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July 31, 2007  
JAFP-07-0092

Pete Dietrich  
Site Vice President - JAF

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

Subject: Entergy Nuclear Operations, Inc.  
James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333  
License No. DPR-59

**Response to Request for Additional Information Regarding  
Proposed Relief Requests for the James A. FitzPatrick Nuclear Power  
Plant Fourth Interval In-Service Testing Program**

- References:
1. Entergy letter JAFP-07-0050, Proposed Relief Requests for the James A. FitzPatrick Nuclear Power Plant Fourth Interval In-Service Testing Program, dated April 11, 2007.
  2. NRC Requests for Additional Information Related to Proposed Relief Requests for the James A. FitzPatrick Nuclear Power Plant Fourth Interval In-Service Testing Program, dated June 14, 2007 (Reference NRC TAC Nos. MD5396, MD5397, MD5398, MD5400, MD5401, and MD5403).

Dear Sir or Madam:

Entergy Nuclear Operations Inc., (Entergy) submitted Relief Requests for the James A. FitzPatrick Nuclear Power Plant Fourth In-service Testing Interval on April 11, 2007 (Reference 1). On June 14, 2007, Entergy received nine (9) requests for additional information (RAIs) via e-mail (Reference 2). These RAIs were discussed with your staff in a telephone conference on June 21, 2007. Attachment 1 to this letter provides the responses to the RAIs.

There are no commitments contained in this letter. If you have any questions, please contact Mr. Jim Costedio at (315) 349-6358.

Very truly yours,

A handwritten signature in black ink, appearing to read "P. Dietrich", is written over the "Very truly yours," text.

Pete Dietrich  
Site Vice President

PD:ed

A047  
NRR

Attachment 1: Request for Additional Information Responses  
Attachment 2: Revised Relief Requests PRR-03 and VRR-01  
cc:

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**ATTACHMENT 1**

**Request For Additional Information Responses**

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ATTACHMENT 1**

**Pump Relief Request PRR-01**

**RAI-01:** Please confirm that the information contained in the safety evaluation (Letter dated November 17, 1998) approving this relief for the previous 10-year interval is still accurate and can be used as a basis to justify implementation of the relief request for the fourth 10-year interval.

**Response:** The above referenced SER was reviewed. All information related to the Standby Liquid Control pumps remains the same. Additionally, all discussion related to vibration monitoring instrumentation has not changed. The Relief Request justification basis previously documented and accepted is still accurate and defensible as basis to justify continued relief.

**Pump Relief Request PRR-02**

**RAI-02:** The relief request states that the existing suction gauges will be used to determine pump delta-P for testing of the core spray pumps. The Reason for Request and Basis for Use sections discuss the use of 2% accuracy gauges. The biennial comprehensive pump test requires the use of 0.05% gauges. Please verify that relief is only requested for the quarterly group A or B test.

**Response:** In accordance with ISTB-2000 and Table ISTB-3400-1, the Core Spray pumps are Group B tested quarterly. PRR-02 is intended to support the quarterly Group B testing using the 2% accuracy gauges. The requirements Table ISTB-3500-1 for biennial comprehensive tests will be met using temporary M&TE (i.e., 0.05% gauges).

**Pump Relief Request PRR-03**

**RAI-03:** The Proposed Alternative and Basis for Use section and the Proposed Alternative Testing section state that flow rate and discharge pressure will be measured and compared to an established reference curve. The Code requires that differential pressure be measured. Please address the discrepancy between the stated variable to be measured (discharge pressure) and the Code required variable (differential pressure).

**Response:** In accordance with NUREG-1482 section 5.5.3, Total Developed Pump Head (TDH) will be measured. Pump flow and TDH will be compared to the reference pump curve IAW OMN-9. PRR-03 will be re-worded to change "discharge pressure" to "TDH", and reference NUREG-1482. A copy of PRR-03 with the revised wording is provided in Attachment 2 to this letter.

