

June 20, 2002

Mr. Michael Kansler
Senior Vice President and
Chief Operating Officer
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440 Hamilton Avenue
White Plains, NY 10601

SUBJECT: RELIEF REQUESTS VR-3 AND VR-4 RELATED TO THE INSERVICE
TESTING PROGRAM FOR PUMPS AND VALVES, INDIAN POINT NUCLEAR
GENERATING UNIT NO. 3 (TAC NO. MB3865)

Dear Mr. Kansler:

In a letter dated December 11, 2001, as supplemented on April 9, 2002, Entergy Nuclear Operations, Inc. (ENO) submitted Relief Requests Nos. VR-3 and VR-4 which were associated with the third 10-year interval for the Inservice Testing (IST) Program at Indian Point Nuclear Generating Unit No. 3 (IP3). In Relief Request VR-3, ENO requested an extension to the schedule for exercise testing of certain manual valves from every 3 months to every 2 years. In Relief Request VR-4, ENO requested authorization to use air-operated valve diagnostic testing as an alternative to stroke time testing of the pressure control valve for the steam driven auxiliary feedwater pump, MS-PCV-1139.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the proposed relief requests against the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Subsection IWV. Subsection IWV references the 1987 Edition through the 1988 Addenda of the Operations and Maintenance Standard, Part 10 (OM-10), "Inservice Testing of Valves in Light-Water Reactor Power Plants." The results are provided in the enclosed safety evaluation.

The NRC staff has concluded that the proposed alternatives to the requirements specified by the ASME OM-10 Code will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the Relief Requests Nos. VR-3 and VR-4 for the third 10-year IST interval.

M. Kansler

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If you should have any questions, please contact Patrick Milano at 301-415-1457. This completes the NRC staff's action on TAC No. MB3865.

Sincerely,

/RA by TColburn for RLaufer/

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

Docket No. 50-286

Enclosure: Safety Evaluation

cc w/encl: See next page

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Indian Point Nuclear Generating Unit No. 3

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE TESTING PROGRAM PLAN

REQUEST FOR RELIEF

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-286

1.0 INTRODUCTION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Class 1, 2, and 3 pumps and valves be performed in accordance with the specified ASME Code and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the U.S. Nuclear Regulatory Commission (NRC) pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a.

In proposing alternatives or requesting relief, a licensee must demonstrate that (1) the proposed alternatives provide an acceptable level of quality and safety, (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, or (3) conformance is impractical for the facility. Section 50.55a authorizes the NRC to approve alternatives to and grant relief from ASME Code requirements upon making the necessary findings. NRC guidance in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides acceptable alternatives to the Code requirements. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," dated April 1995.

In a letter dated December 11, 2001 (Reference 1), the Entergy Nuclear Operations, Inc. (the licensee) submitted Relief Requests Nos. VR-3 and VR-4 related to the IST program plan for pumps and valves at Indian Point Nuclear Generating Unit No. 3 (IP3). On April 9, 2002, the licensee submitted revised Relief Requests Nos. VR-3 and VR-4 in response to discussions with the NRC staff on February 6, 2002. The third 10-year interval IST program for IP3 was developed in accordance with Section XI of the 1989 Edition of the ASME Code, which references ASME Operations and Maintenance Standards, Parts 1, 6 and 10 (OM-1, OM-6, and OM-10), for IST of safety and relief devices, pumps, and valves respectively.

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

Enclosure

2.0 VALVE RELIEF REQUESTS

2.1 Relief Request No. VR-3

The licensee has requested relief for 71 manual valves listed below from the test requirements in paragraph 4.2.1.1 of OM-10, 1988 Addenda to OM-1987 Edition. OM-10, paragraph 4.2.1.1, "Exercising Test Frequency," requires that active Category A and B valves be tested nominally every 3 months, except as provided by paragraphs 4.2.1.2, 4.2.1.5, and 4.2.1.7 of OM-10. The licensee provided the following list of the manual valves in its revised relief request.

