UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Cleveland Electric Illuminating Company, Centerior Service Company, Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company, Toledo Edison Company	)	Docket No. 50-440
(Perry Nuclear Power Plant, Unit 1)	)	

EXEMPTION

I.

Cleveland Electric Illuminating Company, (the licensee) is the holder of Facility Operating License No. NPF-58, which authorizes operation of the Perry Nuclear Power Plant, Unit 1 (PNPP). The operating license provides, among other things, that the licensee is subject to all rules, regulations, and orders of the Commission now and hereafter in effect.

The facility consists of a single boiling water reactor located at the licensee's site in Lake County, Ohio.

II.

Containment leak rate testing is necessary to demonstrate that the measured leak rate is within the acceptance criteria cited in the licensing design basis. Periodic testing of the overall containment structure along with separate leak testing of the penetrations provides assurance that post-accident radiological consequences will be within the limits of 10 CFR Part 100. The Commission's requirements regarding leak rate testing are found in Appendix J to 10 CFR Part 50.

In its letter dated October 21, 1994, the licensee applied for partial exemptions from the Commission's regulations. The subject exemptions, which are from the requirements in Appendix J, Option A, to 10 CFR Part 50, include:

- Section III.A.5(b)(2) states that the measured leakage from the containment integrated leak rate (Type A) test (L_{am}) shall be less than 75% of the maximum allowable leakage rate (0.75 L_a).
- Sections III.B.3 and III.C.3 require that the combined leakage of valves and penetrations subject to Type B and C local leak rate testing be less than 0.6 times the maximum allowable leakage rate (0.6 L_a).
- Section III.A.1(d) requires that all fluid systems that would be open to containment following post-accident conditions, be vented and drained prior to conducting the containment integrated leak rate test.
- Section III.D.1(a) states that the third Type A test of each 10-year interval be conducted when the plant is shut down for the 10-year plant inservice inspection.
- Section III.D.3 states that Type C tests shall be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years. Type C tests are tests intended to measure containment isolation valve leakage rates.

III.

Section III.A.5(b)(2) states that the measured leakage from the containment integrated leak rate (Type A) test (L_{am}) shall be less than 75% of the maximum allowable leakage rate (0.75 L_a). The licensee proposes to exempt main steam line isolation valve leakage from Type A test results and consider leakage from the main steam lines separately. Sections III.B.3 and III.C.3

require that the combined leakage of valves and penetrations subject to Type B and C local leak rate testing be less than 0.6 times the maximum allowable leakage rate (0.6 L_a). The licensee proposes to exempt main steam line isolation valve leakage from the combined leakage from Type B and C local leak rate testing and consider leakage from the main steam lines separately. Section III.A.1(d) requires that all fluid systems that would be open to containment following post-accident conditions, be vented and drained prior to conducting Type A tests. The licensee proposes that the piping between the inboard and outboard main steam line isolation valves be flooded with water when Type A tests are conducted.

During the original staff review of the PNPP, the licensee proposed separate treatment of measured leakage past the main steam isolation valves. This approach is consistent with the staff's Standard Review Plan (SRP) 15.6.5, Appendix D, "Radiological Consequences of a Design Basis Loss-of-Coolant Accident: Leakage from Main Steam Isolation Valve Leakage Control System." In this SRP, the radiological consequences associated with leakage from the main steam lines is calculated separately and subsequently combined with the consequences from other fission product release paths.

As described in the Final Safety Analysis Report, the licensee calculates off-site dose consequences by assuming separate contributions from the containment integrated leak rate and the main steam line isolation valve leak rate. These assumptions are supported by the staff's Safety Evaluation Report (NUREG-0887) and the PNPP Technical Specifications. Both the FSAR and Specification 3.6.1.2.a state that the overall containment integrated leak rate shall be less than 0.20 percent per day. NUREG-0887 lists this same value for the containment integrated leak rate and a separate contribution from main steam line leakage. Finally, Specification 3.6.1.2.b specifically states that main steam line leakage will not be considered part of the combined leak rate for penetrations and valves. Specification 3.6.1.2.c limits the maximum allowable leakage from each main steam line to 25 standard cubic feet per hour.

As described above, the licensee does not include leakage from the main steam line isolation valves in either the Type A test results or the combined Type B and C test results. Since the licensee measures main steam line leakage separately from other Appendix J related testing, the licensee does not want leakage from the main steam lines to inadvertently influence the Type A test results. Therefore, in lieu of venting and draining the piping between containment isolation valves as required by Appendix J, the licensee proposes filling this section of piping with water when Type A tests are performed. Filling these sections of pipe with water would ensure that air would not pass through these lines and thereby contribute to the Type A test results.

