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April 11, 2007
JAFP-07-0050

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

Subject: James A FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59
Proposed Relief Requests for the James A. FitzPatrick Nuclear Power Plant Fourth Interval In-Service Testing Program

Dear Sir or Madam:

This submittal forwards four (4) Relief Requests associated with pump testing, numbered PRR-01 through PRR-04, and five (5) Relief Requests associated with valve testing, numbered VRR-01 through VRR-05, for the James A. FitzPatrick Nuclear Power Plant (JAF) Fourth Interval In-Service Testing (IST) Program. Relief Request PRR-01 through PRR-03 and VRR-01 through VRR-04 were previously approved for use in the Third Interval IST Program. The index provided in Enclosure 1 provides a cross reference to the third interval relief request number.

The fourth interval is scheduled to begin September 27, 2007. JAF requests approval of the enclosed relief requests to support the beginning of the Fourth In-Service Testing Program Interval.

There are no commitments made in this letter.

If you have any questions, please contact Mr. Jim Costedio at (315) 349-6358.

Very truly yours,

Kevin Mulligan
Site Vice President (acting)

Pete Dietrich
Site Vice President

PD:JC:ed

Attachment 1: James A. FitzPatrick Nuclear Power Plant Fourth Interval In-Service Testing Program Relief Requests

cc: next page

A047

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JAFP-07-0050

Attachment 1

James A. FitzPatrick Nuclear Power Plant

Fourth Interval In-Service Testing Program

Relief Requests

Fourth Interval IST Relief Request Index
and
Reference to Approved Third Interval IST Relief Request

Pump Relief Requests			
Relief Request Number	**Title**	**Third Interval Relief Request Number**	**Notes**
PRR-01	Standby Liquid Control System Pumps (Comprehensive)	PRR-03	
PRR-02	Core Spray System Pumps (Quarterly)	PRR-04	
PRR-03	Emergency Service Water Pumps (Quarterly and Comprehensive)	PRR-05	
PRR-04	Group A and B Smooth Running Pump (Quarterly and Comprehensive)		New Relief Request for the 4th IST Interval
Valve Relief Requests			
VRR-01	Safety Relief Valves	VRR-02	
VRR-02	Traversing Incore Probe (TIP) Ball Valve Stroke Timing (Quarterly)	VRR-03	
VRR-03	Excess Flow Check Valves	VRR-07	
VRR-04	Disassembly of Check Valves Online	VRR-08	
VRR-05	Power Operated Valves Used for System Control (Quarterly)		New Relief Request for the 4th IST Interval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request PRR-01

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

System:
STANDBY LIQUID CONTROL (SLC)

ASME Code Components Affected:
11P-2A, B

Component/System Function:
These pumps inject borated water into the reactor vessel as an alternate means for negative reactivity addition and reactor shutdown.

Applicable Code Edition and Addenda:
ASME OM Code-2001 including 2003 Addenda

OM Code Category:
Group B

Applicable Code Requirement:
ISTB-3500, "Data Collection", 3510, "General", 3510(e), "Frequency Response", the frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz.

Reason for Request:
The nominal speed of the SLC pumps is 520 RPM, which correlates to a rotational frequency of 8.67 Hz. Table ISTB-3510-1, "Required Instrument Accuracy", requires the frequency response range of the vibration measuring transducers and their readout system to be accurate to +/- 5% full scale over the range of 2.89 - 1000 Hz.

FitzPatrick Nuclear Station has instruments for use during surveillance testing with certified accuracy of +/- 5% full scale over a range of 5-2000 Hz. Calibration is verified accurate using a system test methodology over a range of 10-1000 Hz in units of displacement (mils p-p) and 6.5-1000 Hz in units of velocity (ips peak). The system test verification is limited by the capability of the calibration shaker system to accurately sustain vibration at meaningful amplitudes outside the tested frequencies. The certified calibration +/- 5% range is arrived at through addition of individual transducer and meter inaccuracies over the stated frequency range.

The instrument lower frequency response limits are a result of high-pass filters installed to eliminate low frequency elements associated with the input signal from entering the process of single and double integration. These filters prevent low frequency electronic noise from distorting reading in the resultant units (ips, mils). As a side effect, any actual vibration occurring at low frequencies is filtered out. This is a necessary trade-off, as 1 mv of electronic noise at 2.5 Hz translates to approximately 62.6 mils p-p with the accelerometer used with these instruments, at a nominal sensitivity of 50 mv/g.

