UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 30, 2009

Mr. John T. Carlin
Vice President R.E. Ginna Nuclear Power Plant
R.E. Ginna Nuclear Power Plant, LLC
1503 Lake Road
Ontario, NY 14519

SUBJECT: ALTERNATIVE REQUESTS FOR FIFTH 10-YEAR PUMP AND VALVE INSERVICE TESTING PROGRAM - R.E. GINNA NUCLEAR POWER PLANT (TAC NOS. ME2232, ME2233, ME2234, ME2235, ME2236, ME2237, ME2238, AND ME2239)

Dear Mr. Carlin:

By letter dated September 11, 2009, R.E. Ginna Nuclear Power Plant, LLC, the licensee, submitted proposed alternatives PR-01, PR-02, GR-01, GR-02, GR-03, VR-01, VR-02 and relief request VR-03 for the fifth 10-year interval inservice testing program at the R.E. Ginna Nuclear Power Plant. The licensee requested alternative testing and relief from certain inservice testing requirements of the American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants. On October 6, 2009, the Nuclear Regulatory Commission (NRC) requested the licensee to submit additional information to support its request. By letter dated October 16, 2009, the licensee submitted additional information pertaining to request PR-01. By letter dated November 5, 2009, the licensee withdrew relief request VR-03.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), the licensee requested to use the proposed alternatives in PR-01, PR-02, GR-02, and GR-03 on the basis that the alternatives provide an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested to use the proposed alternatives in GR-01, VR-01, and VR-02 on the basis that complying with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The NRC staff has reviewed the subject requests and concludes, with the exception of request GR-01, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(a)(3)(ii).

Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the alternative requests in PR-01, PR-02, GR-02, and GR-03 on the basis that the alternatives provide an acceptable level of quality. In addition, pursuant to 10 CFR 50.55a(a)(3)(ii), the staff authorizes the requested alternatives in VR-01, and VR-02 on the basis that complying with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The staff authorizes these alternatives for the fifth 10-year interval inservice testing program at R. E. Ginna Nuclear Power Plant, LLC set to commence on January 1, 2010. Alternative request GR-01 will be addressed via a stand alone safety evaluation.

Please contact Douglas Pickett at 301-415-1364 if you have any questions.

Sincerely,

B.K. Vaidya

For
Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosure:
Safety Evaluation

cc w/encl: Distribution via ListServ

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM, FIFTH 10-YEAR INTERVAL

R.E. GINNA NUCLEAR POWER PLANT, LLC

R.E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

1.0 INTRODUCTION

By letter dated September 11, 2009 (Agencywide Document Access and Management System (ADAMS) Accession No. ML092610435), as supplemented by letters dated October 16 (ADAMS Accession No. ML2950485) and November 5, 2009 (ADAMS Accession No. ML093140091), R.E. Ginna Nuclear Power Plant, LLC, the licensee, submitted seven requests for the fifth 10-year inservice testing (IST) program interval. The licensee requested proposed alternatives from certain IST requirements of the 2004 Edition of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code). The fifth 10-year IST interval for the R.E. Ginna Nuclear Power Plant commences on January 1, 2010.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(a)(3)(i), the licensee requested to use the proposed alternatives in PR-01, PR-02, GR-02, and GR-03 on the basis that the alternatives provide an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested to use the proposed alternatives in GR-01, VR-01, and VR-02 on the basis that complying with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Pursuant to 10 CFR 50.55a(f)(5)(iii), the licensee submitted relief request VR-03 stating that the ASME Code requirements were impractical.

By letter dated November 5, 2009, the licensee withdrew relief request VR-03. In addition, alternative request GR-01 will be addressed separately via a stand alone safety evaluation.

2.0 REGULATORY EVALUATION

Section 50.55a(f), "Inservice Testing Requirements," requires, in part, that ASME Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized pursuant to paragraphs (a)(3)(i) or (a)(3)(ii).

In proposing alternatives, a licensee must demonstrate that the proposed alternative provides an acceptable level of quality and safety, or compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Section 50.55a allows the Nuclear Regulatory Commission (NRC) to authorize alternatives to ASME OM Code

requirements upon making necessary findings. NRC guidance contained in NUREG-1482 Revision 1, "Guidance for Inservice Testing at Nuclear Power Plants," provides acceptable alternatives to the ASME Code requirements.

The NRC's findings with respect to authorizing the alternative to the ASME OM Code are given below. Please note that alternative request GR-01 has been removed from this evaluation and will be addressed via a stand alone safety evaluation at a later date.