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**Pump Relief Request PRR-03 (continued)**

**RAI-04:** The Proposed Alternative states that the as-found condition will be compared to an established reference curve developed in accordance with Code Case OMN-9 and the additional conditions as prescribed in RG 1.192. Code Case OMN-9 can only be used with the 1990 Edition through 1992 Addenda of the OM Code and applies acceptance criteria which is not compatible with the 2001 Edition through 2003 Addenda of the ASME OM Code. Please clarify the acceptance criteria to be implemented with the relief request, the instrument accuracy to be utilized during curve development and pump testing, and the flow values as a percent of pump design flow to be utilized during pump testing. Please verify that relief is only requested from the requirement to establish flow or differential pressure at a reference point during test activities and that all other requirements of ISTB (2001 Edition through 2003 Addenda) will be implemented.

**Response:** OMN-9 only provides guidance for using pump curves. All other related specifics for pump testing are dictated by the ASME OM Code. The additional requirements for pump testing, other than use of a reference pump curve will be in accordance with section ISTB of the 2001 Edition through 2003 Addenda of the ASME OM Code.

**Valve Relief Request VRR-01**

**RAI 5:** VRR-01 requests relief from the sequencing requirements in Mandatory Appendix I, I-3310. However, it is not clear how I-3310(a) through (I) should be sequenced in order to accomplish main steam safety relief valve testing at the FitzPatrick Nuclear Power Plant. Please clarify how I-3310(a) through (I) should be sequenced in order to accomplish main steam safety relief valve testing. The NRC staff notes that Mandatory Appendix I, I-3300, states that the visual examination requirement in I-3310(a) may be performed out of sequence when on-line testing is performed to satisfy periodic test requirements and that the seat tightness determination specified in I-3310(b) is performed on line.

**Response:** After detailed review of RAI 5 and the requirements of Mandatory Appendix I, the Licensee respectfully withdraws Valve Relief Request VRR-01. Common industry practice is to remove the SRV Pilot assemblies for testing at a certified testing facility. History has shown that the removal of the pilot assemblies for this testing has no affect on the as found set pressure, and the seat tightness is continuously monitored during normal plant operation. The sequencing requirements of I-3310 are met in that I-3310(a), (b), and (c) are performed in order, and the remaining are performed (without regard to sequence order) after maintenance and set pressure adjustment. Attachment 2 contains a revised cover sheet for VRR-01 indicating it is withdrawn.

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**Valve Relief Request VRR-02**

**RAI 6:** VRR-02 states that the total elapsed stroke time measured by the computer control system for valves 07SOV-104A, B, and C will be less than or equal to 12 seconds. Verify that this meets the requirements in ISTC-3300 that requires that a reference value be based on actual test results.

**RAI 7:** VRR-02 states that the overall cycle time (opened and closed) for valves 07SOV-104A, B, and C will be measured and evaluated in accordance with ISTC-5152. The NRC staff believes that the stroke test acceptance criteria in ISTC-5152 are based on the accuracy of measuring stroke time with a stop watch. Explain why the  $\pm 25\%$  criterion in ISTC-5152(a) is appropriate when evaluating the elapsed stroke time for valves 07SOV-104A, B, and C. This explanation should include a discussion of the computer control system accuracy for measuring cycle time.

**RAI 8:** What is the full-stroke time limiting value for valves 07SOV-104A, B, and C required by ISTC-5151(b)?

**Response to RAI 6, 7 and 8:** The FitzPatrick Traversing Incore Probe (TIP) system was modified several years ago to adapt state-of-the-art German software to the originally installed General Electric designed/supplied system. A Siemens model S5 Programmable Logic Controller (PLC) with custom software controls the operation of the system, including the ball valves (07SOV-104A, B and C). This system is unique in the industry. The ball valves will only stroke closed on signals generated from the PLC when running TIP probes, or those isolation signals specified in the Technical Requirements Manual Appendix A, Table A-1, Primary Containment Isolation Valves. After reviewing the NRC RAI, the licensee tested the TIP system software to determine if a manual ball valve open and close stroke could be initiated. The only method of manually stroking the TIP ball valves is to enter the TIP PLC manual operation mode and initiate ball valve opening as if a TIP probe was to be run. The PLC will automatically close the valve after a 10 second time delay when no TIP probe has been extracted from the shield. The only way to manually initiate ball valve closure is to extract the TIP probe from the shield block and manually initiate retraction of the probe. This practice would introduce high radiation hazards. To independently stroke time these valves without TIP probe extraction would require extensive and costly system software modification and would be a hardship to the licensee that would not be offset by a compensating increase in the level of quality or safety. Therefore, the licensee requests relief to allow stroke timing the TIP ball valves utilizing the automatic 10 second delay closure. This method will meet the desired outcome of monitoring the valve stroke time for degradation since the 10 second delay is controlled by the computer, which is maintained under the plant's 10 CFR 50 Appendix B Program, and the additional approximate 2 seconds for the valve closure will indicate the actual stroke time of the valve. This test has been successfully utilized in the previous IST interval. A calibrated stop watch is utilized to time the full stroke from manual open initiation to receipt of the close light. The measured stroke time utilizing this method has consistently been between 10 and 11.5 seconds. Utilizing the  $\pm 25\%$  criteria of ISTC-5152(a), truncated at 12 seconds provides adequate monitoring. The full stroke limiting time for these valves is 12 seconds.