FitzPatrick Nuclear Station has extensively researched this issue concerning Code compliance and intent, and feels that, for these pumps, procurement of equipment capable of meeting the Code required accuracy is impractical with little or no benefit. Instrumentation capable of meeting the Code for these pumps is cumbersome, difficult to operate, prone to human error, costly to purchase and expensive to calibrate. The number of vendors that supply instrumentation accurate at these frequencies is limited, and there are even fewer vendors capable of performing the required calibration services. Most standard qualified calibration laboratories provide calibration services only to a minimum of 10 Hz.

Proposed Alternative and Basis for Use:

In addition to the impracticality of procuring the instruments, FitzPatrick Nuclear Station feels that the instruments presently used are adequate to assess the condition of these pumps. The manufacturer of these pumps, Union Pump Company, Battle Creek, Michigan, has stated that these pumps, being of a simplified reciprocating design, have no failure mechanism that would be revealed at frequencies less than shaft speed. Union Pump has stated that all failure modes of this pump resulting in increasing vibration will be manifested at shaft speed frequency or harmonics thereof. In light of the information provided by Union Pump, monitoring sub-synchronous vibration for these pumps is not needed, but super-synchronous readings will provide meaningful information in the detection of imminent machinery faults.

A search of the EPIX (formerly INPO NPRDS) database has revealed only one failure reported for pumps of this or similar design whose discovery mentioned increased vibration levels. The cited cause of the failure was improper endplay set leading to gearing failure. Failures of this type would normally be detected at running (shaft) speed frequency, harmonics thereof, or non-harmonic super-synchronous bearing defect frequencies. It should also be noted that these are standby pumps that are normally operated only during pump and valve testing. In the unlikely event this system is required to fulfill its design function, only one of the two redundant pumps need operate for a period of 23 to 125 minutes.

In addition to vibration monitoring performed for the IST Program, these pumps are included in the FitzPatrick Nuclear Station Rotating Equipment Monitoring Program. Vibration spectral data is periodically collected and analyzed for the pump and gear motors in addition to those required by the Code. The equipment used by the Rotating Equipment Program is certified accurate to +/- 5% over a frequency range of 5-2000 Hz and is also limited by high-pass integrating filters, but allows for discrete frequency analysis and trending using FFTs (Fast Fourier Transforms). Vendor specifications state that this equipment should provide fairly accurate data down to 2 Hz in units of acceleration (g peak) by using the raw transducer signal, negating the need for integration. Study of low frequency spectra taken in g peak with these instruments has revealed no distinct sub-synchronous peaks above the noise floor acceleration signal.

In light of their rigorous testing and limited design run time, it is not likely that a minor mechanical fault would prevent these pumps from fulfilling their design function and unlikely that development of a major fault would go unnoticed.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request PRR-01

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

Proposed Alternative Testing:

The vibration measurements will be taken using instrumentation accurate to +/- 5% full scale over a frequency response range of 6 Hz to 500 Hz. The data will be evaluated in accordance with ISTB-6000, "Monitoring, Evaluation, and Analysis".

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:

None

Interval 4 Authorization:

Pending Approval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request PRR-02

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

System:
CORE SPRAY (CSP)

ASME Code Components Affected:
14P-1A, B

Component/System Function:
Pump cooling water from the suppression pool to the reactor in the event of a LOCA.

Applicable Code Edition and Addenda:
ASME OM Code-2001 including 2003 Addenda

OM Code Category:
Group B

Applicable Code Requirement:
ISTB-3500, "Data Collection", 3510, "General", 3510(b), "Range", the full scale-range of each analog instrument shall be not greater than three times the reference value.

Reason for Request:
The differential pressure for the Core Spray pumps is calculated using the installed suction and discharge pressure gauges. The suction pressure gauge is designed to provide adequate suction pressure indication during all expected operating conditions. The full-scale range, 60 psig, is sufficient for a post-accident condition when the torus is at the maximum accident pressure. This, however, exceeds the range limit for the suction pressure under the test condition (approximately 5 psig).

The installed suction pressure gauge and discharge pressure instrumentation loop are calibrated to within +/- 2% full scale accuracy. The full-scale range of the pump discharge pressure instrumentation loop is 500 psig. Pump discharge pressure during testing is typically 300 psig. Thus the maximum variation due to inaccuracy in measured suction pressure is +/- 1.2 psi and in measured discharge pressure is +/- 10 psi. Thus, the differential pressure would be 295 +/- 11.2 psi or an inaccuracy of 3.8%. If the full scale range of the suction pressure gauge was within the Code allowable of 3 times the reference value or 15 psig, the resulting differential pressure measurement would be 295 +/- 10.3 psi or an inaccuracy of 3.5%.

