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February 15, 2012

10 CFR 50.55a

RS-12-026

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

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Submittal of Relief Requests Associated with the Fifth Inservice Testing Interval

The purpose of this letter is to request approval of proposed relief requests in accordance with 10 CFR 50.55a, "Codes and standards." The attached relief requests are associated with the Fifth 10-Year Inservice Testing (IST) Program Interval for Quad Cities Nuclear Power Station (QCNPS). The Fifth 10-Year Interval begins on February 18, 2013 and is required by 10 CFR 50.55a(f)(4) to comply with the requirements of the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code (2004 Edition through 2006 Addenda).

The QCNPS IST Fifth 10-year Interval will be in effect from February 18, 2013 to February 17, 2023. Accordingly, we request approval of the enclosed relief requests by February 18, 2013.

Should you have any questions concerning this letter, please contact Joseph A. Bauer at 630-657-2804.

Respectfully,

David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachment: Quad Cities Nuclear Power Station Inservice Testing Program
Fifth 10-Year Interval Proposed Relief Requests

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

ATTACHMENT

Quad Cities Nuclear Power Station
Inservice Testing Program Fifth 10-Year Interval
Proposed Relief Requests

Designator	Description	Comments
RV-01	Use of Tolerances for OM Code Test Frequencies	New relief request
RV-02	Use of Code Case OMN-1 (MOV Testing)	New relief request
RV-03	Pressure Isolation Valve (PIV) Leak Test Frequency Consistent with Appendix J, Option B	New relief request
RV-04	High Pressure Coolant Injection System Exhaust Line Drain Pot to Gland Seal Condenser Solenoid Valve Cannot be Stroke Timed	Approved for Fourth IST Interval
RV-05	Class 1 Pressure Relief Valves Test Frequency from 5-Year Test Interval to Six-Year Test Interval with 6-Month Grace	Approved for Fourth IST Interval
RV-06	Main Steam Safety Valve Set Point Testing, Additional Testing Requirements	Approved for Fourth IST Interval
RV-07	Main Steam Isolation Valve Technical Specification Stroke Time Limits in Lieu of ASME OM ISTC Stroke Time Limits	Approved for Fourth IST Interval

10 CFR 50.55a Request Number RV-01

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty
Without Compensating Increase in Level of Quality or Safety

1. ASME Code Components Affected

All Pumps and Valves contained within the Inservice Testing Program scope.

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

This request applies to the frequency specifications of the ASME OM Code. The frequencies for tests given in the ASME OM Code do not include a tolerance band.

ISTA-3120(a) -	"The frequency for the inservice testing shall be in accordance with the requirements of Section IST."
ISTB-3400 -	Frequency of Inservice Tests
ISTC-3510 -	Exercising Test Frequency
ISTC-3540 -	Manual Valves
ISTC-3630(a) -	Frequency
ISTC-3700 -	Position Verification Testing
ISTC-5221(c)(3) -	"At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in a group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320 -	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330 -	Test Frequencies, Class 1 Nonreclosing Pressure Relief Devices
Appendix I, I-1340 -	Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application
Appendix I, I-1350 -	Test Frequencies - Class 2 and 3 Pressure Relief Valves

Appendix I, I-1360 - Test Frequencies - Class 2 and 3 Nonreclosing Pressure Relief Devices

Appendix I, I-1370 - Test Frequencies - Class 2 and 3 Primary Containment Vacuum Relief Valves

Appendix I, I-1380 - Test Frequencies - Class 2 and 3 Vacuum Relief Valves Except for Primary Containment Vacuum Relief Valves

Appendix I, I-1390 - Test Frequencies - Class 1 Pressure Relief Valves that are used for Thermal Relief Application

Appendix II, II-4000(a)(1) - Performance Improvement Activities Interval

Appendix II, II-4000(b)(1)(e) - Optimization of Condition Monitoring Activities Interval

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the frequency specifications of the ASME OM Code. The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

ASME OM Code Section IST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (SR 3.0.2). However, regulatory issues have been raised concerning the applicability of the TS "Grace Period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (i.e., TS 5.5.6, "Inservice Testing Program," invokes SR 3.0.2 for various OM Code frequencies).