- a. Sixty-four manual valves are currently stroked at a quarterly frequency and are listed as follows:

Drawing No. Valve No.

ISI-20333 FCV-111, FCV-1112, SWN-4, SWN-5, SWN-6, SWN-7

ISI-20413 MS-34-4, MS-34-5, MS-34-7, MS-34-9, MS-34-10, MS-37-1, MS-37-2,
MS-67-1, MS-67-2, MS-67-3, MS-67-4

ISI-27223 SWN-41-1, SWN-41-2, SWN-41-3, SWN-41-4, SWN-41-5,
SWN-44-1, SWN-44-2, SWN-44-3, SWN-44-4, SWN-44-5
SWN-51-1, SWN-51-2, SWN-51-3, SWN-51-4, SWN-51-5,
SWN-71-1, SWN-71-2, SWN-71-3, SWN-71-4, SWN-71-5
SWN-108-3, SWN-108-6, SWN-29, SWN-30, SWN-31, SWN-32,
SWN-33-1, SWN-33-2, SWN-38, SWN-39, SWN-62-1, SWN-62-2,
SWN-94-1, SWN-94-2

ISI-27503 1807B, 898, 869A, 869B

ISI-27513 701A, 701B, 759C, 759D, 766A, 766B, 766C, 766D, 732

- b. Seven manual valves are currently stroked at a cold shutdown frequency and are listed as follows:

Drawing No. Valve No.

ISI-27223 SWN-40-1, SWN-40-2

ISI-27503 846

ISI-27513 756A, 756B, 810, 814

2.1.1 Licensee's Basis for Requesting Relief

The licensee states:

These manual valves are used to align components to separate headers, for cross-tie and isolation capability, and containment isolation among other uses...

The extension of exercising manual valves from every quarter to every 5 years has been evaluated by the OM [C]ode committee, found acceptable, and incorporated into the 1999 Addenda and 2000 Addenda of the OM Code. The NRC has proposed to change 10 CFR 50.55(a) to allow testing of manual valves at a 2 year interval as proposed modification to the 1999 Addenda and 2000 Addenda of the ASME OM Code. In [*Federal Register*] Vol. 66, No. 150 / Friday, August 3, 2001 [66 FR 40626] the NRC proposed allowing the extension of test interval for manual valves from every 3 months to every 2 years.

2.1.2 Licensee's Proposed Alternative Testing

The licensee proposes:

These manual valves will have an exercise interval of 2 years provided that adverse conditions do not require more frequent testing. This is consistent with the information contained in the proposed rulemaking of 10 CFR 50.55(a) contained in the [*Federal Register*] / Vol. 66, No. 150 dated August 3, 2001 [66 FR 40626].

2.1.3 Evaluation

Active safety-related valves without power actuators (referred to as manual valves) require a plant operator to turn a hand wheel or other device to actuate the valve to its safety position. All of the valves in this relief request are manual Category A or B valves. The Code requires that Category A and B valves be exercised to their safety position once every 3 months. Manual valves are not required to meet the ASME Code stroke time testing requirements. All of the specified manual valves are in the river water, safety injection, closed cooling water, residual heat removal systems.

The licensee proposes to exercise the manual valves on a 2-year frequency provided that adverse conditions do not require more frequent testing. The proposed testing results in an approximately 85 percent reduction in the testing of the specified manual valves while performing an exercise test at a nominal interval of 2 years. The 2-year exercise interval for manual valves is consistent with the time period for general experience with the operation of plant equipment over a refueling cycle. Therefore, the licensee's alternative provides an acceptable level of quality and safety.

