFER/GESTR established that for all BP8x8R and GE8x8EB fuel designs the MAPLHGR values are not expected to be limited by LOCA/ECCS considerations. However, MAPLHGR values are still required to assure that the LHGR limits are not compromised and, consequently, fuel rod mechanical integrity is maintained.

3/4.2.2 APRM SETPOINTS

The fuel cladding integrity Safety Limits of Specification 2.1 were based on a power distribution which would yield the design LHGR at RATED THERMAL POWER. The flow biased simulated thermal power-upscale scram setting and control rod block functions of the APRM instruments for both two recirculation loop operation and single recirculation loop operation must be adjusted to ensure that the MCPR does not become less than the fuel cladding safety limit or that $\geq$ 1% plastic strain does not occur in the degraded situation. The scram settings and rod block settings are adjusted in accordance with the formula in this specification when the combination of THERMAL POWER and MFLPD indicates a higher peaked power distribution to ensure that an LHGR transient would not be increased in the degraded condition.

3/4.2.3 MINIMUM CRITICAL POWER RATIO

The required operating limit MCPRs at steady-state operating conditions as specified in Specification 3.2.3 are derived from the established fuel cladding integrity Safety Limit MCPR and an analysis of abnormal operational transients. For any abnormal operating transient analysis evaluation with the initial condition of the reactor being at the steady-state operating limit, it is required that the resulting MCPR does not decrease below the Safety Limit MCPR at any time during the transient assuming instrument trip setting given in Specification 2.2.

To assure that the fuel cladding integrity Safety Limit is not exceeded during any anticipated abnormal operational transient, the most limiting transients have been analyzed to determine which result in the largest reduction in CRITICAL POWER RATIO (CPR). The type of transients evaluated were loss of flow, increase in pressure and power, positive reactivity insertion, and coolant temperature decrease. The limiting transient yields the largest delta MCPR. When added to the Safety Limit MCPR, the required minimum operating limit MCPR of Specification 3.2.3 is obtained and presented in Figure 3.2.3-1a.

When the Rod Withdrawal Error is the limiting transient event, two MCPR limits may be provided. These limits are a function of the Rod Block Monitor (RBM) setpoint. The appropriate limit will be chosen based on the current RBM setpoint. The flexibility of the variable RBM setpoint/MCPR limit allows efficient use of the extended operating domain (ELLLA region), while maintaining transient protection with the more restrictive MCPR limit.

Analyses have been performed to determine the effects on CRITICAL POWER RATIO (CPR) during a transient assuming that certain equipment is out of service. A detailed description of the analyses is provided in Reference 5. The analyses performed assumed a single failure only and established the licensing bases to allow continuous plant operation with the analyzed equipment out of service. The following single equipment failures are included are part of the transient analyses input assumptions:

1. main turbine bypass system out of service,

2. recirculation pump trip system out of service,

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

The anticipated transient without scram (ATWS) recirculation pump trip system provides a means of limiting the consequences of the unlikely occurrence of a failure to scram during an anticipated transient. The response of the plant to this postulated event falls within the envelope of study events in General Electric Company Topical Report NEDO-10349, dated March 1971 and NEDO-24222, dated December, 1979, and Appendix G of the FSAR.

The end-of-cycle recirculation pump trip (EOC-RPT) system is a part of the Reactor Protection System and is an essential safety supplement to the reactor trip. The purpose of the EOC-RPT is to recover the loss of thermal margin which occurs at the end-of-cycle. The physical phenomenon involved is that the void reactivity feedback due to a pressurization transient can add positive reactivity to the reactor system at a faster rate than the control rods add negative scram reactivity. Each EOC-RPT system trips both recirculation pumps, reducing coolant flow in order to reduce the void collapse in the core during two of the most limiting pressurization events. The two events for which the EOC-RPT protective feature will function are closure of the turbine stop valves and fast closure of the turbine control valves.

A generic analysis, which provides for continued operation with one or both trip systems of the EOC-RPT system inoperable, has been performed. The analysis determined bounding cycle independent MINIMUM CRITICAL POWER RATIO (MCPR) Limiting Condition for Operation (LCO) values which must be used if the EOC-RPT system is inoperable. These values ensure that adequate reactivity margin to the MCPR safety limit exists in the event of the analyzed transient with the RPT function inoperable. The analysis results are further discussed in the bases for Specification 3.2.3.

A fast closure sensor from each of two turbine control valves provides input to the EOC-RPT system; a fast closure sensor from each of the other two turbine control valves provides input to the second EOC-RPT system. Similarly, a position switch for each of two turbine stop valves provides input to one EOC-RPT system; a position switch from each of the other two stop valves provides input to the other EOC-RPT system. For each EOC-RPT system, the sensor relay contacts are arranged to form a 2-out-of-2 logic for the fast closure of turbine control valves and a 2-out-of-2 logic for the turbine stop valves. The operation of either logic will actuate the EOC-RPT system and trip both recirculation pumps.

Each EOC-RPT system may be manually bypassed by use of a keyswitch which is administratively controlled. The manual bypasses and the automatic Operating Bypass at less than 30% of RATED THERMAL POWER are annunciated in the control room.

The EOC-RPT system response time is the time assumed in the analysis between initiation of valve motion and complete suppression of the electric arc, i.e., 190 ms, less the time allotted for sensor response, i.e., 10 ms, and less the time allotted for breaker arc suppression determined by test, as correlated to manufacturer's test results, i.e., 83 ms, and plant pre-operational test results.