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L-13-067

10 CFR 50.55a

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

Subject:
Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License No. NPF-3
10 CFR 50.55a Requests RP-1, RP-1A, RP-3, RP-5, RP-6 and RV-1 Regarding Inservice Pump and Valve Testing

Pursuant to 10 CFR 50.55a, FirstEnergy Nuclear Operating Company (FENOC) hereby requests Nuclear Regulatory Commission (NRC) approval of enclosed 10 CFR 50.55a requests RP-1, RP-1A, RP-3, RP-5, RP-6, and RV-1 for the Davis-Besse Nuclear Power Station, Unit No. 1, fourth ten-year inservice testing program for pumps and valves.

Requests RP-1 and RP-1A propose the use of plant process computer points as digital instrumentation for inservice testing of certain pumps. Request RP-3 proposes to perform periodic functional testing and flow rate tests each cycle in lieu of vibration monitoring on certain inaccessible pumps. Request RP-5 proposes to perform the comprehensive test of high pressure injection pumps each refueling outage in lieu of biennially, and reclassify the pumps from Group B to Group A in order to include vibration test requirements during the quarterly pump tests. Request RP-6 proposes to perform quarterly pump testing with increased instrument accuracy requirements in accordance with Code Case OMN-18 in lieu of comprehensive pump testing. Requests RP-1A and RP-6 are to be applied concurrently. Request RV-1 proposes to perform periodic exercising and diagnostic testing requirements in Code Case OMN-1 to assess the operational readiness of certain motor operated valves.

FENOC requests approval of the requests described above by March 4, 2014 to support the Davis-Besse Nuclear Power Station, Unit No. 1, fourth ten-year inservice testing program for pumps and valves.

There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager - Fleet Licensing, at (330) 315-6810.

Sincerely,

Raymond A. Lieb

Enclosures:
A. 10 CFR 50.55a Request Number: RP-1
B. 10 CFR 50.55a Request Number: RP-1A
C. 10 CFR 50.55a Request Number: RP-3
D. 10 CFR 50.55a Request Number: RP-5
E. 10 CFR 50.55a Request Number: RP-6
F. 10 CFR 50.55a Request Number: RV-1

cc: NRC Region III Administrator
NRC Project Manager
NRC Resident Inspector
Executive Director, Ohio Emergency Management Agency, State of Ohio (NRC Liaison)
Utility Radiological Safety Board

--Alternative Provides Acceptable Level of Quality and Safety--

1. ASME Code Components Affected

P43-1, Component Cooling Water Pump, Class 3, Group A

P43-2, Component Cooling Water Pump, Class 3, Group A

P43-3, Component Cooling Water Pump, Class 3, Group A

P58-1, High Pressure Injection Pump, Class 2, Group AB

P58-2, High Pressure Injection Pump, Class 2, Group AB

P3-1, Service Water Pump, Class 3, Group A

P3-2, Service Water Pump, Class 3, Group A

P3-3, Service Water Pump, Class 3, Group A

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), 2004 Edition through 2006 Addenda.

3. Applicable Code Requirement

Subparagraph ISTB-3510(b)(2) of the ASME OM Code, states in part that:

> Digital instruments shall be selected such that the reference value does not exceed 90 percent of the calibrated range of the instrument.

4. Reason for Request

Plant process computer points may be used as digital instrumentation for inservice testing of pumps. The computer points may be used in lieu of the associated analog indicators in order to meet the ASME OM Code instrument accuracy requirements. In addition to using computer points, temporary digital instruments are also used as measuring and test equipment for pump testing.

In some cases, the reference value exceeds 90 percent of the digital instruments calibrated range during comprehensive pump testing.

5. Proposed Alternative and Basis for Use

As an alternative to ISTB-3510(b)(2), digital instruments used to verify the required action levels of ASME OM Code Tables ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria," and ISTB-5221-1, "Vertical Line Shaft Centrifugal Pump Test Acceptance Criteria," will be selected such that the reference value shall not exceed 97 percent of the calibrated range for comprehensive pump testing.

Plant process computer points or temporary digital instruments may be used for comprehensive pump testing. The computer points use permanent plant

instrumentation as input, and by design, the ranges are selected to account for all expected operating and testing conditions. Surveillance tests are written such that the temporary instrumentation is not over-ranged. In addition, digital instrumentation is significantly less susceptible to damage from over-ranging, and the digital instrument is accurate throughout its full calibrated range.

Tables ISTB-5121-1 and ISTB-5221-1 of the ASME OM Code list the acceptance criteria for comprehensive testing and state that the maximum acceptable value of the measured parameter is 103 percent of the reference value (for flow and differential pressure).

The proposed alternative to ISTB-3510(b)(2) requires that the digital instruments used be selected such that the reference value shall not exceed 97 percent of the calibrated range. This ensures that when the digital instrument used during performance of comprehensive pump testing is reading the maximum action level of 103 percent of the reference value, the reading is within the calibrated range of the instrument.

Using the provisions of this relief request as an alternative to the requirements in ISTB-3510(b)(2), during the performance of comprehensive pump testing, provides a reasonable alternative to the Code requirements. The proposed method of monitoring the affected components for degradation provides an acceptable level of quality and safety, and assurance that the pumps are capable of performing their safety functions.

6. Duration of Proposed Alternative

The duration of the proposed alternative is the fourth 10-year inservice test interval that commenced on September 21, 2012.

