

June 29, 2006

Mr. Michael R. Kansler, President
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

SUBJECT: PILGRIM NUCLEAR POWER STATION - RELIEF REQUEST NO. PRR-4
(TAC NO. MC8287)

Dear Mr. Kansler:

By letter dated June 29, 2005, Entergy Nuclear Operations, Inc. (the licensee), requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, to perform the system leakage test for the Class 1 pressure retaining components within the reactor coolant pressure boundary vent, drain, and branch lines and connections in the normally closed position for Pilgrim Nuclear Power Station (Pilgrim).

The Nuclear Regulatory Commission staff has concluded that licensee's compliance to the inservice inspection (ISI) Code of Record would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the staff authorizes the ISI program alternative proposed in Relief Request No. PRR-4 for the fourth 10-year ISI interval for Pilgrim. The bases of granting the relief are provided in the enclosed safety evaluation.

If you have any questions regarding this approval, please contact the Pilgrim Project Manager, James Shea, at 301-415-1388.

Sincerely,

/RA/ John Boska for

Richard J. Laufer, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosure:
As stated

cc w/encl: See next page

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Pilgrim Nuclear Power Station

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST NO. PRR-4

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated June 29, 2005, Agencywide Documents Access and Management System (accession number ML051920157), Entergy Nuclear Operations, Inc. (the licensee) submitted Relief Request No. PRR-4, related to the Fourth 10-Year Interval Inservice Inspection (ISI) Program for the Pilgrim Nuclear Power Station (Pilgrim). Relief Request PRR-4 requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, to perform the system leakage test for the Class 1 pressure retaining components within the reactor coolant pressure boundary (RCPB) vent, drain, and branch (VTDB) lines and small bore connections (#1 inch) in the normally closed position. This would cause small segments of Class 1 lines to be excluded from the test boundary. The licensee's request for relief is based on hardship of making multiple entries into the drywell for the valve alignment and thus, exposing personnel to high radiation which potentially presents safety concerns for the personnel performing the test due to single valve isolation. The Nuclear Regulatory Commission (NRC) staff has evaluated the licensee's request for relief pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 10 CFR 50.55a(a)(3)(ii) and determined that compliance to the ASME Code requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee's request would be applicable during Pilgrim's fourth 10-year ISI interval, which ends on June 30, 2025.

2.0 REGULATORY EVALUATION

Section 50.55a(g) of 10 CFR requires that ISI of ASME Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Code and applicable addenda, except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). According to 10 CFR 50.55a(a)(3), alternatives to the requirements of paragraph 50.55a(g) may be used, when authorized by the NRC, if an applicant demonstrates that the proposed alternatives would provide an acceptable level of quality and safety or if the specified requirement would result in hardship or unusual difficulty 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 (ISI) 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 ISI of components and system pressure tests conducted during the first 10-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) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ISI Code of Record for the fourth 10-year inspection interval for Pilgrim is the 1998 Edition through the 2000 Addendum of the ASME Code, Section XI.

2.1 Code Requirements for Which Relief is Requested

Relief is requested from performing the system leakage test in accordance with the requirements of the 2001 Edition of the ASME Code, 2003 Addenda, Subsection IWB-2500, Table 2500-1 for the portion of the ASME Code Class 1 RCPB VTDB lines and small bore connections (#1 inch) with the isolation valves closed, which would cause small segments of Class 1 lines to be excluded from the test boundary.

2.2 ASME Code Requirements

The 1998 Edition through the 2000 Addenda of ASME Code, Section XI, Table IWB-2500-1, Examination Category B-P (B15.50 and B15.70) requires the system leakage test include all ASME Code Class 1 piping and valves within the pressure retaining boundary.

2.3 Licensee's Basis for Requesting Relief

The VTDB lines and connections are equipped with manual valves, which provide double valve isolation of the RCPB. These valves are generally maintained closed during normal operation. The piping outboard of the first isolation valve is not normally pressurized. Under normal operating conditions, the VTDB lines and connections see reactor coolant system pressures and temperatures only if leakage through the inboard valves occurs. To perform the ASME Code required test, it would be necessary to manually open the inboard valves to pressurize the VTDB lines and connections. Pressurization by this method defeats the purpose of double valve isolation and potentially presents safety concerns for the personnel performing the test.

