



Commonwealth Edison

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February 11, 1991

Dr. Thomas E. Murley, Director
Office Of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

Subject: Zion Station Units 1 and 2
Request for Emergency Technical Specification Amendment
Facility Operating Licenses DPR-39 and DPR-48
Containment Type C Leak Rate Testing
NRC Docket Nos. 50-295 and 50-304

References: 1) January 30, 1991 letter from S. F. Stimac to T. E. Murley
2) February 1, 1991 letter from J. A. Zwolinski to T. J. Kovach

Dear Dr. Murley:

Pursuant to 10 CFR 50.91(a)(5), Commonwealth Edison proposes to amend the Technical Specifications of Facility Operating Licenses DPR-39 and DPR-48, and requests that the Nuclear Regulatory Commission grant an Emergency amendment to Technical Specification 3.10, entitled "Containment Structural Integrity". Consistent with NRC guidance, a request for an NRR Waiver of Compliance for the period until this amendment can be granted was provided in reference 2. The waiver of compliance provided in reference 2 expires on February 15, 1991. Therefore, the amendment is needed by 11:59 pm on February 15, 1991.

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Technical Specification 3.10 is intended to ensure that the containment structure meets its design requirements throughout plant life. The surveillance requirements of 4.10 which address leak rate testing are intended to ensure that the public exposure limits of 10 CFR 100 are met. Reference 1 transmitted an initial request for Emergency Technical Specification amendment to address containment Type C leak rate testing concerns. Based upon the results of a meeting held on February 6, 1991 at NRC offices, this initial submittal has been supplemented to:

- eliminate the request for relief from Type C testing of penetration P-76 (line 2SI020-314"E-R) for Unit 2. (This line was successfully tested in accordance with 10 CFR 50, Appendix J requirements on February 5, 1991.);
- address the Zion Station Confirmatory Order local leak rate testing requirements for Units 1 and 2 penetrations P-76 and P-80;
- identify an acceptable time period for completion of the "Zion Containment Local Leak Rate Testing Self-Assessment" and evaluation of any testing anomalies which may be identified.

The safety analysis included in Attachment A shows that this proposal will have a minimal impact on safety. For those pathways which are untested during Type C testing, a combination of design features, compensatory actions, and testing during integrated tests (Type A) ensures that safety is uncompromised for the duration of applicability of this amendment.

The need for this Emergency Technical Specification Amendment could not have been avoided. This situation was not created by the Station's failure to make a timely application for license amendment. The self assessment of the leak rate testing program at Zion was undertaken to document the technical and licensing basis for testing or not testing each potential containment leakage pathway. The fact that these pathways had never been tested previously, and that they should have been considered within the scope of Type C leak testing was never realized prior to the performance of this self-assessment. As such, there was no way to have predicted the need for these changes.

In support of this request, the following information is attached:

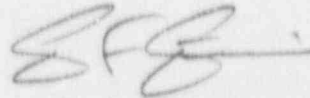
- Summary of Technical Specification Changes (Attachment A);
- Safety Evaluation/Analysis (Attachment A);
- Revised Technical Specification pages (Attachment B);
- No significant hazards consideration (Attachment C);
- Environmental Assessment (Attachment D);
- FSAR excerpts and drawings (Attachment E).

This request for an Emergency Technical Specification Amendment has been reviewed and approved by Edison Senior Management, as well as on-site and off-site review in accordance with Edison procedures.

As required by 10 CFR 50.91, the State of Illinois is being notified of the amendment request by transmittal of a copy of this letter and its attachments.

Please direct any questions or comments regarding this matter to this office.

Very truly yours,



S. F. Stimac
Nuclear Licensing Administrator

ST/dmg

Attachments

cc: Regional Administrator - Region III
J. Zwolinski - NRR
C. Patel - NRR
Senior Resident Inspector - Zion
M. Parker - IDNS

ATTACHMENT A

EMERGENCY TECHNICAL SPECIFICATION AMENDMENT

DATED FEBRUARY 11, 1991

CURRENT REQUIREMENT

Zion Station Technical Specification Surveillance Requirement 4.10.1.A.2 requires Type B and C leak tests (except air lock tests) to be performed in accordance with the provisions of 10CFR 50 Appendix J. Confirmatory Order item A.3 requires the performance of local leak rate testing on containment isolation valves that are not:

- 1) continuously pressurized by the penetration pressurization system, or
- 2) those valves which, under post-accident containment isolation conditions, are expected to be maintained continually at a pressure equal to or greater than the containment post-accident pressure. This includes valves under isolation valve seal water and those in systems required for post accident service if such systems operate at pressures above post-accident pressure.