7. Precedent

A similar request was authorized by the Nuclear Regulatory Commission (NRC) staff for use during the third 10-year inservice test interval for Davis-Besse Nuclear Power Station. The letter authorizing the request is cited below.

"Davis-Besse Nuclear Power Station, Unit 1 - Requests For Relief From The Third 10-Year Pump And Valve Inservice Testing (IST) Program (TAC No. MB3909)," dated March 28, 2003, (Accession No. ML030790183).

--Alternative Provides Acceptable Level of Quality and Safety--

1. ASME Code Components Affected

P14-1, Auxiliary Feedwater Pump, Class 3, Group AB

P14-2, Auxiliary Feedwater Pump, Class 3, Group AB

P56-1, Containment Spray Pump, Class 2, Group AB

P56-2, Containment Spray Pump, Class 2, Group AB

P42-1, Decay Heat Removal Pump, Class 2, Group A

P42-2, Decay Heat Removal Pump, Class 2, Group A

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), 2004 Edition through 2006 Addenda.

3. Applicable Code Requirement

Subparagraph ISTB-3510(b)(2) of the ASME OM Code, states in part that:

> Digital instruments shall be selected such that the reference value does not exceed 90 percent of the calibrated range of the instrument.

4. Reason for Request

Plant process computer points may be used as digital instrumentation for inservice testing of pumps. The computer points may be used in lieu of the associated analog indicators in order to meet the ASME OM Code instrument accuracy requirements. In addition to using computer points, temporary digital instruments are also used as measuring and test equipment for pump testing.

In some cases, the reference value could exceed 90 percent of the digital instruments calibrated range during pump testing in accordance with a separate 10 CFR 50.55a Request that would utilize the provisions of ASME OM Code Case OMN-18, "Alternate Testing Requirements for Pumps Tested Quarterly Within ±20% of Design Flow," (for pumps P14-1, P14-2, P56-1, P56-2, P42-1, and P42-2).

5. Proposed Alternative and Basis for Use

As an alternative to ISTB-3510(b)(2), digital instruments used to verify the required action levels of ASME OM Code Case OMN-18 will be selected such that the reference value shall not exceed 94 percent of the calibrated range.

Plant process computer points or temporary digital instruments may be used for Code Case OMN-18 pump testing. The computer points use permanent plant instrumentation as input, and by design, the ranges are selected to account for all expected operating and testing conditions. Surveillance tests are written such that the temporary

instrumentation is not over-ranged. In addition, digital instrumentation is significantly less susceptible to damage from over-ranging, and the digital instrument is accurate throughout its full calibrated range.

The alternative proposed in 10 CFR 50.55a Request RP-6 (to apply Code Case OMN-18) would require the maximum acceptable value of the measured parameter be 106 percent of the reference value.

The proposed alternative to ISTB-3510(b)(2) requires that the digital instruments used be selected such that the reference value shall not exceed 94 percent of the calibrated range. This ensures that when pump testing is performed pursuant to Code Case OMN-18 and the digital instrument is reading the maximum action level of 106 percent of the reference value, the reading is within the calibrated range of the instrument.

Using the provisions of this relief request as an alternative to the requirements in ISTB-3510(b)(2), during the performance of Code Case OMN-18 pump testing, provides a reasonable alternative to the Code requirements. The proposed method of monitoring the affected components for degradation provides an acceptable level of quality and safety, and assurance that the pumps are capable of performing their safety functions.

6. <u>Duration of Proposed Alternative</u>

The duration of the proposed alternative is the fourth 10-year inservice test interval that commenced on September 21, 2012.

7. <u>Precedent</u>

A similar request was authorized by the Nuclear Regulatory Commission (NRC) staff for use during the third 10-year inservice test interval for Davis-Besse Nuclear Power Station. The letter authorizing the request is cited below.

"Davis-Besse Nuclear Power Station, Unit 1 - Requests For Relief From The Third 10-Year Pump And Valve Inservice Testing (IST) Program (TAC No. MB3909)," dated March 28, 2003, (Accession No. ML030790183).

--Inservice Testing Impracticality--

1. <u>ASME Code Components Affected</u>

P195-1, Emergency Diesel Generator Fuel Oil Transfer Pump, Class 3, Group A

P195-2, Emergency Diesel Generator Fuel Oil Transfer Pump, Class 3, Group A

2. <u>Applicable Code Edition and Addenda</u>

American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), 2004 Edition through 2006 Addenda.

3. <u>Applicable Code Requirement</u>

Table ISTB-3400-1, "Inservice Test Frequency," of the ASME OM Code, specifies a frequency of quarterly for the Group A test, and biennially for the comprehensive test.

Subparagraphs ISTB-5121(b) and ISTB-5123(b) of the ASME OM Code, applicable to the Group A and comprehensive test procedures, respectively, state in part that the resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to the [its] reference value.

Subparagraphs ISTB-5121(c) and ISTB-5123(c) of the ASME OM Code, applicable to the Group A and comprehensive test procedures, respectively, state that:

> Where it is not practical to vary system resistance, flow rate and pressure shall be determined and compared to their respective reference values.

Subparagraphs ISTB-5121(d) and ISTB-5123(d) of the ASME OM Code, applicable to the Group A and comprehensive test procedures, respectively, state in part that vibration (displacement or velocity) shall be determined and compared with the [corresponding] reference value[s].