The proposed alternative provides an acceptable level of safety and quality based on the following:

1. The non-isolable portion of the RCPB VTDB lines and connections will be pressurized and visually examined as required. Only the isolable portion of those small diameter VTDB lines and connections will not be pressurized.
2. A typical VTDB line and connection includes two manual valves separated by a short pipe nipple, which is connected to the RCPB via another short pipe nipple and a half coupling. All connections are typically socket-welded and the welds receive a surface examination after installation. The piping and valves are normally heavy wall (Sch. 160 pipe and 600# valve bodies). The VTDB lines and connections are not subject to high stresses or cyclic loads and design ratings are significantly greater than RCPB operating or design pressure.
3. Pilgrim's Technical Specifications (TSs) Limiting Condition for Operation in Sections 3.2.E and 3.6.C and the associated surveillance requirements including Sections 4.2.E and 4.6.C require performance of drywell and RCPB leakage monitoring during normal

operation. Should the TS limits be exceeded, appropriate corrective actions in accordance with the TSs will be implemented to identify the source of leakage and maintain leak-tight integrity of the RCPB boundary.

The licensee has proposed that an alternative system leakage test of the Class 1 systems and components will be performed prior to plant startup following each refueling outage, in accordance with the ASME Code, Section XI, 2001 Edition, 2003 Addenda, Table IWB-2500-1 and IWB-5220 requirements, with the exception that the RCPB VTDB lines and connections will be visually examined for leakage and any evidence of past leakage, with the isolation valves in the normally closed position. The RCPB VTDB lines and connections will be visually examined with the isolation valves in the normally closed position during the 10-year ISI system leakage test. This examination will be performed at nominal operating pressure associated with 100% reactor power after satisfying the required 4-hour hold time.

3.0 NRC STAFF EVALUATION

The ASME Code, Section XI requires that all Class 1 components within the RCPB undergo a system leakage test at the end of each refueling outage and a system hydrostatic test at or near the end of each inspection interval. In Relief Request No. PRR-4, the licensee proposed an alternative to the requirement of the test for the RCPB VTDB lines which would cause some line segments to be excluded from the test boundary. The line segments, as stated by the licensee, include two manually operated valves separated by a short pipe nipple that is connected to the reactor coolant system (RCS) via another short pipe nipple and half coupling. The line configuration, as outlined, provides double-isolation of the RCS. Under normal plant operating conditions, the subject line segments would see RCS temperature and pressure only if leakage through the inboard valves occurs. For the licensee to perform the ASME Code required test, it would be necessary to manually open the inboard valves to pressurize the line segments. Pressurization by this method would defeat the RCS double valve isolation and may cause safety concerns for the personnel performing the examination.

Typical line/valve configurations are in close proximity of the RCPB main steam loop piping and thus, would require personnel entry into high radiation areas within the containment. Manual actuation (opening and closing) of these valves is estimated to expose plant personnel to approximately 1 man-rem per test. The licensee proposed to visually examine the isolation valves in the normally closed position for leaks and any evidence of past leakage during system leakage test after each refueling outage. Also, the RCS vent and drain connections will be visually examined with the isolation valves in the normally closed position during the 10-year system hydrostatic test. The NRC staff believes that the licensee's proposed alternative will provide reasonable assurance of operational readiness for the RCPB VTDB line segments while maintaining personnel radiation exposure to as low as reasonably achievable. The staff has further determined that compliance to the ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

4.0 CONCLUSION

Based on the NRC staff's evaluation of the request for relief, the licensee's proposed alternative provides reasonable assurance of operational readiness, and compliance with the ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the proposed alternative in Relief Request No. PRR-4 is authorized for the fourth 10-year ISI interval of

Pilgrim. All other requirements of the ASME Code, Section XI for which relief has not been specifically requested remain applicable, including a third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: P. Patnaik

Date: June 29, 2006