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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO INSERVICE TESTING PROGRAM RELIEF REQUEST VR-25

COMMONWEALTH EDISON COMPANY

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3

DOCKET NOS. 50-237 AND 50-249

1.0 INTRODUCTION

By letter dated March 13, 1991, as supplemented April 9, 1991, Commonwealth Edison Company (the licensee) requested relief from the setpoint testing requirements of the ASME Code, Section XI, IWV-3513, for main steam safety valves 2-203-4A thru 4H for Unit 2 and 3-203-4A thru 4H for Unit 3. The licensee has proposed to perform sample expansion when "as-found" relief valve setpoint testing is above 3% or below 4.8% to 6.3% (depending on the valve's original setpoint) of the stamped setpoint pressure.

2.0 DESCRIPTION AND DISCUSSION

2.1 Licensee's Basis For Requesting Relief (LBRR)

For main steam safety valve setpoint testing ("as-found" setpoint testing) IWV-3513 of the applicable Edition of Section XI (1977 Edition through the Summer of 1979 Addenda) does not provide definitive acceptance criteria for the determination of additional valve testing (sample expansion). However, IWV-3513 of the 1986 Edition of Section XI provides acceptance criteria via a reference to ANSI/ASME OM-1-1981, which provides requirements for inservice performance testing of pressure relief devices. For Class 1 pressure relief devices, OM-1-1981 provides a setpoint acceptance criteria of three percent (3%) greater than the stamped (design) set pressure.

Since OM-1-1981 does not provide guidance for sample expansion when the "as-found" setpoint pressure test results are found lower than the stamped (design) set pressure, a lower limit based on the peak steam line pressure which occurs during a Main Steam Isolation Valve (MSIV) closure with a direct scram (Group 1 isolation event) is considered appropriate. The licensee's reload licensing practices for the MSIV closure event require that a 60 psig margin exist between peak pressure and the lowest setpoint of the main steam safety valves (1240 psig), which corresponds to a peak pressure of 1180 psig, in order to ensure that the safety valves (which discharge to the drywell) do not lift.

2.2 Alternate Testing (AT)

For main steam safety valve setpoint testing ("as-found" setpoint testing), the following acceptance criteria will be utilized for the determination of additional safety valve setpoint testing: 1) an upper limit criteria of +3% (3% greater than design set pressure) as allowed by the 1986 Edition of Section XI; and 2) a lower limit criteria of 1180 psig which is consistent with reload licensing practices. The lower limit of 1180 psig translates to a setpoint decrease of approximately 4.8%, 5.6%, and 6.3% for the main steam safety valves with setpoints of 1240 psig, 1250 psig, and 1260 psig, respectively. Sample expansion of the safety valves will be consistent with IWV-3513 of the currently applicable Edition of Section XI (1977 Edition through the Summer 1979 Addenda). In accordance with the current Technical Specifications, the setpoint of the main steam safety valves will be within plus or minus one percent (±1%) of design set pressure prior to installation.

3.0 EVALUATION

The applicable Section XI Edition which applies to the licensee's IST program, does not explicitly contain limits for sample expansion. The limits to be used with this Edition of Section XI are derived from the Technical Specifications. In OM-1-1981, Section 1.3.3.1(d) gives an upper setpoint drift limit of 3% of the setpoint pressure. Section 1.3.3.1(e) details action when the valve testing indicates a lift pressure greater than 3% of the stamped setpoint pressure. The licensee conducted a bounding overpressurization event analysis using a conservative 5% increase in the lift pressures of main steam safety valves and the Target Rock safety-relief valve to support the use of an upper limit of 3%. The licensee's proposed alternative testing for the upper setpoint limit is equivalent to the upper limit specified in OM-1-1981 and, therefore, provides an acceptable level of safety.

The ANSI/ASME OM-1-1981 Standard does not address lower setpoints. The licensee has proposed lower setpoint drift limits for sample expansion of 4.8%, 5.6% and 6.3% for main steam safety valves (MSSV) with setpoints of 1240 psig, 1250 psig, and 1260 psig, respectively. These percentages correlate to sample expansion whenever the liftpoint is found to be less than 1180 psig, which the licensee described as their peak reactor pressure for an MSIV closure event. If the valves are allowed to drift the proposed percentages, there would be no margin between the sample expansion limit and the peak pressure in an MSIV closure event. Setpoint drift down to 1180 psig without testing of additional valves would increase the likelihood of the plant being operated with MSIVs that would lift at pressures below 1180 psig.

Experience with safety valves currently used in nuclear power plants indicates that normal expected setpoint drift is within plus or minus 3%. Setpoint drift outside this range is generally indicative of mechanical or human error problems that need to be addressed.

Based on the above considerations dealing with margin and normal expected setpoint drift, a lower limit of minus 3% would provide an acceptable level of safety. In addition, the staff has concluded that the licensee's proposed lower limits would not provide an adequate level of safety. In a conversation with the licensee on May 9, 1991, the staff explained its conclusions on the proposed lower limits and the licensee agreed to revise the lower limit to minus 3%.

4.0 CONCLUSION

Based on the technical specification requirements that valves be restored to plus or minus 1% prior to reinstallation, the acceptability of the licensee's proposed upper limit for sample expansion for setpoint drift, and provided the licensee revises its lower limit to minus 3%, relief should be granted.

The staff has determined in granting the relief, pursuant to 10 CFR 50.55a(a)(3)(i) and (g)(6)(i), that alternative testing would provide an acceptable level of quality and safety, and it is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest.

Principal Contributor: J. Colaccino

Date: June 26, 1991