Subparagraphs ISTB-5121(e) and ISTB-5123(e) of the ASME OM Code, applicable to the Group A and comprehensive test procedures, respectively, state in part that all deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 ["Centrifugal Pump Test Acceptance Criteria"] and corrective action taken as specified in [paragraph] ISTB-6200 ["Corrective Action"]. 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.

Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria," of the ASME OM Code, provides Group A and Comprehensive pump test acceptance criteria.

4. Impracticality of Compliance

10 CFR 50.55a(f)(2) requires that ASME Code Class 1 and 2 components be designed and provided with access to enable the performance of inservice tests if the construction permit was issued on or after January 1, 1971, but before July 1, 1974. The Davis-Besse Nuclear Power Station construction permit was issued on March 24, 1971. However, the emergency diesel generator (EDG) fuel oil transfer system is ASME Code Class 3, and therefore, was not required to be designed to permit performance of Code-required inservice testing. The EDG fuel oil transfer pumps and motors are submerged inside the EDG fuel oil storage tank and are not accessible for vibration measurements. There is no installed flow instrumentation, pressure instrumentation, valve test connections, or accessible recirculation lines. The pumps transfer diesel fuel oil from the EDG fuel oil storage tanks to the EDG day tanks.

The EDG fuel oil transfer pumps do not have installed instrumentation to measure either flow or discharge pressure. The only possible flow measurement is by measuring EDG day tank volume change over time. Error in measuring this volume is dependent on fuel oil temperature and a limited change in level indication because the EDG day tank has a large upper circular section. Flow rate is dependent upon EDG fuel oil storage tank level and fuel oil viscosity, which varies with environmental temperature conditions. There are no accessible recirculation pathways nor designed drainage pathways in the pipe line that is used to transfer fuel oil from the EDG fuel oil storage tank to the EDG day tank.

5. Burden Caused by Compliance

Code compliance would require modification of the fuel oil transfer system to accommodate Code-required flow, differential pressure, and vibration measurements. This modification would involve replacement of the existing pumps and their relocation external to the tanks, installation of flow test loops, and installation of flow and pressure instrumentation. A modification of this magnitude is unwarranted considering the reduced safety significance of the Davis-Besse Nuclear Power Station fuel oil transfer system as compared to typical designs.

Performing Code-required testing without a major plant hardware modification is impractical.

6. Proposed Alternative and Basis for Use

Since the EDG fuel oil transfer pumps are inaccessible, no vibration monitoring will be performed. The following testing will be performed in lieu of the inservice test requirements (paragraphs ISTB-5121 and ISTB-5123), test acceptance criteria (Table ISTB-5121-1), and test frequency requirements (Table ISTB-3400-1) described above in the applicable code requirements section.

Fuel oil transfer system functional testing is performed every 92 days as required by Technical Specification Surveillance Requirement 3.8.1.7. This surveillance requirement verifies that the fuel oil transfer system operates to transfer fuel oil from the

fuel oil storage tank to the day tank. Periodic operation of the EDGs for testing purposes requires automatic operation of the EDG fuel oil transfer pumps in order to maintain the required level in the EDG day tanks.

Pump flow rate tests are performed each cycle. Fuel oil is added to the EDG fuel oil storage tank, if necessary, to ensure a specified minimum fuel oil level is established above the EDG fuel oil transfer pump prior to testing. The minimum fuel oil level ensures pump suction pressure is consistent for repeatable system flow characteristics.

The pump flow rate is calculated by measuring the change in EDG day tank level over time. An EDG day tank level change of approximately 150 gallons or more is timed to determine flow rate. As described above, consistent EDG fuel oil transfer pump suction pressure is established prior to the test. Based upon these conditions, pump flow rates are repeatable and capable of predicting pump degradation.

The EDG fuel oil transfer pumps are rated at 10 gallons per minute (gpm). A conservative minimum flow value, with respect to design basis, will be used in lieu of ASME OM Code Table ISTB-5121-1. This minimum flow value will ensure the EDG fuel oil transfer pumps do not degrade below required design system flow requirements. Pump flow rates will be trended for degradation. In lieu of alert levels being specified, required actions will be performed if pump flow rate is determined to be outside the acceptable range.

Periodically, the EDG fuel oil storage tanks are drained, cleaned, and filled with fresh oil. The EDG day tanks are also drained, cleaned and inspected. At these times, a long term pump duration test is possible. The transfer pump will be required to continuously pump 1000 gallons of fuel from the EDG fuel oil storage tank to the EDG day tank. Flow rate will be calculated and evaluated for degradation.

The EDG fuel oil storage tank configuration consists of a safety-related 40,000 gallon, seven-day capacity storage tank for each EDG. Each of the seven-day storage tanks have an internally mounted, submerged EDG fuel oil transfer pump normally supplying the corresponding 6,000 gallon gross capacity day tank. There is sufficient fuel oil in each day tank to operate its associated diesel generator for more than 20 hours at the continuous rated load. In addition, the supply lines from the EDG day tanks can be cross-connected, which permits either EDG to be supplied with fuel oil from either storage tank in an emergency. Each EDG day tank has a safety-related fill connection and the capability of emergency fill from the non-safety-related 100,000 gallon diesel fuel oil storage tank using a flexible hose. Because of the large capacity of the day tanks, and the three diverse methods of replenishing the day tanks during EDG operation (100,000 gallon tank, 40,000 gallon tanks, and safety-related fill connection), the Davis-Besse Nuclear Power Station EDG fuel oil transfer pumps are of lower safety significance than in a fuel oil transfer system with relatively small day tanks.