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**Valve Relief Request VRR-04**

**RAI 9:** OM Code Edition 2001 thru 2003 Addenda, Subsection ISTB requires that check valves in a sample disassembly program that are not capable of being full-stroke exercised, have failed, or have unacceptably degraded valve internals shall have the cause of failure analyzed and the condition corrected and that other check valves in the sample group that may also be affected by this failure mechanism be examined or tested during the same refueling outage to determine the condition of internal components and their ability to function. Please address how this OM Code requirement will be implemented for check valve groups that are inspected outside of refueling outages during normal operation.

**Response:** The check valves associated with VRR-04 are all part of the High Pressure Coolant Injection (HPCI) System. The on-line disassembly and inspection will be performed during a HPCI System outage window. Any sample expansion required due to unsatisfactory inspections will be performed during the same system outage window in accordance with the Code, and the cause of failure will be analyzed and corrected.

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**ATTACHMENT 2**

**Revised Relief Requests**

**PRR-03**

**VRR-01**



# **James A. FitzPatrick Station Inservice Testing Program**

## **10 CFR 50.55a Request PRR-03**

Proposed Alternative In Accordance with 10CFR50.55a(a)(3)(i)

On the basis that the proposed alternative provides an acceptable level of quality and safety.

### **System:**

EMERGENCY SERVICE WATER (ESW)

### **ASME Code Components Affected:**

46P-2A, B

### **Component/System Function:**

These pumps provide cooling water for safety-related heat loads during a loss-of-coolant design basis accident.

### **Applicable Code Edition and Addenda:**

ASME OM Code-2001 including 2003 Addenda

### **OM Code Category:**

Group B

### **Applicable Code Requirement:**

ISTA-3130, "Application of Codes Cases", ISTA-3130(b) states, "Code Cases shall be applicable to the edition and addenda specified in the test plan."

ISTB-5222(b), "The differential pressure or flow rate shall then be determined and compared to its reference value."

ISTB-5222(c), "System resistance may be varied as necessary to achieve the reference point."

ISTB- 5223(b), "The resistance of the system shall be varied until the flow rate equals the reference point."

### **Reason for Request:**

Emergency Service Water (ESW) systems are designed such that the total pump flow cannot be adjusted to one finite value for the purpose of testing without adversely affecting the system flow balance and Technical Specification operability requirements. These pumps must be tested in a manner that the service water loop remains properly flow balanced during and after the testing and each supplied load remains fully operable per Technical Specifications to maintain the required level of plant safety during plant operation.

The ESW water system loops are not designed with a full flow test line with a single throttle valve. The flow therefore cannot be throttled to a fixed reference value every time. Total pump flow rate can only be measured using the total system flow indication installed on the common supply header. Only the flows of the serviced components can be individually throttled. Each load is throttled to a FSAR required flow range which must be satisfied for the load to be operable. All loads are aligned in parallel, and all receive ESW flow when the associated ESW pump is running,

# **James A. FitzPatrick Station Inservice Testing Program**

## **10 CFR 50.55a Request PRR-03**

Proposed Alternative In Accordance with 10CFR50.55a(a)(3)(i)

On the basis that the proposed alternative provides an acceptable level of quality and safety.

regardless whether the served component is in service or not.