3.0 TECHNICAL EVALUATION

3.1 Request PR-01

3.1.1 ASME OM Code requirements:

ISTB-3550 (Flow Rate) states when measuring flow rate, a rate or quantity meter shall be installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall include the method used to reduce the data.

3.1.2 Licensee's Basis For Requesting Alternative Testing

Alternative testing was requested for the following components:

PDG02A – Diesel Fuel Oil Transfer Pump A
PDG02B – Diesel Fuel Oil Transfer Pump B

The licensee states:

> There are no installed instruments on the diesel fuel oil transfer system that allow a direct measurement of transfer pump flow rate.
>
> Ginna's diesel fuel oil transfer pumps, PDG02A & PDG02B, are positive displacement pumps.
>
> The flow rate for these pumps is determined by measuring the indicated level change in the diesel generator fuel oil day tank during a timed pump run and converting this data into fuel oil transfer pump flow rate for both the Group B and comprehensive pump tests.
>
> Level Gauges LG-2044 ("A" Emergency Diesel Generator) and LG-2045 ("B" Emergency Diesel Generator) are utilized to measure the change in indicated level while the fuel oil transfer pump is running and restoring fuel oil day tank level. Both LG-2044 and LG-2045 (sight glasses equipped with a reference scale in inches of level) have a range of indicated level of 9 inches (2.5 inches to 11.5 inches).
>
> The respective day tank is drained to an initial indicated level of 5.0 to 5.5 inches before initiating the fuel oil pump start. This level is logged as the initial level. The pump is then started coincident with starting the stopwatch and the system allowed to stabilize. A minimum 2 minute stabilization period is observed for the comprehensive test.

Following a total minimum run time of 5 minutes (or exceeding an indicated tank level of 11 inches), the pump is stopped coincident with stopping the stopwatch and the day tank level is read in inches to the nearest 0.25 inch. This level is logged as the final level.

The change in day tank level is determined in inches and then converted to total gallons pumped using the constant conversion factor of 24.76 gallons per inch. The constant of 24.76 gallons per inch of indicated level on the day tank sight glass was established by EWR 4526-ME-20 based on the tank's geometrical dimensions. The total gallons pumped is then divided by the total pump run time to arrive at the pump test flow rate in gallons per minute (gpm). This calculation is documented in the pump test procedures.

The test circuit for each pump is a fixed flow path from the storage tank (pump suction) to the day tank (pump discharge). Pump suction pressure is nearly constant because of the very small change in storage tank level. This change in suction pressure during pump operation is considered negligible. The normal rise in day tank level is approximately 5.5 inches, which corresponds to a quantity of approximately 136 gallons pumped during the 5 minutes of pump operation, resulting in a typical flow rate of approximately 27 gpm. The current flow rate reference values of each pump are as follows: PDG02A - 27.2 gpm, PDG02B - 27.1 gpm.

The small rise in day tank level during pump operation does not affect pump discharge pressure or flow rate. This conclusion is supported by the discussion in NUREG 1482 Rev.1, Section 5.5.2, where the NRC states: "Pump discharge pressure will match system pressure up to the shutoff head of the positive displacement pump. Because of the characteristics of a positive displacement pump, there should be virtually no change in pump discharge flow rate as a result of the rising tank level. Therefore, rising tank level will not have an impact on test results. By having approximately the same level in the tank at the beginning of each test, licensees can achieve repeatable results."

The accuracy of level gauges, LG-2044 and LG-2045, is determined using the 9 inch indicated range of level and the constant of 24.76 gallons per inch. This yields a total volume change of 222.84 gallons. Based on a readability uncertainty of +/- 0.125 inch (0.25 inch scaling), which is equivalent to 3.10 gallons, divided by the total indicated volume of 222.84 gallons, the overall accuracy of the sight glass is +/- 1.39%.

In addition, the stopwatch used to measure the time the pump is operating and pumping fuel oil is accurate to within ± 0.6 seconds per minute for a calibrated accuracy of ±1.0%. Combining the accuracies of the level gauge sight glass and stopwatch, using the square root of the sum of the squares method, results in an overall indicated accuracy of ±1.71%. This overall accuracy is unchanged from that which alternative was authorized for during the 4th 10-year interval IST program.

3.1.3 Licensee's Proposed Alternative Testing

The licensee states:

> Flow rate will be determined by calculation of day tank level increase versus time utilizing the accuracy documented in design analysis EWR 4526-ME-20.