The EDG fuel oil transfer pumps are low flow pumps, rated at 10 gpm. They automatically start on a low EDG day tank level of approximately seven feet (approximately 5,050 gallons), then automatically shut off at approximately seven and

one-half feet; this corresponds to approximately 250 gallons pumped. This safety feature maintains a minimum day tank level as required by Technical Specification Surveillance Requirement 3.8.1.4, which verifies each day-tank contains greater than or equal to 4,000 gallons of fuel oil.

The EDG day tanks are elevated so that gravity will cause flow to the suction of the diesel fuel oil pumps for the EDG engines. Periodic verification of the fuel oil level in the EDG day tanks is sufficient to allow time to replenish the tanks.

Using the provisions of this relief request as an alternative to the requirements of the ASME OM Code for Group A and comprehensive pump testing provides a reasonable assurance of pump operational readiness. Compliance with ASME OM Code requirements for measurement of flow rate, differential pressure, and vibration at the reference value is impractical due to the fuel oil transfer system design. Compliance would require a major modification of the fuel oil transfer system.

7. Duration of Proposed Alternative

The duration of the proposed alternative is the fourth 10-year inservice test interval that commenced on September 21, 2012.

8. Precedent

A similar request was authorized by the Nuclear Regulatory Commission (NRC) staff for use during the third 10-year inservice test interval for Davis-Besse Nuclear Power Station. The letter authorizing the request is cited below.

"Davis-Besse Nuclear Power Station, Unit 1 - Requests For Relief From The Third 10-Year Pump And Valve Inservice Testing (IST) Program (TAC No. MB3909)," dated March 28, 2003, (Accession No. ML030790183).

--Hardship or Unusual Difficulty
Without a Compensating Increase in Level of Quality and Safety--

1. ASME Code Components Affected

P58-1, High Pressure Injection Pump, Class 2, Group AB

P58-2, High Pressure Injection Pump, Class 2, Group AB

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), 2004 Edition through 2006 Addenda.

3. Applicable Code Requirement

Table ISTB-3400-1, "Inservice Test Frequency," of the ASME OM Code, requires a Group A and Group B test to be performed quarterly and a comprehensive test to be performed biennially.

4. Reason for Request

The high pressure injection pumps inject water into the reactor coolant system to mitigate the consequences of a loss-of-coolant accident. These pumps were originally categorized as Group B pumps since they are in a standby system that is not operated routinely except for testing. The ASME OM Code required testing for these high pressure injection pumps is a quarterly Group B pump test and a biennial comprehensive pump test. The ASME OM Code requires that these pumps be tested within 20 percent of the pump design flow rate for the comprehensive test. The high pressure injection system is equipped with a flow test line that is not designed to withstand a flow rate within 20 percent of the high pressure injection pump design flow rate, as required to fulfill the comprehensive testing requirements of ASME OM Code subparagraph ISTB-3300(e)(1). In order to achieve the necessary flow rate, without creating low temperature overpressure concerns, the high pressure injection pumps are lined up to discharge into the reactor coolant system with the reactor head removed and with water in the refueling canal. These plant conditions are established only during an outage in which a refueling occurs, and are not typically established during a maintenance outage.

Table ISTB-3400-1 of the ASME OM Code, requires the comprehensive pump test to be performed biennially. Since the plant is on a 24-month fuel cycle, compliance with this requirement is normally achievable. However, if the plant experiences maintenance shutdowns, the added time between refueling outages could jeopardize compliance with this testing requirement.

Removal of the reactor head solely to perform the comprehensive pump test is a hardship since it would substantially increase the scope and duration of a maintenance shutdown and result in associated radiation exposure.

5. Proposed Alternative and Basis for Use

Comprehensive testing of the high pressure injection pumps will be performed each refueling outage instead of biennially. The classification for high pressure injection pumps will be changed from Group B to Group A in order to include, in addition to other provisions, vibration test requirements of ASME OM Code Paragraph ISTB-5121, "Group A Test Procedure," subparagraphs (d) and (e), with vibration acceptance criteria of ASME OM Code Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria," during the quarterly pump test. A Group B pump that is classified as a Group A pump for testing purposes is referred to herein as a Group AB pump.

Using the provisions of this relief request as an alternative to the requirements of ASME OM Code Table ISTB-3400-1, including the performance of comprehensive tests during refueling outages and Group A pump tests quarterly between refueling outages, provides reasonable assurance that the high pressure injection pumps are operationally ready. Removal of the reactor head solely to perform the comprehensive pump test is a hardship since it would substantially increase the scope and duration of a maintenance shutdown and result in associated radiation exposure.

6. Duration of Proposed Alternative

The duration of the proposed alternative is the fourth 10-year inservice test interval that commenced on September 21, 2012.

7. Precedent

A similar request was authorized by the Nuclear Regulatory Commission (NRC) staff for use during the third 10-year inservice test interval for Davis-Besse Nuclear Power Station. The letter authorizing the request is cited below.

"Davis-Besse Nuclear Power Station, Unit 1 - Requests For Relief From The Third 10-Year Pump And Valve Inservice Testing (IST) Program (TAC No. MB3909)," dated March 28, 2003, (Accession No. ML030790183).