In a proposed rule amending 10 CFR 50.55a, issued in the *Federal Register* on August 3, 2001 (66 FR 40626), the NRC proposed a modification to the Code provisions for manual valves in ASME OMa-1998, paragraph ISTC 3540. In the proposed modification to 10 CFR 50.55a(b)(3)(vi), the maximum exercise interval for safety-related manual valves would be set at 2 years (instead of 5 years as specified in OMB-2000) unless adverse conditions warranted a shorter exercise interval. The licensee's proposed alternative provides a frequency of once every 2 years for manually exercising these valves to ensure operational readiness and is consistent with the modification in the proposed rule.

2.1.4 Conclusion

The NRC staff concludes that the licensee's proposed alternative to the exercise frequency requirements of paragraph 4.2.1.1 in OM-10 (1988 Addenda to OM-1987) for manual valves is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety.

2.2 Relief Request No. VR-4

The licensee has requested relief for the air-operated valve (AOV) MS-PCV-1139 from the stroke-time test requirements as defined in paragraph 4.2.1.4 of OM-10, 1988 Addenda to OM-1987. OM-10, paragraph 4.2.1.4(b), "Power Operated Valve Stroke Time," requires that the stroke time of all power-operated valves shall be measured to at least the nearest second.

2.2.1 Licensee's Basis for Requesting Relief

The licensee states:

This air operated valve (AOV) opens on LO-LO steam generator level, AMSAC [anticipated-transient-without-scrum mitigating system actuation circuitry] and loss of 480 volt offsite power to provide a flowpath for steam (and control of steam flow) to auxiliary feedwater pump 32 turbine. It trips closed on pump/turbine overspeed and fails open on loss of pneumatic (air) pressure. In the event of a loss of air this valve can be manually positioned to regulate turbine steam supply pressure.

This valve reduces the main steam supply pressure to the turbine driven auxiliary feedwater pump to approximately 600 psig during normal and accident conditions.

This valve is a control valve with a safety function as discussed in NUREG-1482, Section 4.2.9. As discussed in the NRC recommendation, alternative methods of monitoring the valve for degrading conditions may be acceptable in lieu of stroke timing.

2.2.2 Licensee's Proposed Alternative Testing

The licensee proposes:

MS-PCV-1139 is a High-Risk AOV (Category 1) in the IP3 AOV Program and requires periodic testing using AOV Diagnostics. As an alternative to stroke timing, this valve will be diagnostically tested at least every 2 years using an AOV diagnostic system which is capable of monitoring the valve for degrading conditions. The testing will be in accordance with the requirements of paragraph 4 of ASME OM Code Case OMN-12, "Alternative Requirements for Inservice Testing Using Risk Insights for Pneumatically- and Hydraulically-Operated Valve Assemblies in Light-Water Reactor Power Plants, OM Code 1998, Subsection ISTC," and Conditions 1, 2, and 4 of Draft Regulatory Guide DG-1089, "Operation And Maintenance Code Case Acceptability, ASME OM Code." By DG-1089, the NRC proposed to publish a regulatory guide containing the OM Code Cases that are acceptable to the NRC for implementation in the IST of

light-water-cooled nuclear power plants. DG-1089 lists both those Code Cases that are acceptable to the NRC for implementation and those Code Cases that are acceptable provided they are used with the identified limitations or modifications (i.e., the Code Case is generally acceptable but the NRC has determined that the alternative requirements must be supplemented in order to provide an acceptable level of quality and safety.) For Code Case OM-12, the NRC staff found it to be conditionally acceptable.

2.2.3 Evaluation

The AOV MS-PCV-1139 is a Category B valve. This valve reduces the main steam supply pressure to the turbine-driven auxiliary feedwater pump to approximately 600 psig during normal and accident conditions. OM-10, paragraph 4.2.1.4(b) requires stroke timing of all power-operated valves and that the stroke timing shall be measured to the nearest second. The licensee proposed an alternative to the stroke-time test requirements and stated that this valve will be diagnostically tested at least every 2 years using an AOV diagnostic system capable of monitoring the valve for degrading conditions. The testing will be in accordance with the requirements of paragraph 4 of Code Case OMN-12 and Conditions 1, 2, and 4 of NRC Draft Regulatory Guide DG-1089. In addition, during the quarterly surveillance performed on the turbine driven auxiliary feedwater pump, the valve will be verified to be controlling the pump properly.