The lack of a tolerance band on the ASME OM Code inservice test frequency restricts operational flexibility. There may be a conflict where a surveillance test could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after a plant condition or associated Limiting Condition for Operation (LCO) is within its applicability. Therefore, to avoid this conflict, the surveillance test should be performed when it can be and should be performed.

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS SR 3.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

Thus, just as with TS required surveillance testing, some tolerance is needed to allow adjusting OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling surveillance tests that minimize the conflicts between the need to complete the surveillance and plant conditions.

5. Proposed Alternative and Basis for Use

ASME OM Code establishes component test frequencies that are based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

a. Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in ASME OM Code Section IST with a specified time period between tests as shown in the following table.

Frequency	Specified Time Period Between Tests (all values are 'not to exceed'; no minimum periods are specified)
Quarterly (or every 3 months)	92 days
Semiannually (or every 6 months)	184 days
Annually (or every year)	366 days
x Years	x calendar years where 'x' is a whole number of years ≥ 2

b. The specified time period between tests may be extended as follows:

   i. For periods specified as less than 2 years, the period may be extended by up to 25% for any given test. This is consistent with QCNPS TS Section 5.5.6, "Inservice Testing Program."

   ii. Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range).

iii. For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.

c. Components whose test frequencies are based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.) may not have their period between tests extended except as allowed by the ASME OM Code.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedent

Generic relief has not been specifically granted to apply a tolerance band to the ASME OM code required test frequencies. The NRC has previously accepted the application of TS SR 3.0.2 tolerances to selected OM Code frequencies as denoted in TS 5.5.6.

The prior NRC acceptance of the practice of applying TS tolerances to ASME OM code required test frequencies provides equivalent precedence for accepting and approving this relief request.

8. References

a. Quad Cities TS Section 1.4 – Frequency
b. Quad Cities TS Section 5.5.6 – Inservice Testing Program
c. Quad Cities TS SR 3.0.2 – Specified Frequency (25% Grace Period)
d. Quad Cities TS SR 3.0.4 – Mode Entry Requirements

10 CFR 50.55a Request Number RV-02

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety
Page 1 of 5

1. ASME Code Components Affected

All Quad Cities Nuclear Power Station (QCNPS) motor-operated valves (MOVs) scoped into the Inservice Testing Program that are also included in the scope of the QCNPS MOV Testing Program.

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ISTC-3100 requires that any MOV that has undergone maintenance that could affect its performance after the preservice test be tested in accordance with ISTC-3310.

ISTC-3310 requires that a new reference value be determined or the previous reference value be reconfirmed by an inservice test after a MOV has been replaced, repaired, or has undergone maintenance that could affect the valve's performance.

ISTC-3510 requires that active Category A and B MOVs be exercised nominally every 3 months.

ISTC-3521 requires that active Category A and B MOVs be exercised during cold shutdowns if it is not practicable to exercise the valves at power, or that active Category A and B MOVs be exercised during refueling outages if it is not practicable to exercise the valves during cold shutdowns.

ISTC-3700 requires that valves with remote position indicators be observed locally at least once every 2 years to verify that valve operation is accurately indicated.

ISTC-5120 requires that MOVs be stroke-time tested when exercised in accordance with ISTC-3510.

4. Reason for Request

In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested from the requirements of the OM Code, Subsection ISTC-3000, excluding ISTC-3600, "Leak Testing Requirements," and the requirements of Subsection ISTC-5120. The proposed alternative provides an acceptable level of quality and safety.

QCNPS proposes to adopt the requirements of Code Case OMN-1 (as delineated in the 2004 ASME OM Code through 2006 Addenda) in lieu of the performance of stroke time testing and position indication testing as described by ASME OM ISTC 2004 through 2006 addenda. The provision to allow for motor control center testing, as contained in Section 6.1 of Code Case OMN-1, is excluded from this request.

5. Proposed Alternative and Basis for Use

The QCNPS MOV testing program was developed as a result of NRC Generic Letter (GL) 89-10, "Safety Related Motor Operated Valve Testing and Surveillance," and GL 96-05, "Periodic Verification of Design Basis Capability of Safety Related Motor Operated Valves," utilizing Topical Report MPR-1807, "Joint BWR, Westinghouse and Combustion Engineering Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification," Revision 2. QCNPS is currently utilizing MPR-2524-A, "Joint Owners' Group (JOG) Motor Operated Valve Periodic Verification Program Summary," (November 2006) as guidance for the MOV Program. The adoption of OMN-1 will consolidate testing between the station's IST and MOV Programs.