--Alternative Provides Acceptable Level of Quality and Safety--

1. ASME Code Components Affected

P14-1, Auxiliary Feedwater Pump, Class 3, Group AB

P14-2, Auxiliary Feedwater Pump, Class 3, Group AB

P56-1, Containment Spray Pump, Class 2, Group AB

P56-2, Containment Spray Pump, Class 2, Group AB

P42-1, Decay Heat Removal Pump, Class 2, Group A

P42-2, Decay Heat Removal Pump, Class 2, Group A

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), 2004 Edition through 2006 Addenda.

3. Applicable Code Requirements

Table ISTB-3400-1, "Inservice Test Frequency," of the ASME OM Code, requires a Group A and Group B test to be performed quarterly and a comprehensive test to be performed biennially.

Table ISTB-5121-1 "Centrifugal Pump Test Acceptance Criteria" of the ASME OM Code, defines the required acceptance criteria for Group A, Group B, and Comprehensive centrifugal pump tests. The high end of the acceptable range for Group A tests is 1.10 times the reference flow and 1.10 times the reference differential pressure. The acceptable range for Group A tests is less than or equal to 2.5 times the reference vibration with the pump speed greater than or equal to 600 revolutions per minute.

4. Reason for Request

The ASME Code committees have approved ASME OM Code Case OMN-18, "Alternative Testing Requirements for Pumps Tested Quarterly Within ± 20% [plus or minus 20 percent] of Design Flow." This Code Case has not been approved for use in Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," June 2003.

Code Case OMN-18, of the ASME OM Code, allows the owner to not perform the comprehensive test with the associated acceptance criteria if the quarterly test is performed at plus or minus 20 percent of design flow and the instrumentation meets the accuracy requirements of Table ISTB-3510-1, "Required Instrument Accuracy," for the comprehensive and preservice tests.

Further, paragraph ISTB-5000, "Specific Testing Requirements," of the ASME OM Code, states in part that when a Group B test is required, a Group A or comprehensive test may be substituted. As such, an Owner could categorize a pump that otherwise

meets the requirements of Group B, as a Group A pump for testing. An affected Group B pump that is categorized as a Group A pump for testing purposes is referred to herein as a Group AB pump.

5. Proposed Alternative and Basis for Use

As an alternative to the applicable ASME OM Code requirements listed above, pump testing will be performed in accordance with the provisions of ASME OM Code Case OMN-18. Quarterly Group A tests will be performed with pump flow within plus or minus 20 percent of pump design flow in lieu of performing a biennial comprehensive test. The pressure instrumentation utilized during the tests will have an accuracy of at least 0.5 percent. This alternative testing is applicable to only those pumps with full flow testing capability.

As an alternative to Table ISTB-5121-1 acceptance criteria associated with the Group A test, a maximum of 1.06 of reference flow or differential pressure will be applied as the high end of the acceptable range in lieu of the required 1.10. Values above 1.06 would be considered to be in the required action range. Vibration acceptance criteria of Table ISTB-5121-1 will continue to be applied.

By testing Group AB pumps in accordance with ASME OM Code Case OMN-18, vibration data is obtained quarterly, rather than once every two years, and this allows better trending of pump performance data. As a result of the increased instrumentation accuracy requirements of ASME OM Code Case OMN-18, imposed during applicable quarterly tests, there is no added value in performing the biennial comprehensive test on the affected pumps.

Using the narrowed acceptance range for Group A pump test acceptance criteria, in conjunction with using more accurate pressure instruments during testing, provides more consistent trend results when comparing subsequent tests. The elimination of the comprehensive pump test, with its more limiting required action range upper bound of 103 percent of the reference value, is compensated for by using more accurate pressure gauges on every quarterly test. Due to the improved accuracy, consistent testing methodology, and the addition of quarterly vibration monitoring on Group AB pumps, deviations in actual pump performance indicative of impending degradation are more easily identified during quarterly performance trending activities. Additionally, declaring pumps inoperable for reasons other than actual equipment degradation can be avoided.

As an alternative to the requirements in Table ISTB-3400-1 and Table ISTB-5121-1 of the ASME OM Code, the proposed method of monitoring the affected components for degradation provides an acceptable level of quality and safety, and assurance that the pumps are capable of performing their safety functions.

6. Duration of Proposed Alternative

The duration of the proposed alternative is the fourth 10-year inservice test interval that commenced on September 21, 2012.

7. Precedent

A similar request for certain Group A and Group B pumps was authorized by the Nuclear Regulatory Commission (NRC) staff for use during the fifth inservice test interval at the Oyster Creek Nuclear Generating Station. The letters authorizing the request are cited below.

"Oyster Creek Nuclear Generating Station - Relief From The Requirements Of The ASME Code, Relief Request No. PR-01 For Fifth Inservice Testing Interval (TAC No. ME7616)," dated June 21, 2012, (Accession No. ML120050329).

"Oyster Creek Nuclear Generating Station - Correction To Relief From The Requirements Of The ASME Code, Relief Request No. PR-01 For Fifth Inservice Testing Interval (TAC No. ME7616)," dated July 3, 2012, (Accession No. ML12181A009).

--Alternative Provides Acceptable Level of Quality and Safety--

1. ASME Code Components Affected

Motor-operated valve (MOV) assemblies included in the Davis-Besse MOV Program and listed in the attached table.

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code), 2004 Edition through 2006 Addenda.