During power operation, all loops of ESW are required to be operable per the Technical Specifications. A loop of ESW cannot be taken out of service for testing without entering a Limiting Condition for Operation (LCO) Action Statement. With each loop of ESW balanced a requirement to quarterly adjust ESW loop flow to one specific flow value for inservice testing conflicts with system design and operability requirements(i.e. flow balance) as required by Technical Specifications.

It is extremely difficult or impossible to return to a specific flow rate or differential pressure for testing these pumps. Multiple reference points could be established according to the Code, but it would be impossible to obtain reference values at every possible point. An alternative to the testing requirements of ISTB is to base the acceptance criteria on a reference curve.

ISTA-3130, "Application of Codes Cases", ISTA-3130(b) states, Code Cases shall be applicable to the edition and addenda specified in the test plan.

NUREG-1482, Revision 1, Section 5.2 states "ASME introduced Code Case OMN-9, "Use of Pump Curves for Testing"" which the NRC staff subsequently included in RG 1.192. NUREG 1482, Section 4.2.5 further states; "The use of OMN-9 requires relief because OMN-9 is only applicable to the ASME OM Code 1990 through ASME OMb Code 1992. Licensees with a Code of record that is not applicable to the acceptance of this Code Case may submit a request for relief to apply the Code Case consistent with the indicated conditions to provide an acceptable level of quality and safety. The Code of record for FitzPatrick Nuclear Station's Fourth 10-Year IST Interval is ASME OM Code-2001 Edition w/2003 Addenda. Code Case OMN-9, as stated in RG 1.192, is applicable to the ASME OM Code 1990 Edition through OMb Code 1992 Addenda.

### **Proposed Alternative and Basis for Use:**

Flow rate and Total Developed Pump Head (in accordance with NUREG-1482 section 5.5.3) will be measured during inservice testing in the as-found condition and compared to an established reference curve developed in accordance with Code Case OMN-9 and the additional conditions as prescribed in RG 1.192

FitzPatrick Nuclear Station requests approval to use the guidelines set forth in Code Case OMN-9, "Use of a Pump Curve for Testing," including the associated conditions prescribed in RG 1.192, Operation and Maintenance Code Case Acceptability, ASME OM Code, in lieu of the ASME OM Code paragraphs ISTB-5222 and ISTB-5223 requirements for ESW pumps 46P-2A and 46P-2B. Code Case OMN-9 should be considered acceptable for use with OM Code-2001 Edition w/2003 Addenda as the Code of record. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), FitzPatrick Nuclear Station requests relief from the specific ISTB Code requirements identified in this relief request

# **James A. FitzPatrick Station Inservice Testing Program**

## **10 CFR 50.55a Request PRR-03**

Proposed Alternative In Accordance with 10CFR50.55a(a)(3)(i)

On the basis that the proposed alternative provides an acceptable level of quality and safety.

### **Proposed Alternative Testing**

Flow rate and Total Developed Pump Head will be measured during inservice testing in the as-found condition and compared to an established reference curve developed in accordance with Code Case OMN-9 and the additional conditions as prescribed in RG 1.192.

### **Duration of Proposed Alternative:**

The proposed alternative identified in this 10CFR50.55a Request shall be utilized during the Fourth Ten Year IST Interval.

### **Precedents:**

This 10CFR50.55a Request was previously approved for the Interval 3 IST Program in NRC SER dated November 17, 1998 (TAC No. MA0096). The circumstances and basis for the previous NRC approval have not changed.

### **References:**

Code Case OMN-9 , "Use of a Pump Curve for Testing"

Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code", Table 1, "Acceptable OM Code Cases"

OM Code-2001 w/ 2003 Addenda, Paragraph ISTA-3130, "Application of Code Cases"

### **Interval 4 Authorization:**

Pending Approval

# **James A. FitzPatrick Station Inservice Testing Program**

## **10 CFR 50.55a Request VRR-01**

Proposed Alternative In Accordance with 10CFR50.55a(a)(3)(i)

On the basis that the proposed alternative provides an acceptable level of quality and safety.

**Withdrawn**