REQUESTED REVISION

An asterisk note has been added to the bottom of page 214 stating that:

"Prior to startup following Z1C12 and Z2C12 operating cycles:

- 1) The Type C leak rate testing requirements in 10CFR50 Appendix J are not applicable to Unit 1 penetration P-80 (line 1RC158-4" AA-R), and Unit 2 penetration P-80 (line 2RC158-4" AA-R). Note 3 does not apply.
- 2) The local leak rate testing requirements of the February 29, 1980, Zion Confirmatory Order, Appendix A, Item A.3, Annex 1, Part 2, are not applicable to Unit 1 penetrations P-76 (line 1SI020-3/4" E-R) and P-80 (line 1RC158-4" AA-R), and Unit 2 penetrations P-76 (line 2SI020-3/4" E-R) and P-80 (line 2RC158-4" AA-R). Note 3 does not apply.
- 3) The Type C leak rate testing requirements specified in 10CFR50 Appendix J and the local leak rate testing requirements of the February 29, 1980, Zion Confirmatory Order, Appendix A, Item A.3, Annex 1, Part 2, are not applicable to the untested Unit 1 and 2 containment pathways evaluated during the "Zion Containment Local Leak Rate Testing Self-Assessment" until after March 11, 1991, at 11:59 pm. This note applies only to pathways evaluated and found acceptable based on the criteria established in the technical justification provided in support of this request."

This statement has been applied to Specification 3.10.1.A.2, 3.10.2.A.2, 4.10.1.A.2, 4.10.1.A.4, 4.10.1.A.6, and the Action Statement associated with Specification 3.10.1.A through the addition of an asterisk to these items. The purpose of this change is to clearly identify that, for the period of this Technical Specification Amendment, Type C leakage testing will not be required nor will it be added to the total integrated containment leakage rate for these penetrations.

SAFETY EVALUATION / ANALYSIS

Penetration 80 - Relief Valve Header To PRT (1/2RC158-4" AA-R):

This pathway contains a single check valve (RC8079) located in the containment in a missile protected area. This line routes incoming relief valve discharge from Emergency Core Cooling Systems outside the containment to the pressurizer relief tank.

The piping outside of containment is connected to the discharge line of various ECCS valves and does not communicate directly with atmosphere outside of containment. The piping outside of containment is seismically supported. Inside containment, the four inch piping containing 1/2RC8079 is missile protected and seismically supported. Four (4) relief valve lines (from RHR pump discharge, RHR pump suction, regenerative heat exchanger, and reactor coolant pump #1 seal leakoff), which are connected inside containment to the four inch piping containing 1/2RC8079, are missile protected and seismically supported. The only line connected to the four inch line which is not missile protected is associated with various valve packing leakoffs from valves inside containment. This line is located downstream of the 1/2RC8079 valves.

During the Type A containment leak test, the line associated with penetration P-80 is subjected to Type A test pressure minus the elevation differences between check valve 1/2RC8079 and the PRT. However, during the Type A test, the line associated with P-80 is tested with a water seal instead of being exposed to air as could occur during a design basis LOCA, since the PRT is filled to normal level during the Type A test. It should be noted that there has never been a Type A leak test failure at Zion attributable to penetration P-80 leakage. The last test was performed on Unit 1 in March, 1988 and on Unit 2 in October, 1988.

The 2RC8079 valve has been radiographed within the last 2 weeks. The results of this examination verified that the valve internals were intact. All piping, flanges, and relief valves outside of the containment on this pathway have been visually inspected. These inspections concluded that system integrity is maintained. The above referenced tests and inspections will be completed on Unit 1 prior to its return to service following the current forced outage.

The duration of the emergency technical specification change, addressing the 10CFR50 Appendix J and Confirmatory Order requirements for P-80 is from the time of issuance until the next scheduled refueling outage for each unit. The justification for this requested duration is based on the fact that the modifications which would allow this pathway to be local leak rate tested, have not yet been designed. It is not clear that modifying P-80 to allow Type C testing is consistent with Code and ECCS equipment operability requirements, therefore, the scope of the modifications or ultimate solutions is currently indeterminate.

For a release of radioactive containment atmosphere to occur through the untested P-80 pathway, the following combination of events must occur:

- 1) LOCA; AND
- 2) Rupture of piping inside containment connected to P-80

-OR-

Rupture of a PRT rupture disc

-OR-

Body to bonnet leakage of 1/2RC8079; AND

- 3) Seat leakage through 1/2RC8079; AND
- 4) Leakage out of ECCS relief line piping to the auxiliary building atmosphere.

Only the line associated with the valve packing leakoffs inside containment is not fully missile protected. Although leakage has not been measured individually for 1/2RC8079 and the associated Unit 1/2 relief line piping outside of containment, the series configuration has not resulted in unacceptable leakage Type A testing. The probability of occurrence of this combination of events during the limited time period of the waiver and amendment is judged to be sufficiently low as to result in no significant increase in risk to the health and safety of the public.