3. Applicable Code Requirements

Subparagraph ISTA-3130(b) of the ASME OM Code, states that:

> Code Cases shall be applicable to the edition and addenda specified in the test plan.

Subparagraph ISTC-3100(a) of the ASME OM Code, states that:

> Any valve that has undergone maintenance that could affect its performance after the preservice test shall be tested in accordance with ISTC-3310.

Paragraph ISTC-3310, "Effects of Valve Repair, Replacement, or Maintenance on Reference Values," of the ASME OM code, states in part that:

> When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect the valve's performance, a new reference value shall be determined, or the previous value reconfirmed by an inservice test run before the time it is returned to service or immediately if not removed from service.

Paragraph ISTC-3510, "Exercising Test Frequency," of the ASME OM code, states in part that:

> Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Subparagraph ISTC-3521(e) of the ASME OM code, states that for Category A and Category B valves:

> If exercising is not practicable during operation at power or cold shutdowns, it may be limited to fullstroke during refueling outages.

Paragraph ISTC-3700, "Position Verification Testing," of the ASME OM Code, states in part that:

> Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation [position] is accurately indicated.

Subparagraph ISTC-5121(a) of the ASME OM Code, states that:

> Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

4. Reason for Request

NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," Revision 1, Section 4.2.5 states in part:

> As an alternative to MOV stroke-time testing, ASME developed Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in LWR [Light Water Reactor] Power Plants," which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs.

The following Nuclear Regulatory Commission (NRC) staff recommendation is also provided in Section 4.2.5:

> The NRC staff recommends that licensees implement ASME Code Cases OMN-1 . . . as accepted by the NRC (with certain conditions) in the regulations or RG [Regulatory Guide] 1.192, as alternatives to the stroke-time testing provisions in the ASME Code for applicable POVs [power operated valves].

Section 4.2.5 provides a basis for the recommendation that states in part:

> RG 1.192 allows licensees with an applicable code of record to implement ASME Code Case OMN-1 (in accordance with the provisions in the regulatory guide) as an alternative to the Code provisions for MOV stroke-time testing, without submitting request for relief from their code of record. . . . Licensees with a code of record that is not applicable to the acceptance of these Code Cases may submit a request for relief to apply those Code Cases consistent with indicated conditions to provide an acceptable level of quality and safety.

RG 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," June 2003, allows licensees to implement ASME Code Case OMN-1, Revision 0, (in accordance with the provisions in the regulatory guide) as an alternative to the Code provisions for MOV stroke-time testing in the ASME OM Code 1995 Edition through 2000 Addenda. The applicable Code for OMN-1, as stated in RG 1.192, was only reaffirmed through the 1999 Addenda. Therefore, RG 1.192 does not authorize use of of ASME Code Case OMN-1 for plants like Davis-Besse Nuclear Power Station that test in accordance with ASME OM Code 2004 Edition through 2006 Addenda.

5. Proposed Alternative and Basis for Use

As an alternative to the applicable ASME OM Code requirements listed above, valve testing will be performed in accordance with the provisions of Code Case OMN-1 from the ASME OM Code, 2006 Addenda. These Code Case OMN-1 provisions will be used

instead of MOV stroke-time provisions specified in ISTC-5121(a), preservice testing provisions of ISTC-3100(a), reference value provisions of ISTC-3310, exercising test frequency provisions of ISTC-3510, and exercising provisions of ISTC-3521(e). The conditions specified for the use of Code Case OMN-1, in RG 1.192, June 2003, will be met. With this alternative to the provisions of ISTA-3130(b), Code Case OMN-1 from the ASME OM Code, 2006 Addenda, will be considered acceptable for use with ASME OM Code 2004 Edition through 2006 Addenda identified as the Code of record.

Provisions of ISTC-3700 (that verify valve operation is accurately indicated) will be implemented at the MOV test frequency determined in accordance with Section 6.4.4 of Code Case OMN-1, instead of the ISTC-3700 test frequency of once every two years. High safety significant valves may be full stroke exercised, in accordance with ISTC-3521, during cold shutdowns or refueling outages if supported by a deferred test justification demonstrating that quarterly exercising may have an adverse effect on plant safety and the potential increase in core damage frequency and risk associated with the extension is small.

Using the provisions of this relief request as an alternative to ASME Code provisions as described above, provides an acceptable level of quality for the determination of valve operational readiness.

6. Duration of Proposed Alternative

The duration of the proposed alternative is the fourth 10-year inservice test interval that commenced on September 21, 2012.

7. Precedent

A similar request for MOV assemblies included in the Beaver Valley Power Station MOV Program was authorized by the Nuclear Regulatory Commission (NRC) staff for use during the fourth (Unit No. 1) and third (Unit No. 2) 10-year inservice test intervals. The letter authorizing the request is cited below.

"Beaver Valley Power Station, Unit Nos. 1 and 2 - Proposed Alternative Regarding Motor Operated Valve Testing (TAC Nos. ME7684 and ME7685)," May 4, 2012, (Accession No. ML12122A217).