3.1.4 Staff's Evaluation

The licensee proposes alternative testing for the diesel fuel oil transfer pumps. The current configuration does not meet the requirements of ASME OM Code requirement ISTB-3550 which states that when measuring flow rate, a rate or quantity meter shall be installed in the pump test circuit. The licensee-proposed alternative test shall determine the flow rate by calculation of day tank level versus time. The diesel fuel oil transfer pumps PDG02A and PDG02B are positive displacement pumps.

There are no installed instruments on the diesel fuel oil transfer system that allow a direct measurement of the flow rate when testing the diesel fuel oil transfer pumps. The pump flow rate can be calculated by measuring the change in day tank level or volume and the pump operation time required to make that change. The accuracy of this method is documented in design analysis EWR 4526-ME-20. This method determines a flow rate for a pump that can be used to evaluate the pump hydraulic performance.

The licensee alternative is consistent with NRC guidance in NUREG-1482, Revision 1, Section 5.5.2, "Use of Tank Level to Calculate Flow Rate for Positive Displacement Pumps," as an acceptable alternative for measuring positive displacement pump flow rate without using an installed flow rate instrument. The licensee has verified via design analysis EWR 4526-ME-20 that the alternative testing accuracy meets the requirements of ASME OM Code ISTB-3510(a). Therefore, the NRC staff concludes that the proposed alternative of using the tank level to calculate the flow rate provides reasonable assurance of operational readiness and provides an acceptable level of quality and safety.

3.2 Request PR-02

3.2.1 ASME OM Code requirements:

ISTB-3550 (Flow Rate) states when measuring flow rate, a rate or quantity meter shall be installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall include the method used to reduce the data.

3.2.2 Licensee's Basis For Requesting Alternative Testing

Alternative testing was requested for the following components:

PAF01A – "A" Preferred Motor Driven AFW Pump
PAF01B – "B" Preferred Motor Driven AFW Pump
PSF01A – "C" Standby Motor Driven AFW Pump
PSF01B – "D" Standby Motor Driven AFW Pump

The licensee states:

> The Auxiliary Feed Water (AFW) pumps each have a minimum flow path that can be utilized for the respective Group A and Group B pump tests. The minimum flow lines provide a fixed resistance flow path from the pump discharge to the condensate storage or test tank then back to the suction of each pump. However, the minimum flow lines are not provided with flow instrumentation.
>
> The performance of pump tests using a fixed resistance flow path is an acceptable alternative to the Code requirements per NUREG-1482, Rev. 1, Section 5.9, "Pump Testing Using Minimum Flow Return Lines With or Without Flow Measuring Devices." During the performance of quarterly pump testing, pump differential pressure will be measured and trended. This provides a reference value for differential pressure that can be duplicated during subsequent tests. This methodology provides for the acquisition of repeatable differential pressure, which is an adequate means of monitoring for pump degradation.
>
> Concerns identified in NRC Bulletin 88-04, "Potential Safety Related Pump Loss," with regard to minimum recirculation flow line sizing have been assessed and verified to not be of concern during pump testing.
>
> Therefore, the current testing protocol which has the potential for service water intrusion and requires a reactivity change, and the cost of installing either temporary or permanent flow instrumentation imposes an undue burden without a compensating increase in the level of quality and safety.

3.2.3 Licensee's Proposed Alternative Testing (as stated)

> Quarterly testing of the designated Group A AFW pumps (PAF01A, PAF01B) will be performed on minimum flow recirculation measuring differential pressure across the pump and measuring vibration in accordance with ASME OM Code-2004, ISTB-5121 and NUREG-1482, Rev. 1, Section 5.9, "Pump Testing Using Minimum Flow Return Lines With or Without Flow Measuring Devices," for guidance.
>
> Quarterly testing of the designated Group B AFW pumps (PSF01A, PSF01B) will be performed on minimum flow recirculation measuring differential pressure across the pump and measuring vibration in accordance with ASME OM Code-2004, ISTB-5122 and NUREG-1482, Rev. 1 Section 5.9, "Pump Testing Using Minimum Flow Return Lines With or Without Flow Measuring Devices" for guidance.
>
> The proposed alternative testing provides reasonable assurance that the AFW pumps will be operationally ready.

3.2.4 Staff's Evaluation

Motor-driven AFW pumps PAF01A and PAF01B are Group A centrifugal pumps. Inservice testing requirements for Group A centrifugal pumps are specified in ASME OM Code ISTB-5121.

Motor-driven AFW pumps PSF01A and PSF01B are Group B centrifugal pumps. Inservice testing requirements for Group B centrifugal pumps are specified in ASME OM Code ISTB-5122.