The licensee has proposed alternative methods to the leak testing requirements of Appendix J. While the licensee is treating main steam line leakage separately from both Type A test results and the combined Type B and C test results, the licensee still meets the intent of Appendix J by demonstrating that the overall leakage is within design limits. Therefore, the staff concludes that special circumstances are present as required by 10 CFR 50.12(a)(2)(ii), in that application of the regulation is not needed to meet the underlying purpose of the rule. Furthermore, the staff finds that permitting the alternative methods of leak testing will not present an undue risk to the public health and safety.

Section III.D.1(a) requires, in part, that "...a set of three Type A tests shall be performed, at approximately equal intervals during each 10-year service period. The third test of each set shall be conducted when the plant is shutdown for the 10-year plant inservice inspections." The licensee proposes to perform the three Type A tests at approximately equal intervals within each 10-year period, with the third test of each set conducted as close as practical to the end of the 10-year period. However, there would be no required connection between the Appendix J 10-year interval and the inservice inspection 10-year interval.

The 10-year plant inservice inspection (ISI) is the series of inspections performed every 10-years in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and Addenda as required by 10 CFR 50.55a. The licensee performs the ISI volumetric, surface, and visual examinations of components and system pressure tests in accordance with 10 CFR 50.55a(g)(4) throughout the 10-year inspection interval. The major portion of this effort is presently being performed during the refueling outages. As a result, there is no extended outage in which the 10-year ISI examinations are performed.

There is no benefit to be gained by the coupling requirement cited above in that elements of the PNPP ISI program are conducted throughout each 10-year cycle rather than during a refueling outage at the end of the 10-year cycle. Consequently, the subject coupling requirement offers no benefit either to safety or to the economical operation of the facility.

Moreover, each of these two surveillance tests (i.e., the Type A tests and the 10-year ISI program) is independent of the other and provides assurances of different plant characteristics. The Type A test assures the required leak-tightness to demonstrate compliance with the guidelines of

10 CFR Part 100. The 10-year ISI program provides assurance of the integrity of the structures, systems and components as well as verifying operational readiness of pumps and valves in compliance with 10 CFR 50.55a. There is no safety-related concern necessitating their coupling in the same refueling outage. Accordingly, the staff finds that application of the regulation is not necessary to achieve the underlying purpose of the rule.

On this basis, the staff finds that the licensee has demonstrated that there are special circumstances present as required by 10 CFR 50.12(a)(2)(ii). Further, the staff also finds that the uncoupling of the Type A tests from the 10-year ISI program will not present an undue risk to the public health and safety.

Section III.D.3 of Appendix J states that Type C tests shall be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years. The licensee requested relief from the requirement to perform Type C tests during each reactor shutdown for refueling. The licensee proposes to perform the required Type C tests while the plant is at power.

Section II.D.3 of Appendix J requires that "Type C tests shall be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years." Paragraph III.D.2 discusses the scheduling of Type B tests and contains the same wording but also includes an additional provision that allows Type B tests to be performed at "other convenient intervals" in lieu of during reactor shutdown for refueling. The licensee has requested that this same flexibility be applied to Type C local leak rate testing.

The underlying purpose of the rule is to ensure that adequate testing is done to demonstrate containment integrity. From the standpoint of testing adequacy, when the testing is performed is not significant because the conditions of testing are the same regardless of when it is performed. As indicated by the licensee, the BWR/6 Mark III containment/suppression pool design is such that Type C local leak rate testing can be performed during power operation on certain systems. In addition, the Drywell and Containment Purge System containment isolation valves have surveillance requirements imposed on them to demonstrate leak tightness during power operation. These surveillance tests are the same exact leak rate tests as the Type C local leak rate tests performed during refueling outages.

Taking credit for testing performed during power operation provides the same degree of assurance of containment integrity as taking credit for testing performed during shutdown. In addition, testing while at power may be preferable when considering ALARA and operability requirements. Therefore, the special circumstances of 10 CFR 50.12(a)(2)(ii) are present in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule.

IV.

The Commission has determined that pursuant to 10 CFR 50.12(a)(1) that this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption;

namely, that application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this Exemption will not have a significant impact on the quality of the human environment (60 FR 51821). This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 4th day of December 1995.

FOR THE NUCLEAR REGULATORY COMMISSION

ORIGINAL SIGNED BY:

Jack W. Roe, Director
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

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