



Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

April 16, 2008

Stephen J. Bethay
Director, Nuclear Assessment

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

SUBJECT: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No. 50-293
License No. DPR-35

Pilgrim Inservice Testing (IST) Relief Request No. RV-07, Alternative
to the ASME OM Code 5-year Test Interval for Main Steam Safety Relief
Valves

LETTER NUMBER: 2.08.021

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy Operations, Inc. (Entergy) requests approval of proposed Relief Request VR-4A to extend the 5-year test interval, on a one-time basis, for one Main Steam Safety Valve (MSSV) RV-203-4A at Pilgrim Nuclear Power Station (PNPS).

Specifically, Entergy requests relief from American Society of Mechanical Engineers (ASME), "Code of Operations and Maintenance of Nuclear Power Plants," 1995 Edition through 1996 Addenda (ASME OM Code), Appendix I, "Inservice Testing of Pressure Relief Devices in Light Water Reactor Power Plants," Section I 1.3.3, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval."

Enclosure 1 describes the scope of the Pilgrim IST Relief Request and provides reference to the previously NRC approved relief requests for Quad Cities, Susquehanna, and Nine Mile Point Nuclear Power Plants.

Entergy requests approval of proposed Relief Request by June 5, 2008 to enable continued operation of PNPS until the seventeenth refueling outage (RFO-17), which is currently scheduled to begin on or about April 19, 2009.

This letter contains no commitments

Should you have any questions regarding this submittal, please contact our Licensing Manager, Mr. Joseph R. Lynch at (508) 830-8403.

Sincerely,

A handwritten signature in black ink that reads "Stephen J. Bethay". The signature is written in a cursive style with a large, looping initial 'S'.

Stephen J. Bethay

WGL/dal

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NRR



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Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station

Letter Number: 2.08.021
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Enclosure 1: Pilgrim IST Relief Request No. RV-07, Relief From ASME OM Code 5-year
Interval Testing Requirement for Main Steam Safety Valve, RV-203-4A (6 pages)

cc: Mr. James S. Kim, Project Manager
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Enclosure 1

Entergy Letter No. 2.08.021

Pilgrim IST Relief Request No. RV-07

**Relief From ASME OM Code 5-year Interval Testing Requirement for
Main Steam Safety Valve, RV-203-4A
(6 pages)**

**Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty without Compensating
Increase in Level of Quality or Safety**

1. ASME Code Component(s) Affected

Pilgrim Nuclear Power Station (PNPS), Main Steam Safety Valve (MSSV)

Model: 6-3777QA

Manufacturer: Dresser, Inc

Table 1 provides valve-specific identification data, test dates, installation dates, and requested extension duration for the one valve.

2. Applicable Inservice Testing Interval, ASME Code Edition and Addenda

Pilgrim is in the 4th IST interval that began in December 2002. The applicable American Society of Mechanical Engineers (ASME) OM Code, "Code for Operation and Maintenance of Nuclear Power Plants," is 1995 Edition through 1996 Addenda (ASME OM Code).

3. Applicable Code Requirement

ASME OM Code, Appendix I, "Inservice Testing of Pressure Relief Devices in Light Water Reactor Power Plants," Section I 1.3.3, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval."

This section states that "Class 1 pressure relief valves shall be tested at least once every five years, starting with initial electric power generation". This section also states "that a minimum of 20% of the valves from each group shall be tested within any 24 month interval", and that "The test interval for any individual valve shall not exceed 5 years."

4. Reason for Request

10 CFR 50.55a(f)(4) directs licensees to meet inservice testing requirements for ASME Code Class 1 valves set forth in the ASME OM Code and addenda. The fourth ten-year inservice testing (IST) interval for PNPS is based on the 1995 Edition through 1996 Addenda of the ASME OM Code (OMa-1996 Code), and specifically Appendix I of the OM Code, "Inservice of Pressure Relief Devices in Light Water Reactor Nuclear Power Plants."

The ASME OM Code, Subsection ISTC, Section ISTC 3.2, "Inservice Testing", states that "Inservice testing in accordance with this Subsection shall commence when the valves are required to be operable to fulfill their required function(s)". The ASME OM Code, Appendix I, Section I.1.3.3, "Test Frequencies, Class 1 Pressure Relief Valves" states that Class 1 pressure relief valves shall be tested at least once every five years,

starting with initial electric power generation. This section also states that the test interval for any individual valve shall not exceed 5 years.

The required test ensures that the MSSV, which is located on the 'A' main steam line between the reactor vessel and the first isolation valve within the drywell, will open at the pressures bounded by the safety analysis.

In accordance with 10CFR 50.55a, "Codes and Standards," paragraph (a)(3)(ii), Entergy requests relief from the requirements of ASME OM Code, Appendix I, Section I 1.3.3 for one MSSV at PNPS until the seventeenth refueling outage (RFO-17), which is scheduled to begin on or about April 19, 2009. The requested duration of the relief is 11 months for the affected MSSV.