Proposed Alternative and Basis for Use:
The increase in inaccuracy of 0.3% is insignificant and does not warrant the additional manpower and exposure required to change the suction pressure gauge for test purposes.

In addition, the Code would allow a full-scale range for the discharge pressure measurement of 900 psig. This would translate into a differential pressure measurement of 295 +/- 18.3 psig or an inaccuracy of 6.2%. The existing measurement is significantly better than the maximum Code allowable inaccuracy.

Proposed Alternative Testing:

The existing installed plant suction pressure gauges will be used to determine the pump differential pressure for testing of the Core Spray pumps.

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:

None

Interval 4 Authorization:

Pending Approval

James A. FitzPatrick Station Inservice Testing Program

Pump Relief 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

Pump Relief 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 discharge pressure 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

Pump Relief 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 discharge pressure 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 PRR-04

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:

RHR Service Water (System 010)

Emergency Service Water (System 046)

ASME Code Components Affected:

Smooth Running Pumps in the IST Program
10P-1A
10P-1B
10P-1C
10P-1D
46P-2A
46P-2B

Component/System Function:

Provide cooling water to RHR Heat Exchangers during a design basis event
Provide cooling water to Emergency Diesel Generators and Essential Cooling Water loads

Applicable Code Edition and Addenda:

ASME OM Code-2001 including 2003 Addenda

OM Code Category:

Group A and Group B

Applicable Code Requirement:

ISTB-3300, "Reference Values", ISTB-3300(a), states; Initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, "Preservice Testing", or from the results of the first inservice test.

ISTB-3100(d), states; Reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests.

ISTB-3300(f), states; All subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c).

ISTB-5120, "Inservice Testing", ISTB-5121, "Group A Test Procedure", ISTB-5121(e) and ISTB-5123(e), "Group A Test and Comprehensive Test Procedure", states; All deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table-ISTB-5121-1. For example, if vibration exceeds either 6Vr, or 0.7 in./sec, the pump is in the required action range.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request PRR-04

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.

ISTB-5220, "Inservice Testing", ISTB-5221, "Group A Test Procedure", ISTB-5221(e) and ISTB-5223(e), "Group A Test and Comprehensive Test Procedure", states; All deviations from the reference values shall be compared with the ranges of Table ISTB-5221-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table-ISTB-5221-1. For example, if vibration exceeds either 6Vr, or 0.7 in./sec, the pump is in the required action range.

ISTB-5320, "Inservice Testing", ISTB-5321, "Group A Test Procedure", ISTB-5321(e) and ISTB-5323(e), "Group A Test and Comprehensive Test Procedure", states; All deviations from the reference values shall be compared with the ranges of Table ISTB-5321-1 or 5321-2, as applicable and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table-ISTB-5321-1 or 5321-2 as applicable. For example, if vibration exceeds either 6Vr, or 0.7 in./sec, the pump is in the required action range.

Reason for Request:

The smooth running pumps in the FitzPatrick Nuclear Station IST Program have at least one vibration reference value (Vr) that is currently less than 0.05 in/sec. A small value for Vr produces a small acceptable range for pump operation. The OM Code Acceptable Range limit for pump vibrations from Table ISTB-5121-1, Table ISTB-5221-1, Table ISTB-5321-1 and Table ISTB-5321-2 for both the Group A test and Comprehensive test is <=2.5 Vr. Based on a small acceptable range, a smooth running pump could be subject to unnecessary corrective action if it exceeds this limit.

ISTB-6200(a), "Corrective Action – Alert Range", states; If the measured test parameter values fall within the alert range of Table ISTB-5121-1, Table ISTB-5221-1, Table ISTB-5321-1 or Table ISTB-5321-2, as applicable, the frequency of testing specified in ISTB-3400 shall be doubled until the cause of the deviation is determined and the condition is corrected.

For very small reference values for vibrations, flow variations, hydraulic noise and instrument error can be a significant portion of the reading and affect the repeatability of subsequent measurements. Also, experience gathered by the FitzPatrick Nuclear Station Predictive Maintenance (PdM) Group has shown that changes in vibration levels in the range of 0.05 in/sec do not normally indicate significant degradation in pump performance.

In order to avoid unnecessary corrective actions, a minimum value for Vr of 0.05 in/sec is proposed. This minimum value would be applied to individual vibration locations for those pumps with reference vibration values less than 0.05 in/sec.