The licensee proposes alternative quarterly testing for the motor-driven auxiliary feedwater pumps. The current configuration does not meet ASME OM Code requirement ISTB-3550 which states that when measuring flow rate, a rate or quantity meter shall be installed in the pump test circuit. The licensee-proposed alternative quarterly test shall use the minimum flow path lines which provide a fixed resistance flow path without installed flow rate instrumentation. Measurements will include differential pressure across the pump and vibration in accordance with ASME OM Code-2004, ISTB-5121 and ISTB-5122.

The NRC staff has reviewed the licensee's proposed alternative and has determined that the testing is consistent with the guidance in NUREG-1482, Revision 1, Section 5.9, "Pump Testing Using Minimum Flow Return Lines With or Without Flow Measuring Devices," and GL 89-04, "Guidance On Developing Acceptable Inservice Testing Programs," Position 9. The staff concludes that the proposed alternative provides an acceptable level of quality and safety.

3.3 Request GR-02

3.3.1 ASME OM Code Requirements:

ISTA-3130(b) (Application of Code Cases) states that code cases be applicable to the edition and addenda specified in the test plan.

ISTC-3100(a) (Preservice Testing) states that any valve that has undergone maintenance that could affect its performance after the preservice test be tested in accordance with ISTC-3310.

ISTC-3310 (Effects of Valve Repair, Replacement, or Maintenance on Reference Values) states that a new reference value be determined or the previous reference value be reconfirmed by an inservice test after a valve has been replaced, repaired, or has undergone maintenance that could affect the valve's performance.

ISTC-3510 (Exercising Test Frequency) states that active Category A and B valves be exercised nominally every 3 months.

ISTC-3521(d) (Category A and Category B Valves) states if exercising is not practicable during operation at power and full-stroke during cold shutdowns is also not practicable, it may be limited to part-stroke during cold shutdowns, and full-stroke during refueling outages.

ISTC-5120(a) (Motor-Operated Valves) states that active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

ISTC-3700 (Position Verification) states that valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated.

3.3.2 Licensee's Basis For Requesting Alternative Testing

This request is applicable to certain motor-operated valves in ASME Safety Class 1, 2, and 3 systems which are required to perform a specific function in shutting down a reactor to the safe condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. The valves are those that include the designation "OMN-1" in the "Frequency" column of the Valve Tables found in "Inservice Testing Program 5th Ten-Year Interval Robert E. Ginna Nuclear Power Plant" document.

The licensee states:

> Code Case OMN-1 contains no applicability statement. The code case is included in the latest edition/addenda incorporated by reference in 10 CFR 50.55a(b)(3) which is the 2004 Edition with no addenda. ASME code cases no longer have expiration dates; however, they still must be applicable to the edition and addenda of the Code specified for use in the test plan. Paragraph 10 CFR 50.55a(b)(6) references Regulatory Guide (RG) 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," which conditionally approves the use of Code Case OMN-1 in lieu of the provisions for stroke-time testing in Subsection ISTC of the 1995 Edition up to and including the 2000 Addenda of the ASME OM Code. The 2004 Edition of the OM Code is not listed in RG 1.192.

3.3.3 Licensee's Proposed Alternative Testing (as stated)

> R.E. Ginna Nuclear Power Plant will apply the requirements of OMN-1, "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants," including the conditions specified in Table 2 of RG 1.192, in lieu of the provisions for motor-operated valve testing in Subsection ISTC of the 2004 Edition of the ASME OM Code.

3.3.4 Staff's Evaluation

Application of code cases is addressed in 10 CFR 50.55a(b)(6) through references to RG 1.192, which lists acceptable and conditionally acceptable code cases for implementation in IST programs. RG 1.192, Table 2, conditionally approves the use of Code Case OMN-1 and states that the code case is applicable to the 2000 Addenda and earlier editions and addenda of the Code. There is no technical reason for prohibiting the use of Code Case OMN-1 with the 2004 Edition of the Code.

The NRC staff considers that activities conducted as part of the implementation of Code Case OMN-1 will achieve valve position verification in ISTC-3700. For example, Paragraph 3.6, "MOV Exercising Requirements," in Code Case OMN-1 specifies that

MOVs within the scope of the code case are to be exercised on an interval not to exceed 1 year or one refueling cycle (whichever is longer). In particular, paragraph 3.6.3 states that each MOV is to be full-stroke exercised to the position(s) required to fulfill its function(s). Further, item (j) of Paragraph 9.1, "Test Information," in Code Case OMN-1 indicates that significant observations, such as abnormal or erratic MOV action noted either during or preceding performance testing, are to be considered.