Section 4.2.5 "Alternatives to Stroke-Testing," of NUREG-1482, "Guidance for Inservice Testing at Nuclear Power Plants," Revision 1, states in part that as an alternative to MOV stroke-time testing, ASME-developed Code Case OMN-1, which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs, may be used. Section 4.2.5 recommends that licensees implement ASME Code Case OMN-1 as an alternative to the MOV stroke-time testing. The periodic exercising and diagnostic testing requirements in OMN-1 provide an improved method for assessing the operational readiness of MOVs.

Code Case OMN-1 was revised in the 2006 Addenda to the ASME OM Code-2004. Most of the revisions are enhancements such as clarification of valve remote position indication requirements and ball/plug/diaphragm valve test requirements, and the expansion of risk-informed provisions. However, there was one significant revision in Section 6.1, "Acceptance Criteria," that states that motor control center (MCC) testing is acceptable if correlation with testing at the MOV has been established. MCC diagnostic testing was not specifically addressed in the original version of OMN-1. Historically, diagnostic testing of MOVs has been conducted using at-the-valve tests. Although there may be potential benefits of testing conducted at the MCC, the ASME OM Code does not

address any method for the correlation of MCC-based measurements to diagnostic test measurements conducted at-the-valve. For these reasons, QCNPS has excluded the provision for MCC testing from this relief request. Therefore, the MCC test method will not be used as an acceptance criterion to determine the operational readiness of MOVs.

The following positions describe how QCNPS interprets and complies with the various requirements of OMN-1 (ASME OMb Code-2006).

1. OMN-1, Section 3.1 allows for the use of testing that was conducted prior to the implementation of OMN-1 if it meets the requirements of the Code Case. QCNPS intends to utilize the testing credited under its GL 89-10/96-05 responses to satisfy the requirement for a one-time test to verify the capacity of each individual or group of MOV's safety-related design basis requirements.

2. OMN-1, Section 3.2 requires that each MOV be tested during the preservice test period or before implementing inservice inspection. QCNPS intends to utilize the testing credited under its GL 96-05 response to satisfy this requirement.

3. OMN-1, Section 3.3(b) states that inservice tests shall be conducted in the as-found condition, and activities shall not be conducted if they might invalidate the as-found condition for inservice testing. QCNPS maintenance activities that would affect the as-found condition of the valve, such as motor operator preventive maintenance or stem lubrication, are typically scheduled to occur in conjunction with the performance of the MOV Periodic Verification Testing, and are performed after as-found testing. Any other activities that could affect the as-found test results are not performed until after the as-found testing has been conducted.

4. OMN-1 Section 3.3(c) requires the inservice test program to include a mix of static and dynamic MOV performance testing. QCNPS has utilized the JOG program's mix of static and dynamic MOV performance testing (i.e., MPR-2524-A) to develop its current MOV testing program. Additionally, QCNPS will continue to utilize the existing engineering standards, which are consistent with the JOG standards, to justify any changes to the mix of required MOV performance testing. The use of such an evaluation will serve to ensure QCNPS continues to meet this requirement.

5. OMN-1, Section 3.3(e) requires that Remote Position Indication shall be verified locally during inservice testing or maintenance activities. QCNPS will continue to verify the operability of each MOV's position indication system as part of each MOV's diagnostic test. In addition, the function of each MOV's position indication system will be verified during the performance of maintenance activities affecting remote position indication.

6. OMN-1, Section 3.3.1(b) requires MOV inservice testing to be conducted every 2 refueling cycles or 3 years (whichever is longer), if insufficient data exists to determine inservice test frequencies. QCNPS has sufficient MOV testing data to justify its current testing frequencies, and therefore meets this requirement. If in the future, modification or replacement results in the necessity to re-baseline a valve or group of valves, the requirements of OMN-1, Section 3.3.1(b) or 3.7.2.2(c) as applicable, will be followed.

