

January 13, 2004

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

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT - RELIEF REQUEST  
VRR-09 RELATED TO THE THIRD 10-YEAR INSERVICE TESTING (IST)  
INTERVAL (TAC NO. MC0267)

Dear Mr. Kansler:

By letter dated July 28, 2003, as supplemented on October 15, 2003, Entergy Nuclear Operations, Inc. (Entergy) requested Nuclear Regulatory Commission (NRC) authorization of a proposed alternative to the requirements of the American Society of Mechanical Engineers/American National Standards Institute (ASME/ANSI) OM Standard, Part 10 for the James A. FitzPatrick Nuclear Power Plant (FitzPatrick). Specifically, Entergy proposed to use the acceptance criteria of OM-1998, paragraph ISTC-5221(b) in lieu of the requirements of OMa-1988, Part 10, paragraph 4.3.2.4(b) for certain check valves in the main steam safety relief valve discharge lines.

The NRC staff reviewed the proposed alternative as discussed in the enclosed safety evaluation. Based on its review, the NRC staff concludes that the proposed alternative to use the acceptance criteria of OM-1998, paragraph ISTC-5221(b) in lieu of the requirements of OMa-1988, Part 10, paragraph 4.3.2.4(b) for certain check valves in the main steam safety relief valve discharge lines provides an acceptable level of quality and safety. Accordingly, the alternative is authorized for use at FitzPatrick, pursuant to 10 CFR 50.55a(a)(3)(i), for the remainder of the third 10-year interval IST program.

Sincerely,

*/RA/*

Richard J. Laufer, Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosure: As stated

cc w/encl: See next page

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FitzPatrick Nuclear Power Plant

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SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT - RELIEF REQUEST  
VRR-09 RELATED TO THE THIRD 10-YEAR INSERVICE TESTING (IST)  
INTERVAL (TAC NO. MC0267)

Dear Mr. Kansler:

By letter dated July 28, 2003, as supplemented on October 15, 2003, Entergy Nuclear Operations, Inc. (Entergy) requested Nuclear Regulatory Commission (NRC) authorization of a proposed alternative to the requirements of the American Society of Mechanical Engineers/American National Standards Institute (ASME/ANSI) OM Standard, Part 10 for the James A. FitzPatrick Nuclear Power Plant (FitzPatrick). Specifically, Entergy proposed to use the acceptance criteria of OM-1998, paragraph ISTC-5221(b) in lieu of the requirements of OMa-1988, Part 10, paragraph 4.3.2.4(b) for certain check valves in the main steam safety relief valve discharge lines.

The NRC staff reviewed the proposed alternative as discussed in the enclosed safety evaluation. Based on its review, the NRC staff concludes that the proposed alternative to use the acceptance criteria of OM-1998, paragraph ISTC-5221(b) in lieu of the requirements of OMa-1988, Part 10, paragraph 4.3.2.4(b) for certain check valves in the main steam safety relief valve discharge lines provides an acceptable level of quality and safety. Accordingly, the alternative is authorized for use at FitzPatrick, pursuant to 10 CFR 50.55a(a)(3)(i), for the remainder of the third 10-year interval IST program.

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Richard J. Laufer, Chief,, Section 1  
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Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosure: As stated

cc w/encl: See next page

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\*\* See Previous concurrence

ACCESSION NUMBER: ML033300295 \*Safety evaluation provided - no changes made

OFFICE	PDI-1/PM	PDI-1/LA	OGC**	EMEB	PDI-1/SC
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DATE	1/12/04	1/12/04	1/5/04	11/12/03	1/13/04

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO FITZPATRICK NUCLEAR POWER PLANT - RELIEF REQUEST VRR-09  
FOR THE THIRD 10-YEAR INSERVICE TESTING INTERVAL  
ENTERGY NUCLEAR OPERATIONS, INC. (ENTERGY)

DOCKET NO. 50-333

1.0 INTRODUCTION

By letter dated July 28, 2003, as supplemented October 15, 2003, Entergy Nuclear Operations, Inc. (the licensee) requested Nuclear Regulatory Commission (NRC) authorization of a proposed alternative to the requirements of the ASME/ANSI OM Standard, Part 10 for the James A. FitzPatrick Nuclear Power Plant (FitzPatrick). The licensee proposed to use the acceptance criteria of OM-1998, paragraph ISTC-5221(b) in lieu of the requirements of OMa-1988, Part 10, paragraph 4.3.2.4(b) for certain check valves in the main steam safety relief valve discharge lines.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* in (10 CFR) 50.55a requires that inservice testing (IST) of certain American Society of Mechanical Engineers Boiler Pressure and Vessel Code (ASME Code) Class 1, 2, and 3 pumps and valves be performed at 120-month IST program intervals in accordance with a specified ASME Code and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for its facility. Section 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making the necessary findings. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to the Code requirements which are acceptable to the staff. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

FitzPatrick's third 10-year IST interval commenced September 30, 1997. The program was developed in accordance with the 1989 ASME Code, Section XI, which references the 1987 Edition with 1988 Addenda of the ASME/ANSI OM Standard, Part 10.