The NRC staff concludes that Code Case OMN-1 provides an acceptable level of quality and safety for testing of MOVs and is an acceptable alternative for use in the licensee's IST program. This conclusion is consistent with the staff position in RG 1.192.

3.4 Request GR-03

3.4.1 ASME OM Code requirements:

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

ISTC-5131(a) (Valve Stroke Testing Pneumatically Operated Valves) states that active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

ISTC-5131(b) (Valve Stroke Testing Pneumatically Operated Valves) states that the limiting value(s) of full-stroke time of each valve shall be specified by the owner.

ISTC-5131(c) (Valve Stroke Testing Pneumatically Operated Valves) states that the stroke time of all valves shall be measured to at least the nearest second.

ISTC-5131(d) (Valve Stroke Testing Pneumatically Operated Valves) states that any abnormality or erratic action shall be recorded (see ISTC-9120), and an evaluation shall be made regarding need for corrective action.

ISTC-5132 (Stroke Test Acceptance Criteria Pneumatically Operated Valves) states that test results shall be compared to the reference values established in accordance with ISTC-3300, ISTC-3310, or ISTC-3320.

ISTC-5132(a) (Stroke Test Acceptance Criteria Pneumatically Operated Valves) states that valves with reference stroke times of greater than 10 seconds shall exhibit no more than ±25% change in stroke time when compared to the reference value.

ISTC-5132(b) (Stroke Test Acceptance Criteria Pneumatically Operated Valves) states that valves with reference stroke times of less than or equal to 10 seconds shall exhibit no more than ±50% change in stroke time when compared to the reference value.

ISTC-5132(c) (Stroke Test Acceptance Criteria Pneumatically Operated Valves) states that valves that stroke in less than 2 seconds may be exempted from ISTC-5132(b). In such cases the maximum limiting stroke time shall be 2 seconds.

ISTC-5133(b) (Stroke Test Corrective Action Pneumatically Operated Valves) states that

valves with measured stroke times that do not meet the acceptance criteria of ISTC-5132 shall be immediately retested or declared inoperable. If the valve is retested and the second set of data also does not meet the acceptance criteria, the data shall be analyzed within 96 hours to verify that the new stroke time represents acceptable valve operation, or the valve shall be declared inoperable. If the second set of data meets the acceptance criteria, the cause of the initial deviation shall be analyzed and the results documented in the record of tests (see ISTC-9120).

ISTC-5141(a) (Valve Stroke Testing Hydraulically Operated Valves) states that active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

ISTC-5141(b) (Valve Stroke Testing Hydraulically Operated Valves) states that the limiting value(s) of full-stroke time of each valve shall be specified by the owner.

ISTC-5141(c) (Valve Stroke Testing Hydraulically Operated Valves) states that the stroke time of all valves shall be measured to at least the nearest second.

ISTC-5141(d) (Valve Stroke Testing Hydraulically Operated Valves) states that any abnormality or erratic action shall be recorded (see ISTC-9120), and an evaluation shall be made regarding need for corrective action.

ISTC-5142 (Stroke Test Acceptance Criteria Hydraulically Operated Valves) states that test results shall be compared to the reference values established in accordance with ISTC-3300, ISTC-3310, or ISTC-3320.

ISTC-5142(a) (Stroke Test Acceptance Criteria Hydraulically Operated Valves) states that valves with reference stroke times of greater than 10 seconds shall exhibit no more than ±25% change in stroke time when compared to the reference value.

ISTC-5142(b) (Stroke Test Acceptance Criteria Hydraulically Operated Valves) states that valves with reference stroke times of less than or equal to 10 seconds shall exhibit no more than ±50% change in stroke time when compared to the reference value.

ISTC-5142(c) (Stroke Test Acceptance Criteria Hydraulically Operated Valves) states that valves that stroke in less than 2 seconds may be exempted from ISTC-5132(b). In such cases the maximum limiting stroke time shall be 2 seconds.

ISTC-5143(b) (Stroke Test Corrective Action Hydraulically Operated Valves) states that valves with measured stroke times that do not meet the acceptance criteria of ISTC-5142 shall be immediately retested or declared inoperable. If the valve is retested and the second set of data also does not meet the acceptance criteria, the data shall be analyzed within 96 hours to verify that the new stroke time represents acceptable valve operation, or the valve shall be declared inoperable. If the second set of data meets the acceptance criteria, the cause of the initial deviation shall be analyzed and the results documented in the record of tests (see ISTC-9120).