NUREG-1482, Revision 1, "Guidelines for Inservice Testing at Nuclear Power Plants," Section 3.1, "Inservice Test Frequencies and Extensions for Valve Testing, states that *"the NRC may approve relief to extend a test interval for extenuating circumstances in which (1) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, or (2) the system design makes compliance impractical. Impractical conditions that would justify a test deferral are those that result in an unnecessary plant shutdown, cause unnecessary challenges to safety systems, or cause unnecessary cycling of equipment."* In addition, the ASME OM Code, Section ISTC 4.2.2, "Inservice Exercising Tests for Category A and B Valves, Exercising Requirements", paragraph (e) states that if exercising is not practicable during plant operation or cold shutdowns, it (testing) may be limited to full-stroke during refueling outages.

Compliance with the applicable requirements of the ASME OM Code for the one MSSV at PNPS, prior to RFO-17 is not practical, in that the evolution would result in an unnecessary plant shutdown, unnecessary challenges to safety systems, and unnecessary cycling of equipment, all without a compensating increase in the level of quality or safety.

Entergy currently replaces one (out of 2) MSSV at PNPS every refueling outage, so that all valves are removed and tested every two refueling outages. This methodology supports the ASME OM Code requirements for testing previously untested Class 1 pressure relief valves. After each valve is removed and as-found tested, the MSSVs are refurbished to a like-new condition, and reset to an as-left value of plus or minus 1%.

Entergy utilizes Wyle Laboratories to perform as-found and as-left testing, and test inspection of the PNPS MSSVs. Entergy utilizes Dresser, Inc for the valve disassembly, refurbishment, and part inspections of the PNPS MSSVs. Both Wyle and Dresser are qualified and approved PNPS vendors for the respective tasks that they perform. PNPS procedures require that the safety valve with the earliest service date be removed for testing each RFO. Since there are only 2 safety valves installed, this means that the longest any safety valve can be installed in the plant without testing is 2 cycles (48 months). During the following cycle, the valve is as-found tested by Wyle, disassembled, inspected, and reassembled by Dresser, and re-certified by Wyle for installation during the next RFO. When the re-certification is completed early in the cycle (so the valve will be available as a spare), the valve test-to-test interval may exceed 60 months; but is always less than 72 months.

4. Reason for Request (continued)

The valve is disassembled, inspected, and reassembled in accordance with the Dresser Repair Plan and Report for Model 3700 Series Safety Valves. The repair plan identifies the critical dimensions that are required to be measured during the inspection, and the critical components that are required to be inspected and verified as acceptable for wear and defects. If any components are found to be worn or outside the specified tolerances, they are refurbished to meet these required tolerances, or the applicable part is replaced. The valve is then re-assembled and certified by performing a minimum of two consecutive lifts within 1% of the valve's nameplate set pressure. The certified As-Left set point is typically set to within ½ % of the valve's nameplate set pressure.

As part of a review of the PNPS IST program with respect to a recent ASME OM Code interpretation, Entergy identified a discrepancy relative to the 5-year test interval. The ASME OM Code interpretation (i.e., ASME Code Interpretation 01-18 from the ASME OM Code, 2004 Edition) indicated that implementation of the 5-year test interval should be based upon a "test-to-test" duration. The historical method used at PNPS with respect to MSSV test intervals has been to use an "installation-to-test" duration, and to ensure that all installed MSSVs would not exceed a 5-year testing frequency.

During refueling outage (RFO-17), which is scheduled to begin in April 19, 2009, Entergy will replace and test both MSSVs. The subject MSSV is listed in Table 1 and is currently scheduled to be replaced during RFO-17. The replacement and test schedule is consistent with the historical Entergy method for implementing OM Code, Appendix I, Section I 1.3.3, (i.e., the valves will have been installed for less than or equal to two operating cycles). However, utilizing a test-to-test interpretation, the 5-year interval for the MSSV listed in Table 1 will have expired prior to beginning RFO-17, as indicated in below.

Table 1

Valve Location	Valve Serial Number	Last Test Date	Installation Date	Storage Duration	Scheduled Replacement Outage	Scheduled Replacement Date	Installed Time at Replacement	Requested Interval Extension
'A' Main Steam Line	BK630 2	6/5/03	4/25/05	22 ½ months	RFO-17	4/19/09	48 months	11 months

5. Proposed Alternative and Basis for Use

Entergy proposes to remove and test the MSSV listed in Table 1 during RFO-17, along with the remaining other MSSV that will not have expired by RFO-17.

IST history for MSSVs at PNPS from 1987 to the present indicates that the results for all of the tests (7 total), conducted on MSSVs that have been installed for two operating cycles (i.e., 48 months) have successfully passed the ASME OM Code "as-found" acceptance criteria of plus or minus 3%. Furthermore, historical test data indicates that 3 of the 7 tests remained within the as-found Technical Specification (TS) tolerance of plus or minus 1%. Finally, the as-found test data for the other 4 MSSVs that lifted outside the PNPS owner specified TS 1% tolerance showed that 3 of the valves

exceeded the acceptance criteria in the negative or conservative direction. The one MSSV that exceeded the acceptance criterion in the positive direction was found to be above the PNPS owner specified 1% tolerance by 8 psig.