7. OMN-1, Section 6.4.4 requires that calculations for determining the MOV's functional margin are evaluated to account for potential performance-related degradation. The QCNPS MOV Program, including Exelon's Motor Operated Valve Design Database (MIDAS) Software (or similar updated product), takes into account performance-related degradation, to calculate valve margin.

8. The provision of motor control center testing contained in Section 6.1 ("Acceptance Criteria") is excluded from this request ("i.e., Motor control center testing is acceptable if correlation with testing at the MOV has been established").

6. Duration of Proposed Alternative

The proposed alternative identified in this relief request shall be utilized during the Fifth 10-Year IST Interval beginning February 18, 2013.

7. Precedent

Similar relief has been approved for LaSalle County Station, Units 1 and 2, Relief Request RV-02, in NRC Safety Evaluation dated September 26, 2007 (Reference 1); Peach Bottom Atomic Power Station, Units 2 and 3, Relief Request GVRR-1, in NRC Safety Evaluation dated September 3, 2008 (Reference 2); and Clinton Power Station, Unit 1 Relief Request No. 2201 in NRC Safety Evaluation dated June 10, 2010 (Reference 3).

8. References

1. Letter from R. Gibbs (U.S. NRC) to C. M. Crane (Exelon Generation), "Relief Requests for the LaSalle County Station, Units 1 and 2, Third 10-Year Pump and Valve Inservice Testing Program (TAC Nos. MD5988, MD5989, MD5992, MD5993, MD5994, MD5995)," dated September 26, 2007

2. Letter from H. Chernoff (U.S. NRC) to C. G. Pardee (Exelon Generation), "Peach Bottom Atomic Power Station, Units 2 and 3 – Requests for Relief Associated with the Fourth Inservice Testing Interval (TAC Nos. MD7461 and MD7462)," dated September 3, 2008

3. Letter from S. Campbell (U.S. NRC) to M. Pacilio (Exelon Generation), "Clinton Power Station, Unit No. 1 – Safety Evaluation of Relief Request Nos. 2201, 2202 and 3201, for the Third 10-Year Inservice Testing Interval," dated June 10, 2010

10 CFR 50.55a Request Number RV-03

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety
Page 1 of 3

1 ASME Code Component(s) Affected

Component Number	System	Code Class	Category
1(2)-1001-047-MO	RHR	1	A
1(2)-1001-050-MO	RHR	1	A
1(2)-1001-029A-MO	RHR	1	A
1(2)-1001-029B-MO	RHR	1	A
1(2)-1001-068A	RHR	1	A/C
1(2)-1001-068B	RHR	1	A/C
1(2)-1402-009A	CS	1	A/C
1(2)-1402-009B	CS	1	A/C
1(2)-1402-025A-MO	CS	1	A
1(2)-1402-025B-MO	CS	1	A

2 Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3 Applicable Code Requirement

ISTC-3630 (Leakage Rate for Other Than Containment Isolation Valves) states that Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J program, shall be tested to verify their seat leakages are within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied.

ISTC-3630(a) (Frequency) Tests shall be conducted at least once every 2 years.

4 Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTC-3630(a). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

ISTC-3630 requires that leakage rate testing for Pressure Isolation Valves (PIVs) be performed at least once every 2 years. PIVs are not specifically included in the scope for performance-based testing as provided for in 10 CFR 50 Appendix J Option B. While the motor-operated PIVs affected by this Relief Request are also Containment Isolation Valves (CIVs) and tested in accordance with the Appendix J Program, the check valve PIVs are not CIVs and not within the Appendix J scope. The concept behind the Option B alternative for

containment isolation valves is that licensees should be allowed to adopt cost effective methods for complying with regulatory requirements. Additionally, NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," describes the risk-informed basis for the extended test intervals under Option B. That justification shows that for valves which have demonstrated good performance by passing their leak rate tests for two consecutive cycles, further failures appear to be governed by the random failure rate of the component. NEI 94-01 also presents the results of a comprehensive risk analysis, including the statement that "the risk impact associated with increasing [leak rate] test intervals is negligible (less than 0.1% of total risk)." The valves identified in this relief request are all in water applications. The PIV testing is performed with water pressurized to pressures lower than function maximum pressure differential. However, the observed leakage is adjusted to the function maximum pressure differential value in accordance with ISTC-3630(b)(4). This relief request is intended to provide for a performance-based scheduling of PIV tests at QCNPS. The reason for requesting this relief is dose reduction / ALARA. Recent historical data was used to identify that PIV testing alone each refuel outage incurs a total dose of approximately 600 milliRem. Assuming all of the PIVs remain classified as good performers the extended test intervals would provide for a savings of approximately 1.2 Rem over a 4-1/2 year period.