3.4.2 Licensee's Basis For Requested Alternative Testing

This request is applicable to certain control valves in ASME Safety Class 1, 2, and 3 systems which are required fail-safe to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. The valves are those that include the designation "OMN-8" in the "Comments" column of the Valve Tables found in "Inservice Testing Program 5th Ten-Year Interval Robert E. Ginna Nuclear Power Plant" document.

The licensee states:

> Code Case OMN-8 provides an alternative to stroke-time testing power-operated control valves that have only a fail-safe safety function. Code Case OMN-8 contains no applicability statement. It specifies alternative testing to certain requirements in ASME/ANSI OMa-1988 Part 10 and OM Code-1995. The 2004 Edition of the OM Code is not listed. The code case is included in the latest edition/addenda incorporated by reference in 10 CFR 50.55a(b)(3) which is the 2004 Edition with no addenda. ASME code cases no longer have expiration dates; however, they still must be applicable to the edition and addenda of the code specified for use in the test plan.

3.4.3 Licensee's Proposed Alternative Testing (as stated)

> R.E. Ginna Nuclear Power Plant will apply the requirements of 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," in lieu of the provisions for power-operated control valve testing specified in paragraphs ISTC-5131, ISTC-5132, ISTC-5133(b), ISTC-5141, ISTC-5142, and ISTC-5143(b), in Subsection ISTC of the 2004 Edition of the ASME OM Code. Paragraph 10 CFR 50.55a(b)(6) references RG 1.192, which approves the use of Code Case OMN-8 for Code Editions through the 2000 Addenda.

3.4.4 Staff's Evaluation

Application of code cases is addressed in 10 CFR 50.55a(b)(6) through references to RG 1.192, which lists acceptable and conditionally acceptable code cases for implementation in IST programs. RG 1.192, Table 1, approves the use of Code Case OMN-8 and states that the code case is applicable to the 2000 Addenda and earlier editions and addenda of the Code. There is no technical reason for prohibiting the use of Code Case OMN-8 with the 2004 Edition of the Code.

The NRC staff concludes that Code Case OMN-8 provides an acceptable level of quality and safety for testing of power-operated valves and is an acceptable alternative for use in the licensee's IST program. This conclusion is consistent with the staff's position in RG 1.192.

3.5 Request VR-01

3.5.1 ASME OM Code requirements:

ISTC-5151(a) (Valve Stroke Testing Solenoid-Operated Valves) states that active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

ISTC-5151(b) (Valve Stroke Testing Solenoid-Operated Valves) states that the limiting value(s) of full-stroke time of each valve shall be specified by the owner.

ISTC-5151(c) (Valve Stroke Testing Solenoid-Operated Valves) states that the stroke time of all valves shall be measured to at least the nearest second.

ISTC-5151(d) (Valve Stroke Testing Solenoid-Operated Valves) states that any abnormality or erratic action shall be recorded (see ISTC-9120), and an evaluation shall be made regarding need for corrective action.

ISTC-5152 (Stroke Test Acceptance Criteria Solenoid-Operated Valves) states that test results shall be compared to the reference values established in accordance with ISTC-3300, ISTC-3310, or ISTC-3320.

ISTC-5152(a) (Stroke Test Acceptance Criteria Solenoid-Operated Valves) states that valves with reference stroke times of greater than 10 sec shall exhibit no more than ±25% change in stroke time when compared to the reference value.

ISTC-5152(b) (Stroke Test Acceptance Criteria Solenoid-Operated Valves) states that valves with reference stroke times of less than or equal to 10 seconds shall exhibit no more than ±50% change in stroke time when compared to the reference value.

ISTC-5152(c) (Stroke Test Acceptance Criteria Solenoid-Operated Valves) states that valves that stroke in less than 2 seconds may be exempted from ISTC-5132(b). In such cases the maximum limiting stroke time shall be 2 seconds.

ISTC-5153(a) (Stroke Test Corrective Action Solenoid-Operated Valves) states that if a valve fails to exhibit the required change of obturator position or exceeds the limiting values of full-stroke time [see ISTC-5151(b)], the valve shall be immediately declared inoperable.

ISTC-5153(b) (Stroke Test Corrective Action Solenoid-Operated Valves) states that valves with measured stroke times that do not meet the acceptance criteria of ISTC-5152 shall be immediately retested or declared inoperable. If the valve is retested and the second set of data also does not meet the acceptance criteria, the data shall be analyzed within 96 hours to verify that the new stroke time represents acceptable valve operation, or the valve shall be declared inoperable. If the second set of data meets the acceptance criteria, the cause of the initial deviation shall be analyzed and the results documented in the record of tests (see ISTC-9120).

