April 14, 2008

Mr. Charles G Pardee
Chief Nuclear Officer
and Senior Vice President
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD NUCLEAR GENERATING STATION, UNITS 1 AND 2 - RELIEF REQUEST RV-1 FOR THE THIRD INTERVAL INSERVICE TESTING PROGRAM (TAC NOS. MD7415 AND MD7416)

Dear Mr. Pardee:

By letter dated November 16, 2007 (Agencywide Documents Access and Management System Accession No. ML073230623), Exelon Generation Company, LLC (the licensee), submitted Relief Requests (RR) RV-1 for the third 10-year inservice testing (IST) at Braidwood Station, Units. 1 and 2 (Braidwood). The licensee requested relief from a valve exercise requirement in the 2001 Edition through 2003 Addenda of the American Society of Mechanical Engineers, Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code). Specifically, RR RV-1 requested relief from an ASME OM Code requirement in ISTC-3520 for containment recirculation sump isolation valves 1SI8811A, 1SI8811B, 2SI8811A and 2SI8811B.

The Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's analysis in support of its RR and concludes that the proposed alternative provides an acceptable level of quality and safety. Therefore, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 55a(a)(3)(i), the NRC staff authorizes the proposed alternative in RR RV-1, for the third 10-year IST interval at Braidwood. The RR authorized for the third 10-year IST interval will begin on July 28, 2008, and end on July 28, 2018.

The NRC staff's safety evaluation is enclosed.

Sincerely,

/RA/

Russell Gibbs, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456 and STN 50-457

Enclosure: Safety Evaluation

cc w/encl: See next page

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Braidwood Station, Units 1 and 2

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RELIEF REQUEST RV-1

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

EXELON GENERATION COMPANY, LLC

BRAIDWOOD STATION, UNITS 1 AND 2

DOCKET NOS. STN 50-456 AND STN 50-457

1.0 INTRODUCTION

By letter dated November 16, 2007 (Agencywide Documents Access and Management System Accession No. ML073230623), Exelon Generation Company, LLC (the licensee), submitted Relief Request (RR) RV-1 for the third 10-year inservice testing (IST) program interval at Braidwood Station, Units 1 and 2 (Braidwood). The licensee requested relief from a valve exercise requirement in the 2001 Edition through 2003 Addenda of the American Society of Mechanical Engineers, Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code). Braidwood's third 10-year IST interval is scheduled to begin on July 29, 2008, and end on July 28, 2018.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 55a, requires that IST of certain ASME OM Code Class 1, 2, and 3 pumps and valves be performed at 120-month (10-year) IST program intervals in accordance with the specified ASME OM Code incorporated by reference in the regulations. Alternatives to the ASME OM Code may be been authorized or relief may be requested by the licensee and granted by the NRC pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In accordance with 10 CFR 50.55a(f)(4)(ii), licensees are required to comply with the requirements of the latest edition and addenda of the ASME OM Code incorporated by reference in the regulations 12 months prior to the start of each 120-month IST program interval.

In proposing alternatives or requesting relief, the 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, of 10 CFR authorizes the NRC staff to approve alternatives and to grant relief from ASME OM Code requirements upon making necessary findings.

Braidwood's third 10-year IST interval is scheduled to begin on July 29, 2008. The program will be in accordance with the 2001 Edition through 2003 Addenda of the ASME OM Code. By letter dated November 16, 2007, the licensee submitted RR RV-1 for the third 10-year IST program interval at Braidwood.

Enclosure

The NRC's findings with respect to granting, authorizing, or denying the IST program RR are given below:

3.0 TECHNICAL EVALUATION RR RV-1

The licensee has requested relief from an ASME OM Code requirement in ISTC-3520 for Units 1 and 2 containment recirculation sump isolation valves 1SI8811A, 1SI8811B, 2SI8811A and 2SI8811B. These are ASME OM Code Category B valves and provide an isolation boundary between the suctions of the residual heat removal (RHR) and containment spray (CS) pumps, and the containment recirculation sumps. These valves are located outside containment and are opened or closed to control the flow path from the containment recirculation sump to the RHR and CS pumps. The licensee's analysis in support of its request for relief from the test requirement is described in the licensee's letter dated November 16, 2007. A description of the RR and the NRC staff's evaluation follows.