Valve Number	Description	Code Class	Category
AF599	Auxiliary Feedwater to OTSG 2 Line Stop Valve	2	B
AF608	Auxiliary Feedwater to OTSG 1 Line Stop Valve	2	B
AF3869	Auxiliary Feedwater Pump 1 to OTSG 2 Stop Valve	3	B
AF3870	Auxiliary Feedwater Pump 1 to OTSG 1 Stop Valve	3	B
AF3871	Auxiliary Feedwater Pump 2 to OTSG 1 Stop Valve	3	B
AF3872	Auxiliary Feedwater Pump 2 to OTSG 2 Stop Valve	3	B
CC1328	CCW Inlet To CRDC Booster Pump 1 Block Valve	3	B
CC1338	CCW Inlet To CRDC Booster Pump 2 Block Valve	3	B
CC1407A	CCW Return From Containment CIV	2	A
CC1407B	CCW Return From Containment CIV	2	A
CC1411A	CCW To Containment CIV	2	A
CC1411B	CCW To Containment CIV	2	A
CC1567A	CCW Inlet To CRDC CIV	2	A
CC1567B	CCW Inlet To CRDC CIV	2	A
CC2645	CCW Return Line From Auxiliary Building Non-essential Isolation Valve	3	B
CC2649	CCW Return Line From Auxiliary Building Non-essential Isolation Valve	3	B
CC4100	Reactor Coolant Pump 1-1 Pump Seal Cooler CCW Return Valve	3	B
CC4200	Reactor Coolant Pump 1-2 Pump Seal Cooler CCW Return Valve	3	B
CC4300	Reactor Coolant Pump 2-1 Pump Seal Cooler CCW Return Valve	3	B
CC4400	Reactor Coolant Pump 2-2 Pump Seal Cooler CCW Return Valve	3	B
CC5095	CCW Line 1 Discharge Header Cross-tie Line Block Valve	3	B
CC5096	CCW Line 2 Discharge Header Cross-tie Line Block Valve	3	B
CC5097	CCW Line 1 Return Block Valve	3	B
CC5098	CCW Line 2 Return Block Valve	3	B

Valve Number	Description	Code Class	Category
CF1A	Core Flood Tank 2 to RCS Isolation Valve	2	B
CF1B	Core Flood Tank 1 to RCS Isolation Valve	2	B
CF2A	Core Flood Tank 2 Bleed Line CIV	2	A
CF2B	Core Flood Tank 1 Bleed Line CIV	2	A
CF5A	Core Flood Tank 2 Vent Line CIV	2	A
CF5B	Core Flood Tank 1 Vent Line CIV	2	A
CS1530	Containment Spray Pump 1 Discharge Line CIV	2	A
CS1531	Containment Spray Pump 2 Discharge Line CIV	2	A
CV624B	Containment to Annulus Differential Pressure Sensing Line CIV	2	B
CV645B	Containment to Annulus Differential Pressure Sensing Line CIV	2	B
CV2000B	Containment Pressure Sensing Line CIV for SFAS and RPS	2	B
CV2001B	Containment Pressure Sensing Line CIV for SFAS and RPS	2	B
CV2002B	Containment Pressure Sensing Line CIV for SFAS and RPS	2	B
CV2003B	Containment Pressure Sensing Line CIV for SFAS and RPS	2	B
CV5010A	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5010B	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5010C	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5010D	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5010E	Containment Hydrogen Analyzer CIV	2	A
CV5011A	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5011B	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5011C	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5011D	Containment Hydrogen Analyzer Sample Line CIV	2	A
CV5011E	Containment Hydrogen Analyzer CIV	2	A
CV5037	Hydrogen Purge CIV	2	A
CV5038	Hydrogen Purge CIV	2	A

Valve Number	Description	Code Class	Category
CV5065	Hydrogen Dilution System 2 CIV	2	A
CV5070	Containment Vacuum Breaker CIV	2	A
CV5071	Containment Vacuum Breaker CIV	2	A
CV5072	Containment Vacuum Breaker CIV	2	A
CV5073	Containment Vacuum Breaker CIV	2	A
CV5074	Containment Vacuum Breaker CIV	2	A
CV5075	Containment Vacuum Breaker CIV	2	A
CV5076	Containment Vacuum Breaker CIV	2	A
CV5077	Containment Vacuum Breaker CIV	2	A
CV5078	Containment Vacuum Breaker CIV	2	A
CV5079	Containment Vacuum Breaker CIV	2	A
CV5090	Hydrogen Dilution System 1 CIV	2	A
DH1A	Decay Heat Pump 2 Discharge to RCS Isolation	2	B
DH1B	Decay Heat Pump 1 Discharge to RCS Isolation	2	B
DH7A	BWST to ECCS Train 2 Isolation Valve	2	B
DH7B	BWST to ECCS Train 1 Isolation Valve	2	B
DH9A	Decay Heat Pump 2 Suction from Containment Emergency Sump	2	A
DH9B	Decay Heat Pump 1 Suction from Containment Emergency Sump	2	A
DH11	RCS to Decay Heat System Isolation Valve	1	B
DH12	RCS to Decay Heat System Isolation Valve	1	B
DH63	Decay Heat Pump 2 Discharge to HPI Pump 2 Suction Isolation Valve	2	B
DH64	Decay Heat Pump 1 Discharge to HPI Pump 1 Suction Isolation Valve	2	B
DH830	Decay Heat Cooler Cross-connect Valve	2	B
DH831	Decay Heat Cooler Cross-connect Valve	2	B
DH1517	Decay Heat Pump 1 Suction from RCS	2	B
DH1518	Decay Heat Pump 2 Suction from RCS	2	B