ISTC-5153(c) (Stroke Test Corrective Action Solenoid-Operated Valves) states that valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably.

ISTC-5153(d) (Stroke Test Corrective Action Solenoid-Operated Valves) states that valve operability based upon analysis shall have the results of the analysis recorded in the record of tests (see ISTC-9120)

ISTC-5153(e) (Stroke Test Corrective Action Solenoid-Operated Valves) states that before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

3.5.2 Licensee's Basis For Requesting Alternative Testing:

Alternative testing was requested for the following components:

4324 – TDAFW Pump SW Strainer Bypass Solenoid-Operated Valve (SOV)
4325 – MDAFW Pump A SW Strainer Bypass SOV
4326 – MDAFW Pump B SW Strainer Bypass SOV

The licensee states:

> These are normally closed rapid acting valves that automatically actuate to the open position on high differential pressure across the supply strainer. Measurement of stroke times during manual actuation is not practical and would not produce consistent, meaningful or trendable test results. The valves are not provided with control switches to allow for conventional stroke timing methodology. Additionally, there is no remote valve position indication or other positive means to determine valve disc position. Without concise methods of initiating valve movement or determining when the stroke is completed, it is difficult to obtain repeatable stroke time data to monitor for degradation. It would be necessary to disassemble the respective differential pressure switch in order to control actuation of these valves and as a result of this disassembly, stroke timing during power operation would require rendering these valves inoperable and entering a Limited Condition of Operation (LCO) from which prompt restoration would be impractical.
>
> These valves are tested on a quarterly basis during auxiliary feedwater pump testing. This testing includes strainer cleaning, strainer isolation, high differential pressure simulation, verification of valve operation and flow observation. Failure of these valves to stroke in conjunction with a clogged strainer would result in a lack of pressure at the bearing cooler inlet and a high DP alarm, at which time an Operator would be dispatched to manually trip the respective valve.
>
> This quarterly verification, while not measuring stroke time or monitoring for degradation, does provide an indication that each solenoid valve is moving to its safety position by verifying disc movement and is consistent with the guidelines provided in NUREG-1482, Rev. 1, Section 4.2.3.

3.5.3 Licensee's Proposed Alternative Testing: (as stated)

> These valves will be stroke tested during associated auxiliary feedwater pump testing by closing the valve downstream of the strainer. Acceptable valve operation will be based on:
>
> - Verifying locally that the valve has de-energized and tripped open.
> - Verifying the presence of a steady stream of water from the affected floor drain funnel.

- Verifying that the associated main control board annunciator alarms.

The proposed alternative testing will accurately reflect obturator position and will provide reasonable assurance of the valves operational readiness.

3.5.4 Staff's Evaluation

AFW pump Service Water (SW) strainer bypass solenoid valves 4324, 4325, and 4326 are required to be tested in accordance with ASME OM Code Section ISTC-5150. Specifically, ISTC-5151(a) states that active valves shall have their stroke times measured when exercised in accordance with ISTC-3500. The field design of these valves is such that conventional stroke time testing cannot be performed to yield dependable trend data. Partial disassembly of the valve control circuit would be required to complete the stroke time testing. This would place the licensee in an LCO condition due to the solenoid valves being declared inoperable. This would be a hardship for the licensee without a compensating increase in the level of quality and safety.

The NRC staff concludes that the licensee-proposed alternative test which includes quarterly valve operation verification, strainer cleaning, strainer isolation, high differential pressure simulation, verification that the main control board annunciator alarms, and flow observation provides reasonable assurance of the valves operational readiness. This enhanced maintenance approach is consistent with the guidelines provided in NUREG-1482, Revision 1, Section 4.2.3.

3.6 Request VR-02

3.6.1 ASME OM Code requirements:

Appendix I, I-7310 (Class 1 Safety Valves) states that tests before maintenance or set pressure adjustment, or both, shall be performed for I-7310(a), (b), and (c) in sequence. The remaining shall be performed after maintenance or set pressure adjustment. Appendix I, Paragraph I-7310(f) (Class 1 Safety Valves), determination of operation and electrical characteristics of position indicators

3.6.2 Licensee's Basis For Requested Alternative Testing:

Alternative testing was requested for the following components:

434 – Pressurizer Relief Valve
435 – Pressurizer Relief Valve

The licensee states:

> These valves are mechanical spring-actuated valves with an externally mounted Linear Voltage Differential Transformer stem position indicator. The position indicator must be removed in order to perrnit removal of the safety valves each refueling outage for shipment to an off-site vendor for set pressure testing. It would be necessary to intentionally challenge RCS pressure limits to actuate these safety valves in order to perform position indication testing prior to removal for set pressure

testing. This involves increased testing and unnecessary radiation exposure to test personnel and result in a hardship without compensating increase in the level of quality or safety. In accordance with plant administrative procedures, channel checks for pressurizer safety valve position indication are performed once per shift and validated by comparison with tailpipe temperature indication.

