



Entergy Nuclear Operations, Inc.  
Pilgrim Nuclear Power Station  
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Site Vice President

May 24, 2005

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

Request for Amendment to the Technical Specifications (TS), Removal of  
Main Steam Isolation Valve (MSIV) Twice Per Week Testing Surveillance  
Requirement

**LETTER NUMBER:** 2.05.003

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations Inc. (Entergy) proposes to amend the Pilgrim Station Facility Operating License, DPR-35. This proposed license amendment deletes the Main Steam Isolation Valve (MSIV) twice per week partial stroke testing surveillance specified in Technical Specification (TS) 4.7.A.2.b.1.c.

Entergy has reviewed the proposed amendment in accordance with 10 CFR 50.92 and concludes it does not involve a significant hazards consideration. The attachments provide a description of the proposed change and mark-up of the Technical Specification and Bases pages.

Entergy requests approval of the proposed amendment by June 1, 2006. Once approved, Entergy will implement the amendment within 60 days.

This letter contains no regulatory commitments.

If you have any questions or require additional information, please contact Bryan Ford at (508) 830-8403.

A001

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

Executed on the 24th of May 2005.

Sincerely,

Handwritten signature of Michael A. Balduzzi in black ink, with the initials 'MAB' written to the right of the signature.

Michael A. Balduzzi

WGL/dm

- Attachments:
1. Evaluation of the Proposed Change (5 pages)
  2. Mark-up of Technical Specification pages (2 pages)

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## ATTACHMENT 1

### Evaluation of the Proposed Change

**Subject:        Removal of Main Steam Isolation Valves (MSIVs) Partial Closure Stroke Test  
                  Surveillance Requirement**

1.     **DESCRIPTION**
2.     **PROPOSED CHANGE**
3.     **BACKGROUND**
4.     **TECHNICAL ANALYSIS**
5.     **REGULATORY SAFETY ANALYSIS**
  - 5.1    **No Significant Hazards Consideration**
  - 5.2    **Environmental Consideration**
6.     **PRECEDENTS**
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Removal of Main Steam Isolation Valves (MSIVs)  
Partial Closure Stroke Test Surveillance Requirement

1. DESCRIPTION

Pursuant to 10 CFR 50.90, Entergy proposes to amend the Technical Specifications (TS) for Pilgrim Nuclear Power Station. This proposed change deletes the requirement to perform the twice per week partial stroke testing of the main steam isolation valves (MSIVs) during power operation as specified in 4.7.A.2.b.1.c. The MSIVs will continue to be full stroke tested in accordance with the in-service testing program in compliance with TS 3/4.13.

This proposal is consistent with guidance provided by the NRC in NUREG-1482, Section 4.2.4, Note for reducing challenges to relief valves due to MSIV testing, and BWR/4 Standard Technical Specifications (NUREG-1433). NRC has previously approved similar license amendments for James A Fitzpatrick (TAC No. MA7282, dated February 24, 2000), Vermont Yankee (TAC No. MA8188, dated March 9, 2000), Duane Arnold (TAC No. 80459, dated July 12, 1991), and Quad Cities (TAC No. 56507, dated February 20, 1987).

Entergy requests NRC review and approval of the proposed TS change by May 1, 2006.

2. PROPOSED CHANGE

The TS Surveillance Requirement 4.7.A.2.b.1.c is revised to state, "deleted" on TS page 3/4.7-6.

The second paragraph on TS Bases page B3/4.7-6 is revised to read, "The main steam line isolation valves are functionally tested in accordance with the in-service testing (IST) program". This page is included for information only.

Attachment 2 provides marked-up TS and Bases pages.

3. BACKGROUND

Pilgrim MSIVs are Atwood-Morill, 20" Y-pattern globe valves, sized to pass rated steam flow, and designed for tight shutoff and positive seating. These are AO-203-1A, -1B, -1C, -1D and AO-203-2A, -2B, -2C, -2D. Two solenoid-operated pilot valves, one powered by AC, and the other by DC, actuate each inboard and outboard MSIV. In addition, a separate second AC test solenoid valve can be used to perform a slow closure test of the valve. The inboard MSIVs are powered from 125V Bus D6 for the DC solenoids, and from 120 V Bus Y3 for the AC solenoids; the outboard MSIVs are powered from 125 volt DC Bus D5 for the DC solenoids, and from 120 volt AC Bus Y4 for the AC solenoids. The MSIVs are designed to close automatically when required to limit the loss of reactor coolant and/or release of radioactive materials in case of a main steam line break, control rod drop, or loss of coolant accident.

The Pilgrim MSIVs are spring closing, pneumatic, piston-operated valves designed to automatically close (fail-safe) upon loss of pneumatic pressure to the valve operator. The solenoid-operated pilot valves control valve opening and closure. Directing

pneumatic pressure to the valve operator to overcome the closing force exerted by the spring opens the MSIV, while either a re-directed pneumatic pressure and/or spring force will close the MSIV. Using positioning control valves to direct pneumatic pressure, individual MSIVs can be fast-closed or slow-closed as necessary during periodic testing.