Valve Number	Description	Code Class	Category
DH2733	Decay Heat Pump 1 Suction Valve from BWST or Emergency Sump	2	B
DH2734	Decay Heat Pump 2 Suction Valve from BWST or Emergency Sump	2	B
DH2735	Decay Heat Auxiliary Spray Line Stop CIV	1	A
DH2736	Decay Heat Auxiliary Spray Throttle CIV	2	A
DR2012A	Containment Normal Sump Inside CIV	2	A
DR2012B	Containment Normal Sump Outside CIV	2	A
FW601	OTSG 2 Main Feedwater Stop Valve	2	B
FW612	OTSG 1 Main Feedwater Stop Valve	2	B
HP2A	HPI to RCS Injection Line 2-1 CIV	2	B
HP2B	HPI to RCS Injection Line 2-2 CIV	2	B
HP2C	HPI to RCS Injection Line 1-1 CIV	2	B
HP2D	HPI to RCS Injection Line 1-2 CIV	2	B
HP31	HPI Pump 2 Recirculation Stop Check Valve	2	B/C
HP32	HPI Pump 1 Recirculation Stop Check Valve	2	B/C
MS106	Main Steam Line 1 to Auxiliary Feedwater Pump Turbine 1 Isolation Valve	2	B
MS106A	Main Steam Line 2 to Auxiliary Feedwater Pump Turbine 1 Cross-tie Isolation Valve	2	B
MS107	Main Steam Line 2 to Auxiliary Feedwater Pump Turbine 2 Isolation Valve	2	B
MS107A	Main Steam Line 1 to Auxiliary Feedwater Pump Turbine 2 Cross-tie Isolation Valve	2	B
MS603	Steam Generator 2 Blowdown Line Isolation Valve	2	B
MS611	Steam Generator 1 Blowdown Line Isolation Valve	2	B
MU1A	Reactor Coolant Letdown Cooler 1 Inlet Isolation Valve	1	B
MU1B	Reactor Coolant Letdown Cooler 2 Inlet Isolation Valve	1	B
MU2A	Letdown Cooler Outlet CIV	2	A
MU2B	Reactor Coolant Letdown Isolation Valve	1	B
MU59A	Reactor Coolant Pump 2-1 Seal Return CIV	2	A
MU59B	Reactor Coolant Pump 2-2 Seal Return CIV	2	A

Valve Number	Description	Code Class	Category
MU59C	Reactor Coolant Pump 1-1 Seal Return CIV	2	A
MU59D	Reactor Coolant Pump 1-2 Seal Return CIV	2	A
MU3971	Three Way Valve to Align Makeup Pump Suction to BWST or Makeup Tank	2	B
MU6405	Three Way Valve to Align Makeup Pump Suction to BWST or Makeup Tank	2	B
MU6421	Alternate Makeup to RCS CIV	2	A
MU6422	Normal Makeup To RCS CIV	2	A
RC10	Pressurizer Spray Line Isolation Valve	1	B
RC11	Power Operated Relief Valve Line Block Valve	1	B
RC200	Pressurizer Vent Line Stop Valve	1	B
RC239A	Pressurizer Vapor Space Sample Isolation Valve	1	B
RC240A	Pressurizer Sample Line CIV	1	A
RC240B	Pressurizer Sample Line CIV	2	A
SW1366	Service Water Supply to Containment Air Cooler 1 Isolation Valve	2	B
SW1367	Service Water Supply to Containment Air Cooler 2 Isolation Valve	2	B
SW1368	Service Water Supply to Containment Air Cooler 3 Isolation Valve	2	B
SW1379	Service Water Pump 1 Strainer Blowdown Line Block Valve	3	B
SW1380	Service Water Pump 2 Strainer Blowdown Line Block Valve	3	B
SW1381	Service Water Pump 3 Strainer Blowdown Line Block Valve	3	B
SW1382	Service Water to Auxiliary Feedwater Pump 1 Suction Line Block Valve	3	B
SW1383	Service Water to Auxiliary Feedwater Pump 2 Suction Line Block Valve	3	B
SW1395	Service Water Supply to Turbine Plant Component Cooling Water Heat Exchanger Line Isolation Valve	3	B
SW1399	Service Water Supply to Turbine Plant Component Cooling Water Heat Exchanger Line Isolation Valve	3	B

Valve Number	Description	Code Class	Category
SW2927	Control Room Emergency Condenser 1 Service Water Supply Line Isolation Valve	3	B
SW2928	Control Room Emergency Condenser 2 Service Water Supply Line Isolation Valve	3	B
SW2929	Service Water Discharge to Intake Structure Isolation Valve	3	B
SW2930	Service Water Discharge to Intake Forebay Isolation Valve	3	B
SW2931	Service Water Discharge to Cooling Tower Makeup Isolation Valve	3	B
SW2932	Service Water Discharge to Collection Box Isolation Valve	3	B
SW5067	Service Water to Hydrogen Dilution Blower 1 Line Isolation Valve	3	B
SW5068	Service Water to Hydrogen Dilution Blower 2 Line Isolation Valve	3	B

Abbreviated Terms:

BWST.. Borated Water Storage Tank

CCW.... Component Cooling Water

CIV...... Containment Isolation Valve

CRDC.. Control Rod Drive Cooling

ECCS.. Emergency Core Cooling System

HPI...... High Pressure Injection

OTSG.. Once Through Steam Generator

RCS..... Reactor Coolant System

RPS..... Reactor Protection System

SFAS... Safety Features Actuation System