3.6.3 Licensee's Proposed Alternative Testing: (as stated)

The valves will be simulated to actuate using existing station calibration procedures. The procedure utilizes movement of the valve's coil (up/down) and verifies position via an alarm in the control room. Calibration of the position indicators is governed by plant calibration procedures and is performed on a refueling basis. The procedures verify that the proper clearance is obtained to ensure obturator position is accurately represented and will provide reasonable assurance of valve operational readiness.

3.6.4 Staff's Evaluation

Pressurizer relief valves 434 and 435 have a requirement to be tested to ASME OM Code Appendix I, Paragraph I-7310(f) which states in part that Class 1 safety valves tests after maintenance shall include a determination of operation and electrical characteristics of position indicators.

These valves are mechanically actuated in response to pressurizer pressure. It would be necessary to intentionally challenge RCS pressure limits to actuate the valves to perform position indication testing after removal for set pressure testing. This would unnecessarily expose the test personnel to radiation and result in a hardship without a compensating increase in the level of quality and safety.

The licensee proposes an alternative to remotely verify the pressurizer relief valves position indication during refueling outages by simulating actuation using existing calibration procedures. These procedures verify electrical circuitry for position indication as it relates to obturator movement. The NRC staff concludes that the calibration and channel check of the position indication circuit for each pressurizer safety valve combined with monitoring pressurizer safety valve tail pipe temperature every shift provide reasonable assurance that the indicated position for each safety valve is correctly displayed.

4.0 Conclusion

As set forth above, the NRC staff finds that the proposed alternative in requests PR-01, PR-02, provides reasonable assurance that pumps PDG02A, PDG02B, PAF01A, PAF01B, PSF01A, and PSF01B are operationally ready. The NRC staff also finds that the proposed alternative in request GR-02 provides reasonable assurance that valves that include the designation "OMN-1" in the "Frequency" column of the Valve Tables found in "Inservice Testing Program 5th Ten-Year Interval Robert E. Ginna Nuclear Power Plant" document are operationally ready. The NRC staff also finds that the proposed alternative in request GR-03 provides reasonable assurance that valves that include the designation "OMN-8" in the "Comments" column of the Valve Tables found in "Inservice Testing Program 5th Ten-Year Interval Robert E. Ginna Nuclear Power Plant" document are operationally ready. The proposed alternatives provide an acceptable level of

quality and safety. All other ASME OM Code requirements for which relief was not specifically requested and approved remain applicable. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i), and is in compliance with the ASME OM Code's requirements.

As set forth above, the NRC staff finds that the proposed alternative in requests VR-01, and VR-02 provides reasonable assurance that valves 4324, 4325, 4326, 434, and 435 are operationally ready. All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject requests for relief remain applicable. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii), and is in compliance with the ASME OM Code's requirements.

Therefore, the NRC staff authorizes alternative requests PR-01, PR-02, GR-02, GR-03, VR-01, and VR-02 at R. E. Ginna Nuclear Power Plant, LLC for the fifth 10-Year IST interval commencing on January 1, 2010. With respect to requests GR-02 and GR-03, use of the ASME Code Case is authorized until such time as the ASME Code Case is published in a future version of RG 1.192 and incorporated by reference in 10 CFR 50.55a(b). At that time, if the licensee intends to continue implementing this ASME Code Case, it must follow all provisions of ASME Code Case OMN-1 and OMN-8 with conditions as specified in RG 1.192 and limitations as specified in 10 CFR 50.55a(b)(6), if any.

Principal Contributor: Michael Farnan

Date: December 30, 2009

Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the alternative requests in PR-01, PR-02, GR-02, and GR-03 on the basis that the alternatives provide an acceptable level of quality. In addition, pursuant to 10 CFR 50.55a(a)(3)(ii), the staff authorizes the requested alternatives in VR-01, and VR-02 on the basis that complying with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The staff authorizes these alternatives for the fifth 10-year interval inservice testing program at R. E. Ginna Nuclear Power Plant, LLC set to commence on January 1, 2010. Alternative request GR-01 will be addressed via a stand alone safety evaluation.

Please contact Douglas Pickett at 301-415-1364 if you have any questions.

Sincerely,

/RA/

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-244

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Safety Evaluation

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