The current TS 4.7.A.2.b.1.c surveillance requirement of twice per week partial stroke testing was originally incorporated into the TS at the time Pilgrim was first licensed to operate and was intended to establish a high degree of reliability of MSIVs.

The surveillance test requires MSIVs be exercised at power twice weekly by partial closure and reopening. This partial stroke testing is conducted from the control room and is intended to ensure the solenoid-operated pilot valves are not stuck or binding. The control room operator performs the MSIV exercise test by manually depressing a pushbutton switch, which energizes a test pilot solenoid causing a 3-way flow control valve to slowly relieve pneumatic pressure from the actuator. As the MSIV slowly closes, the operator monitors the control room panel indicating lights to verify valve movement. When the MSIV is still about 90% full open, the operator releases the test pushbutton, reversing the flow control valve and causing the MSIV to return to the full open position.

#### 4. TECHNICAL ANALYSIS

The safety function of the MSIVs is to isolate the main steam line in the case of a main steam line break (MSLB), control rod drop (CRA), or loss of coolant accidents (LOCA) in order to limit the loss of reactor coolant and/or the release of radioactive materials.

TS 3/4.13 requires full-stroke testing of MSIVs to verify the safety function in accordance with the in-service testing (IST) program in compliance with ASME Code. The IST requires full-stroke exercising and stroke timing of the MSIVs when practical during scheduled plant power reductions (not more frequently than quarterly testing), which are below 60% power. For those cases when full-stroke testing cannot practically be conducted during a plant down power, valve stroking will be attempted again during the next scheduled plant down power. This IST surveillance tests the reliability and operability, and safety function of the MSIVs for fast and complete closure and reopening, and ensures that the closure times are within the limits of operability (3.0 to 5.0 seconds) as assumed in the safety analysis. Additional testing is performed during refueling outages to demonstrate the functioning of the system.

The purpose of the twice-weekly partial stroke test is to ensure that the MSIVs and their pilots are not binding. This partial stroke test actuates a test pilot instead of the pilot valves used for fast closure of the MSIVs. The indirect indication partial closure movement does not test the safety function of the MSIV's for full closure, and is not as valid as full stroke fast closure test of the MSIVs done in accordance with the IST program. The full-stroke fast closure test in compliance with TS 3.13 adequately demonstrates the safety function of the MSIVs and their pilots are not binding.

The partial stroke test is a high-risk surveillance with marginal or no impact on the reliability of the MSIV safety function. The current twice per week partial stroke test at power creates the potential for inadvertent closure of the MSIVs. This test is considered high risk due to the potential for the inadvertent closure of an MSIV, which could

create high steam flow in other steam lines causing reactor transients and/or scrams.

The partial stroke test of MSIVs at power is no longer necessary to assure safe reactor operation and reliability of MSIVs. The full stroke testing of MSIVs in accordance with the IST program in compliance with TS 3.13 will continue to be performed to verify the safety function and closure times. This verification of safety function and closure times ensures that Pilgrim will continue to comply with the design bases accident analyses.

Deleting the twice per week partial exercise of the MSIVs is not considered to have any effect on the safety function, reliability, and operability of the MSIVs since the partial stroking does not test the safety function of the MSIVs. The removal of the existing partial testing requirement will decrease the probability of inadvertent scrams, transients, and challenges to the safety relief valves.

Accordingly, Entergy is proposing to delete the surveillance requirement to perform partial stroke testing of MSIVs at power based on current NRC and industry guidance. This guidance is in BWR Standard Technical Specifications (NUREG -1433), and Guidelines for in-service testing of at Nuclear Power plants (NUREG-1482, Section 4.2.4 Note). Also, the proposed deletion of the surveillance follows the previously approved license amendments for James A Fitzpatrick, Duane Arnold, Vermont Yankee, and Quad Cities nuclear power plants.

## 5. REGULATORY SAFETY ANALYSIS

### 5.1 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) proposes to change the Pilgrim Technical Specifications (TS) surveillance requirement, TS 4.7.A.2.b.1.c. The proposed change deletes the current twice per week partial-stroke testing of the Main Steam Isolative Valves (MSIVs) at power.

Entergy has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

This proposed change deletes the requirement to exercise the MSIVs twice per week at power. The MSIVs will continue to be full stroke tested by the Inservice Testing Program. The MSIVs will continue to be able to perform their accident mitigation function. The plant response to the design basis accident will not change and the probability of inadvertent MSIV closure will not be increased. Therefore, the proposed change does not significantly increase the probability or consequences of any previously evaluated accidents.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The safety function of the MSIVs is to isolate the main steam lines in case of design basis accidents to limit the loss of reactor coolant and/or limit the release of radioactive materials. The proposed change does not introduce any new modes of equipment operation or failure. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The ability of the MSIVs to perform their safety function is tested during the MSIV full stroke fast closure test in accordance with TS 3.13, Inservice Testing Program. The proposed change deletes a high-risk surveillance. Deletion of the high-risk surveillance does not reduce the margin of safety. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

## 5.2 Environmental Consideration

The proposed change would revise a surveillance requirement frequency related to a system/component located within the restricted area, as defined in 10 CFR 20. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

## 6. PRECEDENTS

The NRC has previously approved similar license amendments for James A Fitzpatrick (TAC No. MA7282, dated February 24, 2000), Vermont Yankee (TAC No. MA8188, dated March 9, 2000), Duane Arnold (TAC No. 80459, dated July 12, 1991), and Quad Cities (TAC No. 56507, dated February 20, 1987).