NUREG 0933, "Resolution of Generic Safety Issues," Issue 105 (Interfacing Systems LOCA at LWRs) discussed the need for PIV leak rate testing based primarily on three pre-1980 historical failures of applicable valves industry-wide. These failures all involved human errors in either operations or maintenance. None of these failures involved inservice equipment degradation. The performance of PIV leak rate testing provides assurance of acceptable seat leakage with the valve in a closed condition. Typical PIV testing does not identify functional problems which may inhibit the valves ability to re-position from open to closed. For check valves, such functional testing is accomplished per ASME OM Code ISTC-3522 and ISTC-3520. Power-operated valves are routinely full stroke tested per ASME OM Code to ensure their functional capabilities. At QCNPS, these functional tests for motor operated PIVs are performed on a quarterly frequency. The functional testing of the PIV check valves will be monitored through a Condition Monitoring Plan in accordance with ISTC-5222, "Condition-Monitoring Program," and Mandatory Appendix II, "Check Valve Condition Monitoring Program." Performance of the separate 2 year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

5 Proposed Alternative and Basis for Use

QCNPS proposes to perform PIV testing at intervals ranging from every refuel to every third refuel. The specific interval for each valve would be a function of its performance and would be established in a manner consistent with the CIV

process under 10 CFR 50 Appendix J, Option B. In fact, all of the MOVs listed are also classified as CIVs and are leak rate tested with air at intervals determined by 10 CFR 50 Appendix J Option B (hereto referred to as Option B). The MOV PIV testing would be scheduled to coincide with the CIV testing, at whatever interval required for Option B. A conservative control will be established such that if any valve fails either their CIV test or their PIV test, the test interval for both tests will be reduced consistent with Appendix J, Option B requirements until good performance is reestablished.

The primary basis for this relief request is the historically good performance of the PIVs. The only recorded seat leakage failures of PIVs at QCNPS were in fact determined to be a result of the test methodology and not due to any physical condition of the valves.

Additional basis for this relief request is provided below:

- Separate functional testing of MOV PIVs and Condition Monitoring of Check Valve PIVs per ASME OM Code.
- Low likelihood of valve mispositioning during power operations (procedures, interlocks).
- Air test vs. water test - degrading seat conditions tend to be identified sooner with air testing.
- Relief valves in the low pressure (LP) piping - these relief valves may not provide Inner-System Loss of Coolant Accident (ISLOCA) mitigation for inadvertent PIV mispositioning but their relief capacity can accommodate conservative PIV seat leakage rates.
- Alarms that identify high pressure (HP) to LP leakage - Operators are highly trained to recognize symptoms of a present or incipient ISLOCA and to take appropriate actions.

6 Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7 Precedents

This relief request was approved for Fermi Power Station for the Third 120 month Interval. Letter from R. Pascarelli (U.S. NRC) to J. Davis (Detroit Edison), "Fermi-2 Evaluation of In-Service Testing Program Relief Requests VRR-011, VRR-012, and VRR-013," dated September 28, 2010.

10 CFR 50.55a Request Number RV-04

Relief Requested
In Accordance with 10 CFR 50.55a(f)(5)(iii)
Inservice Testing Impracticality
Page 1 of 3

1. **ASME Code Components Affected**

Component Number	System	Code Class	Category
1-2301-032-SO	HPCI	2	B
2-2301-032-SO	HPCI	2	B

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

ISTC-5150, Solenoid-Operated Valves

4. **Impracticality of Compliance**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (f)(5)(iii), relief is requested from the requirement of ASME OM Code ISTC-5150. The basis of the relief request is that the Code requirement is impractical.