3.1 ASME OM Code Requirements

Paragraph ISTC-3510, "Exercising Test Frequency," of the ASME OM Code requires Category B valves to be exercised every 3 months, unless the conditions provided by ISTC-3521, "Category A and Category B Valves," are used to justify an alternative exercise frequency. ISTC-3521(e) states that "if exercising is not practical during plant operation or cold shutdowns, it may be limited to full-stroke exercising during refueling outages."

The licensee has requested relief from the requirement in ISTC-3521(e) for valves 1SI8811A, 1SI8811B, 2SI8811A and 2SI8811B.

3.2 Licensee's Basis for Relief

Relief is requested pursuant to 10 CFR 50.55a(a)(3)(i), as the proposed alternative would provide an acceptable level of quality and safety.

Under normal plant operating conditions, the RHR and CS systems are filled with borated water and the containment recirculation sumps are maintained in a dry state. Exercising valves 1SI8811A, 1SI8811B, 2SI8811A and 2SI8811B requires the RHR and CS pumps for a given train to be removed from service and the suction lines drained to prevent water flow from the refueling water storage tank and associated system piping into the normally empty containment recirculation sump. It takes approximately 24 hours to drain the RHR and CS systems, exercise the valves, and refill and restore the systems to their normal configuration. An estimated 600 gallons of radioactive, borated water is drained and must be processed by the radioactive waste systems. This same amount of borated water must be used to refill the system. This sequence of events is required whether the testing is done online or during a refueling outage.

The availability of the RHR and CS systems can be optimized by exercising the containment recirculation sump valves during scheduled work windows for the RHR system. Due to improvements in the logistics of planning and executing work, some maintenance of the RHR system is performed online (i.e., Mode 1). At other times, the nature of the maintenance to be performed requires that the maintenance be performed during a refueling outage. The scope of the work on the system, the scheduling of work windows in the planning process, system

availability requirements, personnel resources, and maintenance of an acceptable risk profile are impacted when this work is performed.

In order to minimize the number of drain and refill evolutions and the processing of radioactive, borated water described previously, it is advantageous to exercise the containment recirculation sump valves during the same drain and refill evolution used to perform system maintenance.

3.3 Licensee's Proposed Alternative Testing

The licensee proposes to exercise the containment recirculation sump valves 1SI8811A 1SI8811B, 2SI8811A and 2SI8811B at a frequency of every 18 months plus a 25 percent grace period instead of exercising the valves at a frequency of every refueling outage.

3.4 NRC Staff's Evaluation of Relief Request

The proposed relief would allow the addition of containment recirculation sump valves 1SI8811A, 1SI8811B, 2SI8811A and 2SI8811B IST exercise activities to RHR system maintenance windows where these valves can be exercised along with other activities that have been risk assessed. This request seeks to allow the same alternative to testing currently conducted during refueling outages to be performed during maintenance windows for operation at power.

In its RR, the licensee stated that due to improvements in the logistics of planning and executing work, some maintenance of the RHR system is performed on line (i.e., Mode 1). At other times, the nature of the maintenance to be performed requires that the maintenance be performed during a refueling outage. In order to minimize the number of drain and refill evolutions and the processing of radioactive, borated water described previously, it is advantageous to exercise the containment recirculation sump valves during the same drain and refill evolution used to perform RHR system maintenance. Therefore, the availability of the RHR and CS systems can be optimized by exercising the containment recirculation sump valves during scheduled work windows for the RHR system. The licensee also stated that if there is not an online system maintenance work window that requires the piping to be drained, the valves will be exercised during a refueling outage.

The risk associated with maintenance activities is controlled by the licensee. Prior to performing either online or shutdown testing, its effect on risk must be evaluated in accordance with the requirements of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Section 50.65(a)(4) states, in part, "before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities."

Allowing these valves to be exercised online or during a refueling outage at an 18-month frequency (with a 25 percent allowance for flexibility in scheduling) should reduce overall RHR and CS system/train out-of-service time, and thus, will provide an acceptable level of quality and safety.

4.0 CONCLUSION

Based on the above evaluation of RR RV-1, the NRC staff concludes that the licensee's alternative provides reasonable assurance of the operational readiness of containment recirculation sump isolation valves 1SI8811A, 1SI8811B, 2SI8811A and 2SI8811B and provides an acceptable level of quality and safety. Therefore, RR RV-1 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year IST interval at Braidwood, which will begin on July 28, 2008 and end on July 28, 2018.

Principal Contributor: S. Tingen, NRR

Date: April 14, 2008