



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 108 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 October 2, 1995, Commonwealth Edison Company (ComEd, the licensee) requested an amendment to Facility Operating License No. NPF-11 for LaSalle County Station, Unit 1. The proposed amendment revises technical specification (TS) 3.4.2 related to the required lift settings for the safety/relief valves (SRV). The licensee proposes to change the SRV safety function lift setting allowable tolerance band from -3/+1% to $\pm 3\%$ and include a requirement for the lift settings to be within $\pm 1\%$ of the TS limit following testing.

2.0 BACKGROUND

The existing TS 3/4.4.2, Safety/Relief Valves, for Unit 1 requires 17 of the 18 SRVs to be operable. Required lift settings and allowable tolerance bands of -3% to +1% of the settings are provided in the limiting condition for operation. Testing requirements for the SRVs are addressed by TS 4.0.5 which requires inservice testing of pumps and valves in accordance with Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code).

Nuclear power plant licensees have experienced difficulty in meeting the typical 1% setpoint tolerance for SRVs. The Boiling Water Reactor Owners' Group (BWROG) submitted the General Electric Company (GE) topical report NEDC-31753P, "BWROG In-Service Pressure Relief Technical Specification Revision Licensing Topical Report," to provide justification for the relaxation of SRV TS lift setting tolerance bands which were more restrictive than $\pm 3\%$. On March 8, 1993, the NRC staff issued a Safety Evaluation (SE) for the GE topical report. The staff's evaluation determined that it was acceptable for licensees to submit TS amendment requests to revise lift setting tolerances to $\pm 3\%$ provided that the setpoints for those SRVs tested were restored to $\pm 1\%$ prior to plant startup. The SE instructed licensees implementing the TS modifications to provide the following plant specific analyses:

1. Transient analysis, using NRC approved methods, of all abnormal operational occurrences (AOO) as described in NEDC-31753P utilizing a $\pm 3\%$ setpoint tolerance for the safety mode of SRVs.

2. Analysis of the design basis overpressurization event using the 3% tolerance limit for the SRV setpoint to confirm that the vessel pressure does not exceed ASME pressure vessel code upset limits.
3. Plant specific analyses described in Items 1 and 2 should assure that the number of SRVs included in the analyses correspond to the number of valves required to be operable in the TS.
4. Re-evaluation of the performance of high pressure systems (pump capacity, discharge pressure, etc.), motor-operated valves, and vessel instrumentation and associated piping considering the 3% tolerance limit.
5. Evaluation of the $\pm 3\%$ tolerance on any plant specific alternate operating modes (e.g., increased core flow, extended operating domain, etc.).
6. Evaluation of the effect of the 3% tolerance limit on the containment response during loss-of-coolant accidents (LOCA) and the hydrodynamic loads on the SRV discharge lines and containment.

Following the issuance of the staff's SE, several BWR licensees have submitted and implemented the SRV tolerance band changes.

3.0 EVALUATION

In accordance with the staff's SE related to NEDC-31753P, the licensee provided plant specific analysis related to the increase in the SRV lift setting tolerance to $\pm 3\%$. The plant specific analysis submitted to justify the change in setpoint tolerances was performed with the expectation to also revise the number of required operable SRVs. However, this submittal deals only with the revision of setting tolerances for LaSalle, Unit 1. A future license submittal will address proposed changes to the actual number of SRVs. The assumed reduced number of SRVs is conservative with respect to the actual plant configuration and the supporting analyses for the setting tolerance changes. A reduced number of SRVs is bounding for reactor coolant system overpressure protection and the performance of individual valves and associated discharge piping.

The licensee evaluated the potential effect of increased SRV lift pressures on fuel performance limits derived from AOOs and design basis events. The increased setpoint tolerance was found to have no impact on the minimum critical power ratio (MCPR) or the LOCA analysis. During the limiting reload licensing events for LaSalle, the MCPR occurs before the actuation of the lowest SRV setpoint. For the LOCA analysis, the automatic depressurization system (ADS) function of the SRVs is assumed to operate, but this function is not affected by the increased safety function lift setting tolerance.

The licensee provided an analysis of the design basis overpressurization event, main steam isolation valve closure with reactor scram on high flux,

that assumes the +3% SRV setting tolerance. Other analysis assumptions were consistent with the current licensing basis and a conservative reduced number of SRVs was included in the analysis. The analysis resulted in a peak pressure less than the ASME upset limit of 1375 psig. The anticipated transient without scram (ATWS) event was also analyzed. The analysis results demonstrated that the peak pressure was less than the ASME emergency criterion of 1500 psig.

The performance of the high pressure core spray, reactor core isolation cooling, and standby liquid control systems were evaluated. This evaluation determined that these systems remained capable of performing their safety functions at the increased maximum pressures associated with the +3% SRV setting tolerance. The licensee also reviewed the potential impact of the increased differential pressures on valves associated with the systems and determined that the valves would perform as required.

The evaluations of the effect of the 3% tolerance limit on the containment response during LOCAs and the hydrodynamic loads on the SRV discharge lines and containment were included in the submittal. The evaluation determined that containment pressure and temperature responses to events were not impacted by the increased SRV setpoint tolerance. The increased forces on piping and structures introduced by higher flow rates associated with an increased maximum lift setting pressure was evaluated. These evaluations determined that available margins in the design calculations were sufficient to accommodate the increased loads for a +3% setpoint tolerance.

The staff concludes that a lift setting tolerance of $\pm 3\%$ was properly analyzed by the licensee in terms of the potential effects on plant equipment and design requirements. The conditions for plant specific analyses which were specified in the staff's SE of NEDC-31753P have been satisfied. The staff finds the proposed TS change acceptable.

4.0 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.

5.0 ENVIRONMENTAL CONSIDERATION

This 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 and changes a surveillance requirement. The NRC staff has determined that this 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 (60 FR 58398). 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.

6.0 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.

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Date: January 3, 1996