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April 20, 2007
BVY 07-017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Relief Request No. ISI-PT-01, Alternate Pressure Testing for
Buried Piping Components, Fourth Inservice Inspection (ISI) Interval

Pursuant to 10 CFR 50.55a(g)(5)(iii), Entergy Nuclear Operations, Inc. (Entergy) hereby requests relief from certain Inservice Inspection Program requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, 1998 Edition with 2000 Addenda, for the Vermont Yankee Nuclear Power Station (VY).

In accordance with the requirements of 10CFR50.55a(g)(5)(iii), if a licensee determines that conformance to certain ASME Code requirements is impractical for the facility, the licensee shall notify the Commission and submit, as specified in 10CFR50.4, information to support the determination. The attached Relief Request (RR) No. ISI-PT-01 requests relief from specific ASME Section XI requirements for inservice pressure tests that are considered impractical. RR ISI-PT-01 shall apply for the remaining duration of the Fourth ISI Interval, unless subsequently amended as a result of changes in technology or plant design, or as a result of installed modifications.

There are no new regulatory commitments contained within this letter.

If there are any questions regarding this submittal, please contact Mr. David Mannai at (802) 258-5422.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 20th day of April, 2007

Sincerely,

Ted A. Sullivan
Site Vice President
Vermont Yankee Nuclear Power Station

Attachment
cc: Listed on next page

A047

cc: Mr. Samuel J. Collins
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Attachment 1

Vermont Yankee Nuclear Power Station

Relief Request No. ISI-PT-01

Alternate Pressure Testing for Buried Piping Components
Fourth Inservice Inspection Interval

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Proposed Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)
Inservice Inspection Impracticality

1. ASME Code Component(s) Affected

Code Classes:	3
Examination Categories:	D-B
Item Numbers:	D2.10
Component Numbers:	Buried Class 3 Pressure Retaining Components Subject to System Pressure Testing in the Service Water System

2. Applicable Code Edition and Addenda

ASME Code Section XI, 1998 Edition with 2000 Addenda

3. Applicable Code Requirement

IWA-5244(b)(1)

Article IWA-5000, "System Pressure Tests," Sub-subarticle 5240, "Visual Examination," Paragraph IWA-5244, "Buried Components," states:

(b) For buried components where a VT-2 visual examination cannot be performed, the examination requirement is satisfied by the following:

(1) The system pressure test for buried components that are isolable by means of valves shall consist of a test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components. The acceptable rate of pressure loss or flow shall be established by the Owner.

4. Impracticability of Compliance

A. Pursuant to 10CFR50.55a, "Codes and Standards," Paragraph (g)(5)(iii), relief is requested from the requirements of ASME Code Section XI, 1998 Edition with 2000 Addenda, IWA-5244(b)(1), because the isolation valves are not suitable for performing a pressure isolation function.

1. Service Water System

a. The Service Water System consists of two redundant headers supplying cooling water to safety-related components (e.g., two Residual Heat Removal Service Water trains, two Reactor Equipment Cooling heat exchangers, two Emergency Diesel Generators, two Standby Fuel Pool Cooling trains, and miscellaneous Reactor Building cooled loads) and non-safety related components (e.g., turbine

Relief Request No. ISI-PT-01 (Continued)
Alternate Pressure Testing for Buried Piping Components
Fourth Inservice Inspection Interval

lube oil coolers, generator hydrogen cooler, and miscellaneous Turbine Building cooled loads). Each redundant Service Water header is cross-connected on the header inlets and outlets.

b. For the buried portion of the Service Water redundant supply headers, isolation valves are installed in the system. The isolation valves are located in the Intake Structure building and the Reactor Building. The three main valves that isolate the buried piping in each header are large (20" and 24" NPS) gate valves, which are not suitable for performing a pressure isolation function without modification. These valves are not specified to be leak-tight and would therefore provide multiple leakage paths. The design of the system prevents the supply header isolation valves from being placed in a condition that removes the operating header pressure from the valves being relied on as the test boundary (valves can not be placed in leak-off).

2. Alternate Cooling System

a. The Alternate Cooling System (ACS) mode of the Service Water System provides an alternate decay heat removal process if the Service Water Intake Structure, the Service Water pumps, or the Vernon Pond on the Connecticut River (the ultimate heat-sink) become unavailable.