Therefore, the smallest OM Code Acceptable Range limit for any IST pump vibration location would be no lower than 2.5 times Vr, or 0.125 in/sec, which is within the "fair" range of the "General Machinery Vibration Severity Chart" provided by IRD Mechanalysis, Inc. Likewise, the smallest OM Code Alert Range limit for any IST Pump vibration location for which the pump would be inoperable would be no lower than 6 times Vr, or 0.300 in/sec.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request PRR-04

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.

For comparison purposes, ASME XI, Table IWP-3100-2, "Allowable Ranges of Test Quantities", specifies a vibration Acceptable Range limit of 1.0 mil for a displacement reference value <=0.5 mils. In velocity units, a displacement reference value of 0.5 mils is equivalent to 0.047 in/sec for an 1800 rpm pump and 0.094 in/sec for a 3600 rpm pump.The effective minimum reference value proposed (0.05 in/sec) for smooth-running pumps is roughly equal to the ASME XI IWP reference value for an 1800 rpm pump and more conservative than the reference value for a 3600 rpm pump.

Without this relief, the Acceptable Range limit for some extremely smooth running pumps is reduced by as much as a factor of 10.

In addition to the requirements of ISTB for IST, the pumps in the FitzPatrick Nuclear Station IST Program are also included in the FitzPatrick Nuclear Station PdM Program. The FitzPatrick Nuclear Station PdM Program currently employs predictive monitoring techniques such as: vibration monitoring and analysis beyond that required by ISTB, bearing temperature trending, oil sampling and analysis, and/or thermography analysis as applicable.

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include: a Condition Report (CR) initiated, increased monitoring to establish a rate of change, review of component specific information to identify cause, and removal of the pump from service to perform maintenance.

It should be noted that the pumps in the IST Program will remain in the FitzPatrick Nuclear Station PdM Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps.

Proposed Alternative and Basis for Use:

In lieu of applying the vibration acceptance criteria ranges specified in Table ISTB-5121-1, Table ISTB-5221-1, Table ISTB-5321-1 or Table ISTB-5321-2, as applicable, smooth running pumps with a measured reference value below 0.05 in/sec for a particular vibration measure location will have subsequent test results for that location compared to an Acceptable Range limit of 0.125 in/sec and an Alert Range limit of 0.300 in/sec (based on a minimum reference value 0.05 in/sec). These proposed ranges shall be applied to vibration test results during both Group A tests and Comprehensive tests.

In addition to the Code requirements, pumps in the FitzPatrick Nuclear Station IST Program are included in and will remain in the FitzPatrick Nuclear Station PdM Program regardless of their smooth running status.

Using the provisions of this 10CFR50.55a Request as an alternative to the specific requirements of ISTB identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety without unnecessarily imposing corrective action since changes in vibration levels in the range of 0.05 in/sec do not normally indicate significant degradation in pump performance.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request PRR-04

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:

Smooth running pumps with a measured reference value below 0.05 in/sec for a particular vibration measure location will have subsequent test results for that location compared to an Acceptable Range limit of 0.125 in/sec and an Alert Range limit of 0.300 in/sec (based on a minimum reference value 0.05 in/sec). These proposed ranges shall be applied to vibration test results during both Group A tests and Comprehensive tests.

Using the provisions of this relief request as an alternative to the vibration acceptance criteria ranges specified in Table ISTB-5121-1, Table ISTB-5221-1, Table ISTB-5321-1 or Table ISTB-5321-2 provides an acceptable level of quality and safety since the alternative provides reasonable assurance of pump operational readiness and the ability to detect pump degradation. Therefore, pursuant to 10 CFR 50.55a(f)(6)(i), FitzPatrick requests relief from the specific ISTB Code requirements identified in this 10CFR50.55a Request.

Duration of Proposed Alternative:

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

Precedents:

None at FitzPatrick Nuclear Station.

For similar relief, refer to Beaver Valley Power Station, Unit 2, Docket No.50-412, SER Date December 27, 2004, Evaluation of Inservice Testing Pump Relief Request PRR-8, (TAC No. MC3241)

For an additional similar relief request, refer to Diablo Canyon Power Plant, Unit Nos. 1 and 2 - Approval of Relief Requests P-RR1, P-RR2, and P-RR3 for the Third 10-year Pump and Valve Inservice Testing Program Interval (TAC Nos. MC6632 AND MC6633) SER Dated January 30, 2006.

References:

NUREG-1482, Rev.1, Section 5.4, "Monitoring Pump Vibration in Accordance with ISTB"

General Machinery Vibration Severity Chart provided by IRD Mechanalysis, Inc.