IST history, for MSSV serial number BK 6302, for which relief is being requested, from 1990 to the present indicates that all of the tests (3 total) for this MSSV in which it was installed for two operating cycles (i.e., 48 months) have successfully passed the ASME OM Code as-found acceptance criteria of plus or minus 3%. Historical test data also indicated that 2 of the 3 tests remained within the TS tolerance of plus or minus 1%. The as-found test data for the one MSSV test that lifted outside the 1% tolerance showed this valve exceeded the acceptance criteria in the conservative direction; BK 6302 lifted one pound below the 1% acceptance range. Moreover, a fourth test of this MSSV occurred after it had been installed for 1.3 years. Prior to this installation, the valve was stored for 1.6 years. After it was removed, it was stored for an additional 3.9 years prior to the as-found testing (a total test-to-test time of 6.8 years). The as-found test for this fourth occurrence was 4 psig high (0.32% high) which is within the 1% TS tolerance.

The Entergy data analysis also indicates that the PNPS test data is consistent with other industry data for this model MSSVs, including Quad Cities Nuclear Power Station, Units 1 & 2 and Dresden Nuclear Power Station, Units 1 & 2. Additionally, PNPS personnel have indicated that station experience with Dresser Model 6-3777QA MSSVs has been reliable and consistent, and recalled no failures exceeding the OM Code as-found acceptance criteria of plus or minus 3% since the early 1980s.

Entergy has reviewed the historical MSSV vendor Technical Information Program Manual (i.e., Dresser), to identify any operating and/or maintenance experience with Model 6-3777QA valves that could provide additional insights regarding the impact of controlled environment storage upon MSSVs. This review indicated that that the Dresser 3777Q MSSVs should be stored in a controlled environment, inside specially designed metal containers prior to installation as replacement MSSVs. The vendor recommendations also specify that the controlled environment in which these MSSVs would be stored is not subject to thermal cycling or vibration (i.e., the normal operating conditions to which MSSVs are subjected). Entergy complies with these vendor recommendations for valve storage. The test certified valves are stored with robust foreign material exclusion (FME) barriers installed on the valve inlet and outlet ports, in areas that meet Level B storage requirements at both Wyle Labs and Pilgrim Station. The tested valves are normally stored in sealed metal containers (they may be stored out of the metal container on the shop floor in a controlled area at Wyle Labs while they await shipment), in the upright position. At Pilgrim the valves are normally stored in the Reactor Building. At both locations, the valves are maintained in environments that are well within the temperature limits specified by the vendor for extended storage; 40°F to 140°F. Table 1 provides the storage time (time period from the as-left test to the installation date) and the installed time of the one affected MSSV at the start of the RFO-17, in which it will be replaced.

Finally, the MSSV vendor (Dresser, Inc) has indicated to other industry users (i.e., Plants within the Exelon Generating Company) of the Model 3777Q valve that, in general, there is no degradation in an MSSV when properly stored in a controlled environment for approximately 5 years.

6. Duration of Proposed Alternative

This proposed alternative is requested until the start of RFO-17, which is scheduled to commence on or about April 19, 2009. Table 1 provides the requested test interval extension for the affected MSSV.

7. Precedents

Reference 1: The NRC reviewed and approved a relief request for Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2 to extend the MSSV 5 year test interval, on a one-time basis, for three MSSVs at QCNPS, Unit 1 and five MSSVs at QCNPS, Unit 2. The NRC allowed for a total installed interval of at least six years in contrast to the PNPS one-time request to extend the test interval for one MSSV by a maximum of 11 months.

Reference 2: The NRC reviewed and approved a relief request for Susquehanna Steam Electric Station, Units 1 and 2 to extend the MSSV test interval duration for individual valves to six years for the entire third 10-year Inservice Testing interval. The NRC allowed for a total installed interval of at least six years in contrast to the PNPS one-time request to extend the test interval for one MSSV by a maximum of 11 months.

Reference 3: The NRC reviewed and approved a relief request for Nine Mile Point, Unit 2 to extend the MSSV test interval duration for individual valves to two refueling outages or approximately six years for the entire third 10-year Inservice Testing interval. The NRC allowed for a total installed interval of at least six years in contrast to the PNPS one-time request to extend the test interval for one MSSV by a maximum of 11 months.

8. References

1. Letter from R. Gibbs (USNRC) to Charles G. Pardee (QCNPS), "Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Relief from ASME OM Code 5-year Test Interval for Main Steam Safety Valves (Relief Request RV-30E)", dated September 7, 2007.
2. Letter from R. J. Laufer (USNRC) to B. L. Shriver (SSES), "Susquehanna Steam Electric Station Units 1 and 2 - Third 10-Year Interval Inservice Testing (IST) Program Plans," dated March 10, 2005
3. Letter from M. Banerjee (USNRC) to J.H. Mueller (NMPC), "Nine Mile Point Nuclear Power Station, Unit No. 2 – Alternative to American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Regarding Inservice Testing of Safety Relief/Relief Valves (TAC No. MB0290)," dated April 17, 2001 [NMPC Submitted Request November 28, 2000.]