These solenoid valves function as a backup to the exhaust line drain pot steam trap. During normal operation of the HPCI turbine using high quality steam, the drain path from the drain pot to the torus via the steam trap is adequate to remove condensate from the turbine exhaust line. However, during HPCI turbine operation with low pressure and low quality steam (e.g., during certain HPCI surveillance tests), condensate collects in the drain pot faster than it can be drained through the trap. Under these conditions, solenoid valve 1(2)-2301-032 opens automatically to drain to the gland seal condenser upon receipt of a signal from a drain pot level switch when the drain pot level reaches the high-level alarm set point. A high level condition alarms a control room annunciator.

These valves are not equipped with hand switches or position indicators and the valves are totally enclosed, so valve position cannot be verified by direct observation. Therefore, it is impractical to exercise and stroke time these valves in accordance with Code requirements.

Valve actuation may be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing that the high level alarm clears. It is impractical to assign a maximum limiting stroke time to these valves using this test method because the time for the alarm to clear would depend primarily on variables such as the rate of filling and the level of the drain pot when the filling is secured. The steam line drain pot

is not equipped with direct level indication; therefore, the time required for the alarm to clear may vary significantly.

Failure of these valves to perform their safety function would be indicated by a drain pot high level alarm. Additionally, condensate entrapped in the steam would cause significant fluctuations in exhaust steam header pressure.

5. Burden Caused By Compliance

Compliance with the quarterly exercising and stroke timing requirements of the Code would require either system modifications to replace these valves with ones of testable design, or to purchase non-intrusive test equipment and develop new test methods and procedures.

6. Proposed Alternative and Basis for Use

A functional verification test is conducted on the drain pot level limit switches and the associated control room annunciators at least once every 92 days. Valve actuation will be indirectly verified by removing the HPCI system from service, filling the drain pot with water until the high level alarm is received, and observing a positive draining of the HPCI drain pot as indicated by a level increase in gland seal condenser and the high level alarm clears.

The following provisions of ISTC-5153, Stroke Test Corrective Action still apply:

- If a valve fails to exhibit the required change of obturator position, the valve shall be immediately declared inoperable.
- 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.
- Valve operability based upon analysis shall have the results of the analysis recorded in the record of tests (see ISTC-9120).
- Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

7. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

8. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-23A) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

10 CFR 50.55a Request Number RV-05

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety
Page 1 of 4

1. ASME Code Component(s) Affected

Quad Cities Nuclear Power Station (QCNPS) Units 1 and 2, Main Steam Safety Valves (MSSVs): Model: 3777Q; Manufacturer: Dresser

Component Number	System	Code Class	Category
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition through 2006 Addenda

3. Applicable Code Requirement

ASME OM Code, Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," Section I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval."

4. Reason for Request

10 CFR 50.55a(f)(4) directs a licensee to meet inservice testing requirements for ASME Code Class 1 valves set forth in the ASME OM Code and addenda. QCNPS is committed to the 2004 Edition through 2006 Addenda of the ASME OM Code.

Section ISTC-3200, "Inservice Testing," states that inservice testing shall commence when the valves are required to be operable to fulfill their required function(s). Section ISTC-5240, "Safety and Relief Valves," directs that safety and relief valves meet the inservice testing requirements set forth in Appendix I of the ASME OM Code. Appendix I, Section I-1320(a) of the ASME OM Code states that Class 1 pressure relief valves shall be tested at least once every five years, starting with initial electric power generation. This section also states a minimum of 20 percent of the pressure relief valves are tested within any 24 month interval and that the test interval for any individual valve shall not exceed five years. The required test ensures that the MSSVs, which are located on each of the main steam lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analysis.

The Dresser Model 3777Q MSSVs have shown acceptable test history at QCNPS as described in Section 5 below.

The physical locations of the MSSVs cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, QCNPS elects to remove, test and rebuild at least half of the subject valves during each refueling outage. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a five-year interval.

To support these replacements, four spare MSSVs are required to be certified prior to the refuel outage during which they will be installed. These spare MSSVs are certified tested immediately after refurbishment and placed into stores. In order to meet the 5 year test-to-test interval requirement, each spare MSSV requires a second recertification test just before a refuel outage to mitigate the time the valve spent in stores. Extending the testing interval to 6 years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total) would allow additional time for the spare MSSVs to reside in stores after their certification tests without an additional recertification test immediately prior to installation. This extension would reduce the number of recertification test actuations of the spare MSSVs and limit the potential of disc/seat damage and subsequent seat leakage due to these additional tests.

