UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE INSPECTION PROGRAM REQUEST FOR RELIEF FOR

COMMONWEALTH EDISON COMPANY

DRESDEN NUCLEAR POWER STATION, UNIT 2

DOCKET NO. 50-237

1.0 INTRODUCTION

The Technical Specifications (TS) for Dresden Nuclear Power Station, Unit 2, state that the inservice inspection and testing of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (Code) and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first ten-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) on the date twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the Dresden Nuclear Power Station, Unit 2, first ten-year inservice inspection (ISI) interval is the 1977 Edition. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval. However, the licensee has prepared the third ten-year interval inservice inspection program plan for Dresden Nuclear Power Station, Units 2 and 3, to meet the requirements of the 1989 Edition of the ASME Code.

By letter dated October 19, 1994, Commonwealth Edison Company (ComEd, the licensee) requested relief PR-19. The relief is evaluated in the following sections of this safety evaluation.

2.0 REQUEST FOR RELIEF NO. PR-19 ASME SECTION XI, SUBPARAGRAPH IULB - 5222(a), PERFORMING HYDROSTATIC TEST AT PRESSURES SPECIFIED IN TABLE IWB-5222-1 - FOLLOWING THE REPAIR/REPLACEMENT AT CLASS 1 COMPONENTS CODE REQUIREMENT

Section II, Paragraph IWA-5214 requires a system hydrostatic test be performed subsequent to the repair or replacement of a component (i.e., new main steamline drain piping). The pressure of the hydrostatic test must comply with the system test pressure requirements specified in Table IWB-B5222(a). The licensee has requested relief from performing a hydrostatic test at the pressures and temperatures specified in the Code.

2.1 Licensee's Basis for Requesting Relief

Hydrostatic tests are difficult to perform and often represents a true hardship. Some of the difficulties associated with hydrostatic pressure testing include the following:

- Hydrostatic testing often requires complicated or abnormal valve line-ups in order to properly vent, fill, and isolate the component requiring testing.

- Relief valves with set-points lower than the hydrostatic test pressure must be gagged or removed and blind flanged. This process requires the draining and refilling of the system.

- Valves that are not normally used for isolation (e.g., normally open pump discharge valves) are often required to provide pressure isolation for an elevated pressure hydrostatic test. These valves frequently require time consuming seat maintenance in order to allow for pressurization.

- The radiation exposure required to perform a hydrostatic pressure test is high (in comparison to the proposed pressure testing at 920 psig) due to the large amount of time and additional personnel required to prepare the volume for testing (i.e., installing relief valve gags, performing appropriate valve line-ups, etc).

The elevated pressure a hydrostatic test required by the Code would be performed at a pressure of approximately 1105 psig, but only a temperature of approximately 190 degrees Fahrenheit. The proposed test at 920 psig will be run at a temperature greater than 500 degrees Fahrenheit with the main steamline isolation valves open, but the main steam drain line closed. This valve lineup will create a large temperature differential between the main steamlines and the main steamline drain piping. This creates a large differential thermal expansion between the main steamline and the main steamline drain resulting in increased pipe stresses. This test configuration will allow examination of the main steamline drain line piping while the system experiences a higher level of stress due to increased thermal loads. Industry experience, which is corroborated by Dresden Station experience, shows that most through-wall leakage is detected during system operation as opposed to during elevated pressure tests.

2.2 Licensee's Proposed Alternative Examination

The licensee has proposed, as an alternative, to perform nondestructive examination (NDE) in accordance with methods and acceptance criteria of the applicable subsection of the 1992 Edition of Section III of the code.

A VT-2 visual examination will be performed with the Class 1 or 2 repaired/replaced component pressurized to 920 psig. This visual examination will be performed after this operating pressure has been held for the following times:

- uninsulated components shall be held at 920 psig operating pressure for 10 minutes prior to examination;

- insulated components shall be held at 920 psig operating pressure for 4 hours prior to examination.

3.0 EVALUATION

The Code requires that a system hydrostatic pressure test be performed at pressures specified in the Code for Class 1 or 2 repaired/replaced components. The licensee stated that the hydrostatic pressure test at the pressure specified in the Code following a repair or replacement is a true hardship with little benefit prior to restart of the unit. As an alternative, the licensee proposes to perform NDE in accordance with methods and acceptance criteria of the applicable subsection of the 1992 Edition of Section III of the code and a VT-2 visual examination at nominal operating pressure.

Compliance with the Code required hydrostatic test pressure requirements following a repair and replacement of the main steamline drain piping results in a hardship without a compensating increase in the level of quality and safety above that provided by the licensee's proposed alternative NDE and VT-2 visual examination at 920 psig operating pressure. The performance of the proposed alternatives will provide reasonable assurance of operational readiness of main steamline drain piping.

4.0 CONCLUSION

The licensee's proposal to verify the integrity and operational readiness of main steamline drain piping, as outlined in Relief Request PR-19, is found acceptable by the staff. Compliance with the code would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, Relief Request PR-19 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) until Dresden, Unit 2 is shutdown for its next refueling outage (D2R14).

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Date: October 26, 1994