7. REFERENCES

1. NUREG-1433, Standard Technical Specifications for General Electric Plants, BWR/4.



**ATTACHMENT 2**

**MARKED-UP TECHNICAL SPECIFICATION AND BASES PAGES**

**(2 pages)**

**TS page: 3/4.7-6**

**TS Bases page: B3/4.7-6**

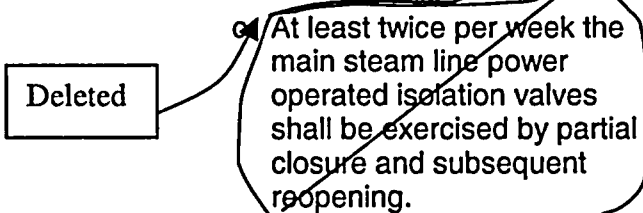
## LIMITING CONDITIONS FOR OPERATION

### 3.7 CONTAINMENT SYSTEMS (Cont)

## SURVEILLANCE REQUIREMENTS

### 4.7 CONTAINMENT SYSTEMS (Cont)

#### A. Primary Containment (Cont)

Deleted  At least twice per week the main steam line power operated isolation valves shall be exercised by partial closure and subsequent reopening.

d. Verify reactor coolant system instrument line flow check valve operability as specified in 3.13.

2. b. 2. Whenever a primary containment automatic isolation valve is inoperable, the position of the isolated valve in each line having an inoperable valve shall be recorded daily.

#### 2. c. Continuous Leak Rate Monitor

When the primary containment is inserted, the containment shall be continuously monitored for gross leakage by review of the inerting system makeup requirements. This monitoring system may be taken out of service for maintenance but shall be returned to service as soon as practicable.

#### 2. d. Drywell Surfaces

The interior surfaces of the drywell and torus above the water line shall be visually inspected every refueling outage for evidence of deterioration.

## BASES:

### 3/4.7 CONTAINMENT SYSTEMS (Cont)

#### A. Primary Containment (Cont)

These valves are highly reliable, have low service requirements and most are normally closed. The initiating sensors and associated trip channels are also checked to demonstrate the capability for automatic isolation. The test interval of once per operating cycle for automatic initiation results in a failure probability of  $1.1 \times 10^{-7}$  that a line will not isolate. More frequent testing for valve operability results in a greater assurance that the valve will be operable when needed.

The main steam line isolation valves are functionally tested ~~on a more frequent interval to establish a high degree of reliability.~~

in accordance with inservice testing program.

The primary containment is penetrated by several small diameter instrument lines connected to the reactor coolant system. Each instrument line contains a 0.25 inch restricting orifice inside the primary containment. A program for periodic testing and examination of the excess flow check valves is in place.

#### Primary Containment Painting

The interiors of the drywell and suppression chamber are painted to prevent rusting. The inspection of the paint during each major refueling outage, assures the paint is intact. Experience at Pilgrim Station and other BWR's with this type of paint indicates that the inspection interval is adequate.

#### Vacuum Relief

The purpose of the vacuum relief valves is to equalize the pressure between the drywell and suppression chamber and reactor building so that the structural integrity of the containment is maintained. The vacuum relief system from the pressure suppression chamber to reactor building consists of two 100% vacuum relief breakers (2 parallel sets of 2 valves in series). Operation of either system will maintain the pressure differential less than 2 psig; the external design pressure. One valve may be out of service for repairs for a period of seven days. If repairs cannot be completed within seven days, the reactor coolant system is brought to a condition where vacuum relief is no longer required.

The capacity of the 10 drywell vacuum relief valves is sized to limit the pressure differential between the suppression chamber and drywell during post-accident drywell cooling to the design limit of 2 psig. They are sized on the basis of the Bodega Bay pressure suppression system tests. The ASME Boiler and Pressure Vessel Code, Section III, Subsection B, for this vessel allows a 5 psig vacuum; therefore, with two vacuum relief valves secured in the closed position and eight operable valves, containment integrity is not impaired.

Reactor operation is permissible if the bypass area between the primary containment drywell and suppression chamber does not exceed an allowable area. The allowable bypass area is based upon analysis considering primary system break area, suppression chamber effectiveness, and containment design pressure. Analyses show that the maximum allowable bypass area is 0.2 ft<sup>2</sup>, which is equivalent to all vacuum breakers open 3/32". (See letters from Boston Edison to the Directorate of Licensing, dated May 15, 1973 and October 22, 1974)