The Code requirement for stroke-timing power operated valves allows for monitoring degrading conditions so that the valves may be repaired or replaced before they fail. The valve will be tested as "High Safety Significant Valve Assemblies" in accordance with the requirements of paragraph 4 of the Code Case OMN-12, along with specified Conditions 1, 2, and 4 of Draft Regulatory Guide DG-1089. The valve testing in accordance with paragraph 4 of Code Case OMN-12 provides reasonable assurance of the capability of the valve assembly to perform its intended safety function by meeting the design verification, inservice test requirements, test methods, analysis, evaluation of data, and corrective action and Conditions 1, 2, and 4 of Draft Regulatory Guide DG-1089 as follows:

Condition 1: Paragraph 4200, Inservice Test Requirement, of the OMN-12, specifies inservice test requirements for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the Code Case. The inservice testing program will include a mix of static and dynamic valve assembly performance testing. The mix of valve assembly performance testing may be altered when justified by engineering evaluation of test data.

Condition 2: Paragraph 4223 of OMN-12 specifies the periodic test requirements as "The maximum interval between inservice tests shall not exceed 10 years." The adequacy of the diagnostic test interval for each high safety significant valve assembly will be evaluated and adjusted as necessary, but not later than 5 years or three refueling outages (whichever is longer) from initial implementation of program.

Condition 4: Paragraph 4410, "Acceptance Criteria," of OMN-12 specifies that acceptance criteria must be established for the analysis of test data for valve

assemblies. In addition when establishing these acceptance criteria, the potential degradation rate and available capability margin for each valve assembly will be evaluated and determined to provide assurance that valve assemblies are capable of performing their design-basis functions until next schedule test.

Conditions 1, 2, and 4 are the only conditions listed in Draft Regulatory Guide DG-1089 that are applicable to this relief request.

In addition to meeting the above requirements, the licensee states that this valve will be diagnostically tested at least every 2 years instead of 5 years using an AOV diagnostic system capable of monitoring the valve for degrading conditions. This testing is more conservative than Condition 2 above. Also, during the quarterly surveillance performed on the turbine-driven auxiliary feedwater pump, the valve will be verified to be controlling the pump adequately.

In Section 4.2.9 of NUREG-1482, the NRC staff recommended that licensees investigate alternatives to stroke-time test requirements that include stroke-timing with acoustic or other nonintrusive methods, stroke-timing with local observation or observation of system conditions, enhanced maintenance with periodic stroke which may not be timed, stroke-timing and fail-safe testing during cold shutdowns or refueling outages that involve bypassing control signals, and control system signal calibration to verify the stroke times of the valves. The licensee's proposed alternatives incorporates several of these recommendations, is consistent with the guidelines in NUREG-1482, and, therefore, provides reasonable assurance of the valve's operational readiness.

2.2.4 Conclusion

The NRC staff concludes that the licensee's proposed alternative to the stroke-time test requirements of paragraph 4.2.1.4(b) (OM-10, 1988 Addenda to OM-1987) for AOV MS-PCV-1139 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety and a reasonable assurance of the valve's operational readiness.

3.0 REFERENCES

1. Letter from R. J. Barrett, Entergy Nuclear Operation, Inc., to U.S. Nuclear Regulatory Commission, "Indian Point 3 Nuclear Power Plant, Relief Request VR-3 and VR-4 for Inservice Testing Program" dated December 11, 2001.
2. Letter from R. J. Barrett, Entergy Nuclear Operation, Inc., to U.S. Nuclear Regulatory Commission, "Indian Point 3 Nuclear Power Plant, Revision to Inservice Testing Program Relief Requests VR-3 and VR-4," dated April 9, 2002.

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