1. The ACS uses a buried suction header from the cooling tower cell to supply either train of the Residual Heat Removal Service Water System (RHRSW). The RHRSW pumps provide cooling for the two Emergency Diesel Generators, a Residual Heat Removal train, Standby Spent Fuel Pool Cooling trains, and miscellaneous Reactor Building cooled loads. This header is normally isolated and periodically inspected and treated with biocide to limit the formation of micro-biologically induced corrosion.

2. The return of water to the cooling tower cell via the buried return header is accomplished by isolating the normal discharge to the Vernon Pond and opening valves near the cell, thereby diverting flow to the cooling tower cell. The design of the ACS requires isolation of the safety-related portion of the Service Water Discharge header (i.e., removal of all safety-related service water) when the plant is shut down. This activity can only be conducted when the decay heat load has been reduced during a refueling outage with an adequate "time-to-boil" to allow for a controlled transition between the modes of operation.

b. For the buried portion of the ACS, isolation valves are installed in the system. The isolation valves are located in the Reactor Building and in a piping man-way near the safety-related cell of the Cooling Tower System. The two main valves that isolate the ACS suction piping are large (24" NPS) gate valves, which are not suitable for performing a pressure isolation function without modification.

Relief Request No. ISI-PT-01 (Continued)
Alternate Pressure Testing for Buried Piping Components
Fourth Inservice Inspection Interval

The ACS return header isolation valves include six large (20", 18" and 12" NPS) gate valves, three large (8" NPS) butterfly valves and numerous smaller isolation valves. These valves are not suitable for performing a pressure isolation function without modification. The design of the system prevents the isolation valves in the suction and return headers from being placed in a condition that removes the operating header pressure from the valves being relied on as the test boundary (valves can not be placed in leak-off).

B. IWA-5244(b)(1) also allows determining a change in flow between the ends of the buried components. No flow instrumentation is installed in the systems. Accurate flow measurements using temporary flow instrumentation (e.g., ultrasonic flow meters) are not possible due to insufficient runs of straight pipe.

5. Burden Caused by Compliance

A. Leakage testing of the buried portion of the Service Water redundant supply headers to determine the rate of pressure loss would require modification of the isolation valve seats, but that modification would be extensive and may not provide conclusive test results.

B. Leakage testing of the buried ACS suction and return headers to determine the rate of pressure loss would require modification of the isolation valve seats, but that modification would be extensive and may not provide conclusive test results.

C. The installation of permanent flow instruments to implement the alternative flow measurement provisions of IWA-5244(b)(1) would require significant system modifications. The cost of these modifications is not justifiable when weighed against the benefits. The following proposed alternative would provide reasonable assurance that any significant leakage from the buried piping will be detected.

Proposed Alternative and Basis for Use

In lieu of performing a system pressure test in accordance with the requirements specified in IWA-5244(b)(1), VY shall use the provisions of IWA-5244(b)(2) which state that *"The system pressure test for nonisolable buried components shall consist of a test to confirm that flow during operation is not impaired."* Confirmation that flow during operation is not impaired will be assured, for the Service Water System, by the presence of adequate component cooling during seasonal periods of the highest heat load (typically late August through early September) and, for the Alternate Cooling System, by the presence of adequate component cooling during conduct of system performance testing during plant shutdowns. Additionally, VY will conduct a walk-down, concurrent with the flow verification, examining the buried piping routes for evidence of soil subsidence that would be indicative of gross leakage. Any gross leakage is also likely to be visible to operators during their normal rounds.

Relief Request No. ISI-PT-01 (Continued)
Alternate Pressure Testing for Buried Piping Components
Fourth Inservice Inspection Interval

Duration of Proposed Alternative

These proposed alternatives will be used for the remaining duration of the fourth ten-year interval for the VY ISI program.

Precedents

Similar relief requests were granted to Cooper Nuclear Station (TAC NO. MD 0286), and Byron Station Units 1 and 2 and Braidwood Station Units 1 and 2 (TAC NOs. MD 1757, MD 1758, MD 1759 and MD 1760).