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), EGC requests relief from the five year test interval requirements of ASME OM Code, Appendix I, Section I-1320(a) for the Dresser Model 3777Q MSSVs at QCNPS Units 1 and 2. QCNPS requests that the test interval be increased from

five years to six years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total). Compliance with the applicable requirements of the ASME OM Code for these MSSVs results in unnecessary recertification testing of the MSSVs just prior to a refuel outage without a compensating increase in the level of quality or safety.

5. Proposed Alternative and Basis for Use

QCNPS proposes that ASME Class 1 pressure relief valves (i.e., Dresser Model 3777Q MSSVs) at QCNPS shall be tested at least once every 6 years with a grace period of 6 months to coincide with a refueling outage (i.e., 6.5 years total). A minimum of 20% of the pressure relief valves will be tested within any 24-month interval and that this 20% shall consist of valves that have not been tested during the current 6 year interval (with a 6 month grace), if they exist. The test interval for any individual valve shall not exceed 6.5 years. This Alternative is consistent with the alternative provided in ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief /Safety Valves," Section 1, "Test Frequencies, Class 1 Pressure Relief Valves," Paragraph (a) "72-month Interval."

IST history for the Dresser Model 3777Q MSSVs at QCNPS from May 1997 to the present indicate good performance in that almost all tested MSSVs (i.e., 77 MSSV tests) that have been installed in either QCNPS Unit 1 or Unit 2 for two operating cycles have successfully passed the ASME OM Code and Technical Specification (TS) as-found lift setpoint acceptance criteria within plus or minus 3% (the historical test data indicates 1 of 77 tests did not remain within the as-left tolerance of plus or minus 3%; however, it was found in the negative, more conservative, direction).

QCNPS utilizes an ASME OM Code-certified off-site vendor to perform as-found and as-left testing, inspection, and refurbishment of the MSSVs. An EGC-approved and qualified procedure is used for disassembly and inspection of the MSSVs. This procedure requires that each MSSV be disassembled and inspected upon removal from service, independent of the as-found test results. The procedure identifies the critical components that are required to be inspected for wear and defects, and the critical dimensions that are required to be measured during the inspection. If components are found worn or outside of the specified tolerance(s), the components are either reworked to within the specified tolerances, or replaced. All parts that are defective, outside-of-tolerance, and all reworked/replaced components are identified, and EGC is notified of these components by the off-site vendor. The MSSV is then re-assembled, the as-left test is performed, and the MSSV is returned to QCNPS.

Based upon the unnecessary recertification testing of the MSSVs just prior to a refuel outage to comply with the ASME OM Code coupled with historical MSSV test results for Dresser Model 3777Q MSSVs, QCNPS has concluded that this alternative provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

A similar relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30F) in letter from R. Gibbs (U.S. NRC) to C. Pardee (Exelon Generation), "Dresden Nuclear Power Station Units 2 and 3 – Relief Request No. RV-02C from 5-Year Test Interval for Main Steam Safety Valves and Quad Cities Nuclear Power Station, Units 1 and 2 – Relief Requests No. RV-30E and RV-30F from 5-Year Test Interval for Main Steam Safety Valves," dated June 27, 2008.

10 CFR 50.55a Request Number RV-06

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty Without Compensating
Increase in Level of Quality or Safety

1. **ASME Code Components Affected**

Component Number	System	Code Class	Category
1-0203-003A	Main Steam	1	B/C
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-003A	Main Steam	1	B/C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

Appendix I, I-1350(c) – Requirements for Testing Additional Valves

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), relief is requested from the requirement of ASME OM Code, Appendix I, I-1350(c). The basis of the relief request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

Valve 1(2)-0203-003A is a dual function safety/relief valve manufactured by Target Rock. The remaining valves are simple safety valves. These main steam safety valves are used to terminate an abnormal pressure increase in the reactor

vessel and the reactor coolant pressure boundary (i.e., they provide overpressure protection).

The physical locations of the safety valves cause them to interfere with one another during transport of the valves in and out of containment. In order to create a transport path, at least half of the subject valves are removed, tested and rebuilt during each refueling outage. This accelerated maintenance schedule provides a high level of assurance that these safety valves will perform their safety function.