Beaver Valley Power Station, Unit 2, Docket No.50-412, SER Date December 27, 2004, Evaluation of Inservice Testing Pump Relief Request PRR-8, (TAC No. MC3241

Diablo Canyon Power Plant, Unit Nos. 1 and 2 - Approval of Relief Requests P-RR1, P-RR2, and P-RR3 for the Third 10-year Pump and Valve Inservice Testing Program Interval (TAC Nos. MC6632 AND MC6633) SER Dated January 30, 2006.

Interval 4 Authorization:

Pending Approval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-01

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

System:
AUTOMATIC DEPRESSURIZATION (ADS)/MAIN STEAM

ASME Code Components Affected:
02RV-71A, B, C, D, E, F, G, H, J, K and L

Component/System Function:
These valves open to relieve reactor pressure during an accident or transient condition

Applicable Code Edition and Addenda:
ASME OM Code-2001 including 2003 Addenda

OM Code Category:
B/C

Applicable Code Requirement:
Mandatory Appendix I, I-3310, "Class 1 Main Steam Pressure Relief Valves with Auxiliary Actuating Devices."

Reason for Request:
Currently during refueling outages, the SRV pilot assembly is removed and transported to a certified valve testing facility for performance of the following tests: setpoint (lift pressure), reseat (reclosing pressure), and pilot stage seat tightness. A main body slave is used to test each pilot. Mandatory Appendix I, I-3300 states, "No maintenance, adjustment, disassembly, or other activity which could affect as found set pressure or seat tightness data is permitted prior to testing." Since main body seat leakage is monitored continuously during normal plant operation, its seat tightness as found determination is satisfied prior to the pilot assembly removal.

I-3310 also states, "Tests prior to maintenance or set pressure adjustment, or both, shall be performed for I-3310(a), (b), and (c) in sequence. The remaining shall be performed after maintenance or set-pressure adjustments:

(a) visual examination;
(b) seat tightness determination, if practicable;
(c) set pressure determination;
(d) determination of electrical characteristics and pressure integrity of solenoid valves;
(e) determination of pressure integrity and stroke capability of air actuator;
(f) determination of operation and electrical characteristics of position indicators;
(g) determination of operation and electrical characteristics of bellows alarm switch; and
(h) determination of actuating pressure of auxiliary actuating device sensing element, where applicable, and electrical continuity".
(i) determination of compliance with the Owner's set tightness criteria;

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-01

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

Strict adherence to the sequence cannot be satisfied by testing the pilot assembly only. Currently, the plant's test practices ensure that applicable tests specified in I-3310, "Class 1 Main Steam Pressure Relief Valves with Auxiliary Actuating Devices", are performed and the entire valve operability is verified in accordance with Technical Specifications, but not in the sequence specified by I-3310.

Proposed Alternative and Basis for Use:

Common industry practice is to test the Target Rock safety/relief SRV pilot assemblies as separate units. Therefore, removal of each entire valve assembly for testing would create hardship by (1) extending plant outages for the removal and installation process, (2) cost increase and schedule delays for decontamination, and (3) increased shipping expenses. These hardships are not warranted since there is no compensating increase in the level of quality and safety. The as found test data is not affected and all applicable tests required by Mandatory Appendix I are performed.

These valves are power actuated safety relief valves (SRVs) for the main steam lines. Acoustic monitors on the SRV discharge lines annunciate in the control room and indicate when the main valve seat is open. In addition, there are temperature elements on the valve discharge lines which provide leakage indication. Thus valve seat leakage is continuously monitored. Each valve is equipped with a pilot valve assembly that controls the set pressure. The pilot valve assemblies are removed from the main body and sent off site for inspection, refurbishment, and re-qualification testing (set point, reseat, and pilot stage seat tightness). A main body slave is used for setpoint testing at the test facility. During refueling outages the pilot valve assemblies are removed, and previously refurbished and re-qualified pilot valve assemblies are installed. During startup, a full open stroke exercise test of the main valve is performed.

Proposed Alternative Testing:

SRV pilot assemblies will be tested using a slave main valve body to comply with Mandatory Appendix I, I-3300, Periodic Testing requirements.

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.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-01

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

References:

None

Interval 4 Authorization:

Pending Approval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-02

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

System:
TRAVERSING IN-CORE PROBE (TIP)

ASME Code Components Affected:
07SOV-104A, B, C

Component/System Function:
These valves close to provide containment isolation.