Penetration 76 - Accumulator Test Line 1/2SI020-3/4" E-R):

This pathway contains a single manual containment isolation valve (SI8961) located outside of the containment. This line allows backleakage testing of the Reactor Coolant System (RCS) to Emergency Core Cooling System (ECCS) Pressure Isolation Check Valves (PIVs) and is used for specific operating evolutions (i.e. Safety Injection Pump Testing and Accumulator Level adjustments).

All piping connected to the penetration inside containment is seismically supported. The piping inside containment from the penetration up to and including the air operated test valves is missile protected. UFSAR Table 6.6.5-1, sheet 5 classifies this penetration as Class 4. UFSAR Section 6.6.2.1.4 states that Class 4 penetrations are associated with closed systems inside containment. The piping outside containment is seismically supported to the holdup tanks.

The design of this penetration does not include sufficient block valves or test taps to permit a normal test setup to easily perform a Type C test. For this reason the penetration requires the use of an unconventional testing procedure (use of a freeze seal). The use of a freeze seal technique involves a difficult and time consuming procedure. Specifically, work inside containment could take several days and be very manpower intensive to complete. Thus, forced shutdown of either unit during this specified time period could result in unnecessary shutdown time just to complete this unconventional testing procedure.

During the Type A containment leak test, this penetration consisting of two valves in series is subjected to the Type A test pressure (i.e. test AOV's and SI8961). The line outside containment is connected to the Hold-up tank (HUT) and therefore any leakage would be routed to the installed waste collection system. The last Type A testing was successfully performed on Unit 1 in March, 1988 and on Unit 2 in October, 1988.

A satisfactory Type C test was performed on penetration P-76 (2SI020-3/4" E-R) on February 5, 1991. In addition, a satisfactory Type C test will be performed on the Unit 1 P-76 penetration prior to Unit 1 startup from the current forced outage (prior to entry to Mode 4). Based upon the satisfactory completion of type C leak testing, and the relatively short duration of the request, not performing augmented testing as required by the Confirmatory Order does not result in any significant increase in risk.

For a release of radioactive containment atmosphere to occur through the untested P-76 pathway, the following combination of events must occur:

- 1) LOCA; AND
- 2) Leakage of at least one test AOV; AND
- 3) Leakage of 1/2 SI8961

-OR-

Leakage of 2SI0003 (1PI-933 Root Valve); AND

- 4) Rupture of an ECCS or Accumulator injection line upstream of the first check valve connected to the reactor coolant piping.

-OR-

Backseat leakage past at least one ECCS check valve (PIV).

-OR-

Failure of the discharge MOV to close after discharge of an accumulator.

In accordance with Technical Specification 3.3.3.F, PIV leakage is verified to be within acceptable limits. The probability of these combinations of events is judged to be sufficiently low as to result in no significant increase in the risk to the health and safety of the public.

The duration of the emergency technical specification change, addressing the 10CFR50 Appendix J and Confirmatory Order requirements for P-76 is from the time of issuance until the next scheduled refueling outage for each unit. During the time period of the proposed exemption from leak testing under the Confirmatory Order requirement (from approval of this proposed change until prior to startup from the next refueling), it can be concluded that the resultant risk of a significant release of radioactivity to the atmosphere is low.

Zion Containment Local Leak Rate Testing Self-Assessment

CECo is currently performing a self-assessment of containment leakage pathways to determine if there are other pathways that may require local leak rate testing in accordance with 10CFR50 Appendix J. The goal of this program is to document the technical and licensing basis for testing or not testing each potential containment leakage pathway.

The exemption to 10CFR50 Appendix J and to the Zion Confirmatory Order, as denoted in proposed Footnote *, Item 3 to Technical Specification 3.10 (Attachment B), provides for a sufficient amount of time to complete the self-assessment program, to evaluate the effect of any deficiency on operability, and to take appropriate corrective actions.

Any potential testing deficiencies will have a minimal impact on safety since the pathways are of seismic design, are missile protected, are connected to the isolation valve seal water system, and/or have demonstrated overall containment integrity under a successfully completed Type A test (performed in 1988 for both units). The exemption of 10CFR50 Appendix J and to the Zion Confirmatory Order provides for a sufficient amount of time to complete the self-assessment program, to evaluate the effect of any deficiency on operability, and to take appropriate corrective actions. If such deficiencies are identified, CECO will: 1) assess applicability of the above design considerations and apply this note as appropriate, 2) take necessary actions to notify the NRC in accordance with the requirements of 10CFR50.72 and 10CFR50.73, and 3) assess and take immediate compensatory actions, as necessary. These actions will ensure that any deficiency identified by the self-assessment program will have minimal impact on safety.