Enclosure

The NRC's findings with respect to authorizing alternatives and granting or denying the IST program relief request are given below.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Code Requirements

ASME/ANSI OMa-1988, Part 10, paragraph 4.3.2.4(b), requires that the force or torque required to initiate movement (breakaway) shall be measured and recorded if a manual mechanical exerciser is used to move the obturator of a Category C check valve. The breakaway force shall not vary by more than 50 percent from the established reference value. The reference value used shall be the value obtained when the valve is known to be operating properly and shall be taken under conditions as close to practicable to the conditions under which the valve will be tested, e.g., wet versus dry, equivalent static head, etc.

The licensee requested relief from the requirements of ASME/ANSI OMa-1988, Part 10, paragraph 4.3.2.4(b) for the following valves:

02RV-1	02RV-2	02RV-3	02RV-4	02RV-5	02RV-6
02RV-7	02RV-8	02RV-9	02RV-10	02RV-11	02VB-1
02VB-2	02VB-3	02VB-4	02VB-5	02VB-6	02VB-7
02VB-8	02VB-9	02VB-10	02VB-11		

#### 3.2 Licensee's Basis for Requesting Relief

The valves identified in the relief request are 3-inch and 10-inch check valves located on the main steam safety relief valve (SRV) discharge lines. Each SRV discharge line is equipped with two vacuum breakers, one a nominal 3-inch check valve, and the other a nominal 10" check valve. Following an SRV actuation, these valves open to relieve differential pressure (vacuum) in the discharge line caused by condensing steam. This action prevents formation of a water column within the discharge line that could cause excessive stress to the suppression chamber structure during a subsequent lift of the SRV. The valves are required to close to prevent steam from entering the drywell when an SRV is open.

A manual exerciser is used to move the obturator of the valves as specified in OMa-1988, Part 10, paragraph 4.3.2.4(b). Difficulty has been experienced in trying to establish reference values for breakaway force for these valves. Data scatter is such that establishment of meaningful reference values has not proven possible. Over half the test results for the 3" valves have exhibited breakaway force values outside the plus or minus 50 percent acceptance band with no discernable pattern to the results. The 10" valves exhibited similar random data scatter, although with fewer test failures due to a higher range of absolute values for the acceptance band. This observed data scatter is attributable to three factors taken in aggregate:

The method of testing gives results which include a degree of subjectivity; breakaway force is manually determined by feel. This is complicated by the working environment in which the testing is conducted, including difficult valve locations and the need to work in protective clothing. Both affect test personnel ability to measure low breakaway force within a narrow band of repeatability.

The measurements for these valves involve low absolute values for breakaway force (between 0.40 pounds-force (lbf) and 2.34 lbf for the 3" valves, and 1.5 lbf and 8 lbf for the 10" valves) with corresponding average reference values of approximately 1.08 lbf and 3.91 lbf respectively. When combined with the subjective aspects of the test, these low absolute values make obtaining repeatability within a narrow band difficult.

The low absolute values of breakaway force, combined with the relatively tight (+/- 50%) acceptance band required by OM-10, leads to a narrow absolute acceptance band (a nominal +/- 0.54 lbf for the 3" valves and a nominal +/- 1.96 lbf for the 10" valves).

Based upon the foregoing, it has been concluded that the Code mandated acceptance criteria is not meaningful for the valves in question.

The cited problems have been recognized in subsequent Code revisions, where more flexible acceptance criteria are established for check valve testing using mechanical exercisers. Imposing the OMa-1988, Part 10 requirements for the 3-inch valves will continue to result in a majority of the test results outside the specified acceptance range. This will require application of the corrective action criteria, not because of inadequate valve performance, but rather due to the application of inappropriate test acceptance criteria. This will result in hardship and inaccurate characterization of valve performance, with no commensurate benefit and without a resulting improvement in public health and safety.

Imposing the acceptance criteria requirements for the 10-inch valves will continue to result in data scatter of such a magnitude as to render the plus or minus 50 percent criteria (which has as its basis the expectation of predictable, repeatable test results) ineffective in determining operability for these valves. Although fewer test failures are expected than for the 3" valves, the acceptance criteria remain inappropriate for the valves in question.

### 3.3 Licensee's Proposed Alternative to Code Testing Requirements

The valves will be exercised per OMa-1988, Part 10, paragraphs 4.3.2.2 and 4.3.2.4(b), but apply the acceptance criteria specified in OM-1998, paragraph ISTC-5221(b) and associated subsections.