Applicable Code Edition and Addenda:
ASME OM Code-2001 including 2003 Addenda

OM Code Category:
A

Applicable Code Requirement:
ISTC-5151, "Valve Stroke Testing"

ISTC-5151(a), Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

ISTC-5151(c), The stroke time of all valves shall be measured to at least the nearest second.

Reason for Request:
The computer control system for the TIP system includes a provision for measuring valve cycle time (opened and closed) and not closure time alone. The sequence opens the subject valve (stroke < 2 seconds), maintains it energized for 10 seconds (including the opening stroke), and de-energizes the valve solenoid allowing the valve to stroke closed (< 2 seconds). The total elapsed time is specified to be </= 12 seconds.

Proposed Alternative and Basis for Use:
The overall cycle time (opened and closed) for these valves will be measured and evaluated in accordance with ISTC-5152.

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.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-02

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

References:

Interval 4 Authorization:
Pending Approval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-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:

Various Excess Flow Check Valves (Listed Below)

ASME Code Components Affected:

02-2EFV-PS-128A,B
02-2EFV-PT-24A,B
02-2EFV-PT-25A,B
02-2EFV1-DPT-111A,B
02-2EFV12-FT-110A,C,E,G
02-2EFV2-DPT-111A,B
02-2EFV2-FT-110A,C,E,G
02-3EFV-11
02-3EFV-13A,B
02-3EFV-15A,B,N
02-3EFV-17A,B
02-3EFV-19A,B
02-3EFV-21A,B,C,D
02-3EFV-23A,B,C,D
02-3EFV-23
02-3EFV-25
02-3EFV-31A,B,C,D
02-3EFV-31E,F,G,H
02-3EFV-31J,K,L,M
02-3EFV-31N,P,R,S
02-3EFV-33
13EFV-01A,B
13EFV-02A,B
14EFV-31A,B
23EFV-01A,B
23EFV-02A,B
29EFV-30A,B,C,D
29EFV-34A,B,C,D
29EFV-53A,B,C,D
29EFV-54A,B,C,D

Component/System Function:

The reactor instrumentation lines excess flow check valves close to limit the flow in the respective instrument lines in the event of an instrument line break downstream of the EFCVs outside containment.

Applicable Code Edition and Addenda:

ASME OM Code-2001 including 2003 Addenda

OM Code Category:

A/C

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-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.

Applicable Code Requirement:

Subsection ISTC, Inservice Testing of Valves in Light Water Reactor Power Plants, ISTC-3510, "Exercising Test Frequency", requires these valves to be tested nominally every 3 months, except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and ISTC-5222.

Reason for Request:

Relax the number of EFCVs tested every refuel outage from "each" to a "representative sample" every refuel outage (nominally once every 24 months). The representative sample is based on approximately 20 percent of the valves each cycle such that each valve is tested every 10 years (nominal).

The BWROG Topical Report, B21-00658-01, dated November 1998, and associated NRC safety evaluation, dated March 14, 2000, provides the basis for this relief. The report provides justification for relaxation of the testing frequency described above. The BWROG report provides justification for relocation of the TS SR from the TS and relaxation of the testing intervals for the EFCVs. This specific request is solely for the relaxation in the testing frequency as described above.

The report demonstrates, through operating experience, a high degree of reliability with EFCVs and the low consequences of an EFCV failure. Reliability data in the report (Table 4-1) documents zero EFCV failures (failure to close) for the FitzPatrick plant. The instrument lines at FitzPatrick have a flow restricting orifice upstream of the EFCVs to limit reactor water leakage in the event of rupture. Previous evaluations contained in the James A. FitzPatrick Final Safety Analysis Report (FSAR) of such an instrument line rupture do not credit the EFCVs for isolating the rupture. Thus a failure of an EFCV, though not expected as a result of this request, is bounded by the analysis. Based on the BWROG report and the analysis contained in the FSAR, the proposed alternative to the required exercise testing frequency for EFCVs prescribed by the OM Code provides an acceptable level of quality and safety.

Proposed Alternative and Basis for Use:

Exercise test, by full-stroke to the position required to fulfill its function, a representative sample of EFCVs every refuel outage. The representative sample is based on approximately 20 percent of the valves each cycle such that each valve is tested every 10 years (nominal). EFCV failures will be documented in the FitzPatrick's Corrective Action Program as a surveillance test failure. The failure will be evaluated and corrected. An Equipment Failure Evaluation (EFE) will be required per the Corrective Action Program. The EFE will encompass common failure mode identification, industry experience evaluation, and review of similar component failure history.