Quad Cities Nuclear Power Station does not have the facilities required to perform set-point tests on large relief and safety valves. These valves are unbolted from their mounting flanges, decontaminated, and shipped to an off-site test facility. Because of the lengthy period required for removal, transportation, testing and re-installation, the removal and testing of additional valves due to sample expansion would delay unit start-up from refueling outages by at least several days. This represents a significant hardship.

The sample expansion requirements of Appendix I would require two additional valves be tested if one valve failed its set-point test. Since the dual function safety/relief valve is tested each outage, and no less than four of the remaining valves are tested during each outage, the valves already being tested represent an increased sample population. Therefore, based on the sample expansion requirements already being met for one valve, and the hardship associated with pulling additional valves, no additional valves will be tested if only one valve fails the set-point test.

5. Proposed Alternative and Basis for Use

The dual function safety/relief valve, and at least half of the eight safety valves, will be removed and tested during each reactor refueling outage. If only one of the eight safety valves fails its set-point test, additional safety valves will not be tested. If more than one safety valve fails, the sample expansion criteria of Appendix I, 1350(c) will be implemented.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30B) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.

10 CFR 50.55a Request Number RV-07

Relief Requested
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety
Page 1 of 2

1. **ASME Code Components Affected**

Component Number	System	Code Class	Category
1-0203-001A-AO	Main Steam	1	A
1-0203-001B-AO	Main Steam	1	A
1-0203-001C-AO	Main Steam	1	A
1-0203-001D-AO	Main Steam	1	A
1-0203-002A-AO	Main Steam	1	A
1-0203-002B-AO	Main Steam	1	A
1-0203-002C-AO	Main Steam	1	A
1-0203-002D-AO	Main Steam	1	A
2-0203-001A-AO	Main Steam	1	A
2-0203-001B-AO	Main Steam	1	A
2-0203-001C-AO	Main Steam	1	A
2-0203-001D-AO	Main Steam	1	A
2-0203-002A-AO	Main Steam	1	A
2-0203-002B-AO	Main Steam	1	A
2-0203-002C-AO	Main Steam	1	A
2-0203-002D-AO	Main Steam	1	A

2. **Applicable Code Edition and Addenda**

ASME OM Code 2004 Edition through 2006 Addenda

3. **Applicable Code Requirement**

ISTC-5132(b) – Stroke Test Acceptance Criteria – 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.

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTC-5132(b). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The main steam isolation valves (MSIVs) open to admit reactor steam to the main turbine. They close to provide containment and reactor isolation.

The ISTC Code requirement bases the stroke time acceptance criteria on a fixed reference value taken from a baseline test. However, Technical Specifications

(TS) Surveillance Requirement (SR) 3.6.1.3.6 in TS 3.6.1.3, "Primary Containment Isolation Valves (PCIV's)," establishes an invariable acceptable stroke time range for the MSIVs of $\geq$ 3 seconds to $\leq$ 5 seconds. This fixed range is more conservative and consistent than that required by ISTC-5132(b) since the range is not dependent on a baseline value that may vary by as much as ±1 second.

5. Proposed Alternative and Basis for Use

TS SR 3.6.1.3.6 establishes an acceptable stroke time range for the MSIVs of 3.0 seconds $\leq T_{MSIV} \leq$ 5.0 seconds. Quad Cities Nuclear Power Station (QCNPS) will utilize this range for evaluating an acceptable MSIV stroke time in lieu of establishing an acceptance band based on MSIV stroke time reference values. QCNPS has also established additional limitations on stroke time based on reactor power levels to ensure that the TS SR limits are always met. Any MSIV that fails to meet the TS SR limits will be considered inoperable and required actions will continue to be in accordance with ISTC-5133 - Stroke Test Corrective Actions.

6. Duration of Proposed Alternative

The proposed alternative will be utilized for the entire Fifth 120 month Interval beginning February 18, 2013.

7. Precedents

This relief request was previously approved for Quad Cities Nuclear Power Station Units 1 and 2 for the Fourth 120 month Interval (Relief Request RV-30C) in letter from A. Mendiola (U.S. NRC) to C. Crane (Exelon Generation), "Quad Cities Nuclear Power Station, Units 1 and 2 – Fourth 10-Year Inservice Testing Program Relief Requests," dated February 20, 2004.