### 3.4 Evaluation

The IST check valve program at FitzPatrick is required to meet the requirements of the ASME Code, Section XI, 1989 Edition, which references ASME/ANSI OM, Part 10, for IST of valves. The licensee requests relief for the identified valves from the acceptance criteria specified in ASME/ANSI OMa-1988, Part 10, paragraph 4.3.2.4(b) for mechanically exercised valves. Relief is requested on the basis that the acceptance criterion is too stringent and does not provide a meaningful acceptance criterion for the valves in question.

ASME/ANSI OMa-1988, Part 10, paragraph 4.3.2.4(b), consists of an integral two-part requirement: 1) the acceptance criterion require that when a mechanical exerciser is used to move the obturator, the force or torque required to move the obturator shall not vary by more than 50 percent from the established reference value and, 2) the reference value must be determined from the results of testing performed under conditions as near as those expected during IST when the valve is known to be operating acceptably.

Licensees have continuously experienced difficulty with the ASME/ANSI OMa-1988, Part 10 acceptance criteria for mechanically-exercised valves. This was one of the first issues addressed by the newly-organized OM Working Group on Check Valves (WGCV) of the ASME Code for Operation and Maintenance of Nuclear Power Plants in 1993. The ASME OM WGCV proposed a change to the ASME Code requirements for the IST of check valves when using a mechanical exerciser. The change was approved by the OM Main Committee and Board on National Codes and Standards and incorporated into the ASME OM-1998 Code, paragraph ISTC-5221(b). The 1998 Edition of the OM Code was incorporated by reference into 10 CFR 50.55a(b) on October 28, 2002, with no modifications or limitations placed on paragraph ISTC-5221(b).

ISTC-5221(b) states:

(b) If a mechanical exerciser is used to exercise the valve, the force(s) or torque(s) required to move the obturator and fulfill its safety function(s) shall meet the acceptance criteria specified by the Owner.<sup>3</sup>

(1) Exercise test(s) shall detect a missing obturator, sticking (closed or open), binding (throughout obturator movement) and the loss or movement of any weight(s). Both open and close test may not be required.

(2) Acceptance criteria shall consider the specific design, application, and historical performance.

(3) If impractical to detect a missing obturator or the loss or movement of any weight(s) using a mechanical exerciser, other positive means may be used (e.g., seat leakage tests and visual observations to detect obturator loss and the loss or movement of external weight(s), respectively).

The licensee proposes to exercise the valves per OMa-1988, Part 10, paragraphs 4.3.2.2 and 4.3.2.4(b), but apply the acceptance criteria specified in OM-1998, paragraph ISTC-5221(b) and associated requirements. The staff finds that the use of IST requirements from an earlier Code for exercising check valves with acceptance criteria from a later Code does not result in inconsistent or incompatible requirements. Because the acceptance criteria from the later Code edition have been found acceptable by the NRC staff and incorporated by reference into 10 CFR 50.55a(b), the staff finds that the proposed alternative provides an acceptable level of quality and safety.

### 3.5 Conclusion

Based on the above evaluation, the NRC staff concludes that, pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative is authorized for FitzPatrick, on the basis that the proposed alternative provides an acceptable level of quality and safety. This alternative is

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<sup>3</sup> If practicable, the force(s) or torques required to move the obturator and fulfill any nonsafety function should be evaluated to detect abnormality or erratic action for corrective action.



authorized for the remainder of the third 10-year inservice test interval. The licensee's proposed testing provides reasonable assurance that the check valves will perform their intended safety function.

#### 4.0 REFERENCES

1. Title 10 of the *Code of Federal Regulations*, "Domestic Licensing of Production and Utilization Facilities," Part 50, Chapter I, Title 10, "Energy," paragraph 50.55a(a)(3)(i).
2. American Society of Mechanical Engineers, *ASME Code for Operation and Maintenance of Nuclear Power Plants*, 1987 Edition with 1988 Addenda, New York, NY.
3. American Society of Mechanical Engineers, *ASME Code for Operation and Maintenance of Nuclear Power Plants*, 1998 Edition, New York, NY.
4. Nuclear Regulatory Commission, "Guidance on Developing Acceptable Inservice Testing Programs," Generic Letter 89-04, through Supplement 1, April 4, 1995.
5. Nuclear Regulatory Commission, "Guidelines for Inservice Testing at Nuclear Power Plants," NUREG-1482, April 1995.
6. Nuclear Regulatory Commission, "Relief Request Reviews," NRR Office Instruction LIC-102, July 18, 2002.
7. Letter, T. A. Sullivan, Entergy Nuclear Operations, Inc. to the Nuclear Regulatory Commission, "Proposed Relief Request No. VRR-09 to the JAFNPP Inservice Testing Program," dated July 28, 2003.
8. Letter, T. A. Sullivan, Entergy Nuclear Operations, Inc. to the Nuclear Regulatory Commission, "Proposed Relief Request No. VRR-09 to the JAFNPP Inservice Testing Program," dated October 15, 2003.

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Date: January 13, 2004