Proposed Alternative Testing:

To ensure EFCV performance remains consistent with the extended test interval a minimum acceptance criteria of less than or equal to 1 failure per year on a 3 year rolling average will be required. Upon exceeding the criteria a root-cause evaluation is required to determine cause, extent of conditions, an evaluation of the testing interval to ensure reliability of the EFCVs, and a risk analysis of the effects of the failures on cumulative and instantaneous plant safety. Corrective

actions and performance goals will be established based on the results of the root-cause analysis.

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 October 10, 2000 (TAC No. MA8767). The circumstances and basis for the previous NRC approval have not changed.

(Refer to similar relief approved for Columbia Generating Station, SER Dated March 23, 2007, TAC Nos. MD3537, MD3538, MD3539, MD3541, MD3542, MD3550 MD3551 and MD3552, RV05.)

References:

BWROG Report B21-00658-01, "Excess Flow Check Valve Testing Relaxation," dated November 1998.

Columbia Generating Station, SER Dated March 23, 2007, TAC Nos. MD3537, MD3538, MD3539, MD3541, MD3542, MD3550 MD3551 and MD3552

Interval 4 Authorization:

Pending Approval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-04

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:
HIGH PRESSURE COOLANT INJECTION (HPCI)

ASME Code Components Affected:

23HPI-130	HPCI Gland Seal Cooling Return Check Valve
23HPI-131	HPCI Condensate Pump P-141 Disch Check Valve
23HPI-32	HPCI Booster Pump P-1B Suct From CST 33TK-12A and B Check Valve
23HPI-61	HPCI Booster Pump P-1B Suct From Suppression Pool Check Valve
23HPI-62	HPCI Min Flow Line To RHR Check Valve

Component/System Function:
Various

Applicable Code Edition and Addenda:
ASME OM Code-2001 including 2003 Addenda

OM Code Category:
C

Applicable Code Requirement:
Subsection ISTC, Inservice Testing of Valves in Light Water Reactor Power Plants, ISTC-3510, "Exercising Test Frequency", requires these valves to be tested nominally every 3 months, except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and ISTC-5222.

For the listed valves, the FitzPatrick IST program exercises the provisions of ISTC-3522(c) and ISTC-5221(c)(3) which together establish that: "As an alternative to the testing above, sample disassembly every refueling outage to verify operability of check valves may be used." Thus, a sample of these valves would be disassembled and inspected during each refueling outage.

Reason for Request:
Relaxation of the "refueling outage" restriction of ISTC-3522(c) and ISTC-5221(c)(3) for testing of the listed valves to a test frequency of "a sample at least once per operating cycle."

Performance of these IST activities on a refueling outage frequency is currently acceptable in accordance with ISTC. By specifying testing activities on a frequency commensurate with each refueling outage, ISTC recognizes and establishes an acceptable time period between testing. Historically, the refueling outages have provided a convenient and defined time period in which testing activities could be safely and efficiently performed. However, an acceptable testing frequency can be maintained separately without being tied directly to a refueling outage while still managing plant risk in accordance with 10 CFR 50.65(a)(4). IST performed on a frequency that

maintains the acceptable time period between testing activities during the operating cycle is consistent with the intent of ISTC. Over time, approximately the same number of tests would be performed using the proposed operating cycle test frequency as would be performed using the current refueling outage frequency. Thus, IST activities performed during the proposed operating cycle test frequency provide an equivalent level of quality and safety as IST performed at a refueling outage frequency.

Proposed Alternative and Basis for Use:

Any on-line IST activities associated with this relief will be performed subject to the FitzPatrick program for compliance with the requirements of 10 CFR 50.65(a)(4), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants."

Proposed Alternative Testing:

ISTC-5221(c)(3) allows sample disassembly each refueling outage to verify operability as an alternative to quarterly testing. This activity will be performed, with the exception that it will be done at a frequency of at least once per operating cycle in lieu of during each refueling outage.

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 October 10, 2000 (TAC No. MA8767). The circumstances and basis for the previous NRC approval have not changed.

References:

Interval 4 Authorization:

Pending Approval

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-05

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:
ELECTRIC BAY AND TUNNEL VENTILLATION (SYSTEM 67)
CONTROL ROOM COOLING AND VENTILLATION (SYSTEM 70)

ASME Code Components Affected:

67PCV-101
70TCV-120A, B
70TCV-121A, B

Power-Operated Valves that are used for System Control and have a Safety Function currently included in the FitzPatrick Inservice Testing Program

Component/System Function:

System control with an associated failsafe position feature.

Applicable Code Edition and Addenda:
ASME OM Code-2001 including 2003 Addenda

OM Code Category:
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.

1. OM Subsection ISTC, Paragraph ISTC-5131, Pneumatically Operated Valves Stroke Testing

2. OM Subsection ISTC, Paragraph ISTC-5132, Stroke Test Acceptance Criteria

3. OM Subsection ISTC, Paragraph ISTC-5133(b), Stroke Test Corrective Action

Reason for Request:
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. ISTA-3130(c) states, Code Cases shall be in effect at the time the test plan is filed, except as provided in ISTA-3130(d). ISTA-3130(d) states, Code Cases issued subsequent to filing the test plan may be proposed for use in amendments to the test plan. 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.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-05

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.

NUREG-1482, Revision 1, Section 4.2.9 states in part; Control valves that perform a safety or fail-safe function must be tested in accordance with the Code provisions for IST to monitor the valves for degrading conditions.

The NRC staff recommends that licensees should apply ASME Code Case OMN-8, as accepted in RG 1.192, if concerns exist regarding IST of control valves with fail-safe functions.

Code Case OMN-8 states that stroke-time testing need not be performed for POVs when the only safety-related function of those valves is to fail safe. Any abnormality or erratic action experienced during valve exercising should be recorded in the test record and an evaluation should be performed.

RG 1.192 allows licensees with an applicable Code of record to implement ASME Code Case OMN-8 in lieu of the Code provisions for Valve Stroke Testing, Stroke Time Acceptance Criteria and Stroke Test Corrective Action, without the need to submit a relief request.

The Code of record for FitzPatrick Fourth 10-Year IST Interval is OM Code-2001 Edition through 2003 Addenda. The applicable Code for OMN-8, as stated in RG 1.192, is OM Code-1998 through the 2000 Addenda.

Proposed Alternative and Basis for Use:

Pursuant to the guidelines provided in NUREG-1482, Revision 1, Section 4.2.9, FitzPatrick proposes to implement Code Case OMN-8 in lieu of the Code provisions for Valve Stroke Testing, Stroke Time Acceptance Criteria and Stroke Test Corrective Action specified in ISTC-5130. Code Case OMN-8 has been determined by the NRC to provide an acceptable level of quality and safety as documented in RG 1.192.

ASME Code Case OMN-8 states that stroke-time testing need not be performed for these valves when the only safety-related function of the valves is to fail safe. OM Code Committee is in the process of revising the applicability of this Code Case to the later approved OM Code editions and addenda.

Proposed Alternative Testing:

Using the provisions of this 10 CFR 50.55a request as an alternative to the AOV stroke-time testing requirements of ISTC-5130 provides an acceptable level of quality for the determination of valve operational readiness. Code Case OMN-8 should be considered acceptable for use with OM Code-2001 through 2003 Addenda as the Code of record. Therefore, pursuant to 10CFR50.55a(a)(3)(i), FitzPatrick requests relief from the specific ISTC Code requirements identified in this 10CFR 50.55a request.

These valves shall be exercised in accordance with the Subsection ISTC requirements and the failsafe position on a loss of power shall be verified. Any abnormality or erratic action experienced during valve exercising shall be evaluated per the Corrective Action Program.

James A. FitzPatrick Station Inservice Testing Program

10 CFR 50.55a Request VRR-05

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.

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

Precedents:
None for FitzPatrick.

(Refer to similar relief approved for Columbia Generating Station, SER Dated March 23, 2007, TAC Nos. MD3537, MD3538, MD3539, MD3541, MD3542, MD3550 MD3551 and MD3552, RV05.)

(Refer to similar relief approved for Surry Power Station, Units 1 and 2 – SER Dated July 2, 2004, (TAC Nos. MC0120 through MC0146).

References:

Code Case OMN-8, "Alternative Rules for Preservice and Inservice Testing of Power-Operated Valves that are used for System Control and have a Safety Function per OM-10"

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 ISTC-5130, "Pneumatically Operated Valves"

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

NUREG-1482, Revision 1, Section 4.2.9, "Control Valves with a Safety Function."

Surry Power Station, Units 1 and 2 – SER Dated July 2, 2004, (TAC Nos. MC0120 through MC0146).

Columbia Generating Station, SER Dated March 23, 2007, TAC Nos. MD3537, MD3538, MD3539, MD3541, MD3542, MD3550 MD3551 and MD3552

Interval 4 Authorization:
Pending Approval