November 13, 2018

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2 - RELIEF FROM THE REQUIREMENTS OF THE ASME CODE (EPID L-2017-LLR-0145 THROUGH EPID L-2017-LLR-0152)

Dear Mr. Hanson:

By letter dated December 20, 2017 (Agencywide Documents Access and Management System Accession No. ML17354A837), Exelon Generation Company, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to certain American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants requirements at the Nine Mile Point Nuclear Station (Nine Mile Point), Units 1 and 2, during the fifth and fourth 10-year inservice testing intervals, respectively. The purpose of this letter is to provide the results of the NRC staff's review of Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, RBCLC-PR-01, and MSS-VR-01.

In Relief Request GVRR-3, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed to perform pressure isolation valves testing at intervals ranging from every refueling outage to every third refueling outage at Nine Mile Point, Units 1 and 2.

In Relief Request ADS-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed a combination of offsite steam testing of the main valves, actuator cycling, and other inspections and maintenance activities in lieu of performing in-situ main steam electromatic relief valves steam pressure testing every refueling outage at Nine Mile Point, Unit 1.

In Relief Request CRD-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed to full stroke exercised and fail safe test the scram discharge volume containment isolation valves using the test solenoid valve quarterly and to stroke-time test through the scram path during refueling outages at Nine Mile Point, Unit 1.

In Relief Requests CTNH202-VR-01 and CTNH202-VR-02, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, for the affected hydrogen and oxygen sample and return containment isolation valves, the licensee proposed to establish individual reference values, group reference values, and group acceptance criteria, and compare the slowest valve stroke-time to the acceptance criterion to determine the valve group operability status at Nine Mile Point, Unit 1.

In Relief Request MS-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed that the subject Class 1 reactor pressure vessel safety valves be tested at least once every three refueling cycles (approximately 6 years) with a minimum of 20 percent of the valves tested within any 24-month interval at Nine Mile Point, Unit 1. This 20 percent would consist of valves that have not been tested during the current 72-month interval, if they exist. The test interval for any individual valve would not exceed 72 months, except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods and certification of the valve prior to installation.

In Relief Request RBCLC-PR-01, pursuant to 10 CFR 50.55a(z)(2), the licensee requested to use the proposed alternative on the basis that complying with the specified requirement would result in hardship or unusual difficulty, without a compensating increase in the level of quality or safety. Specifically, the licensee proposed measuring reactor building closed loop cooling (RBCLC) pumps vibration quarterly during normal system operation, measuring all applicable parameters (i.e., flow rate, vibration, and differential pressure during cold shutdown), and performing a comprehensive test biennially at Nine Mile Point, Unit 1.

In Relief Request MSS-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed testing the affected pressure main steam safety relief valves at least once every three refueling cycles (approximately 6 years), with a minimum of 20 percent of the valves tested within any 24-month interval instead of the required 5-year test interval at Nine Mile Point, Unit 2.

The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that Exelon Generation Company, LLC has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1) and 10 CFR 50.55a(z)(2). The proposed alternatives described in Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, and MSS-VR-01 provide an acceptable level of quality and safety. The proposed alternative described in Relief Request RBCLC-PR-01 provides reasonable assurance that the affected pumps are operational ready. Therefore, the NRC staff authorize the use of the alternative requests described in Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, RBCLC-PR-01, and MSS-VR-01. The fifth and fourth 10-year inservice testing intervals for Nine Mile Point, Units 1 and 2, are scheduled to begin on January 1, 2019, and end on December 31, 2028.

If you have any questions, please contact the Nine Mile Point Nuclear Station Project Manager, Michael Marshall, at (301) 415-2871 or Michael.Marshall@nrc.gov.

Sincerely,

James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-220 and 50-410

Enclosure:
Safety Evaluation

cc: Listserv

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RELIEF REQUESTS GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01,

CTNH202-VR-02, MS-VR-01, RBCLC-PR-01, AND MSS-VR-01

NINE MILE POINT NUCLEAR STATION, LLC

EXELON GENERATION COMPANY, LLC

NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-220 AND 50-410

1.0 INTRODUCTION

By letter dated December 20, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17354A837), Exelon Generation Company, LLC (Exelon or the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to certain American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) requirements at Nine Mile Point Nuclear Station (Nine Mile Point), Units 1 and 2, during the fifth and fourth 10-year inservice testing intervals, respectively. The purpose of this letter is to provide the results of the NRC staff's review of Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, RBCLC-PR-01, and MSS-VR-01.

In Relief Request GVRR-3, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed to perform pressure isolation valves testing at intervals ranging from every refueling outage to every third refueling outage at Nine Mile Point, Units 1 and 2.

In Relief Request ADS-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed a combination of offsite steam testing of the main valves, actuator cycling, and other inspections and maintenance activities in lieu of performing in-situ main steam electromatic relief valves steam pressure testing every refueling outage at Nine Mile Point, Unit 1.

In Relief Request CRD-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed to full stroke exercised and fail safe test the scram discharge volume containment isolation valves using the test solenoid valve quarterly and to stroke-time test through the scram path during refueling outages at Nine Mile Point, Unit 1.

In Relief Requests CTNH202-VR-01 and CTNH202-VR-02, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, for the affected hydrogen and oxygen sample and return containment isolation valves, the licensee proposed to establish individual reference values, group reference values, and group acceptance criteria and compare the slowest valve stroke-time to the acceptance criterion to determine the valve group operability status at Nine Mile Point, Unit 1.

In Relief Request MS-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed that the subject Class 1 reactor pressure vessel safety valves be tested at least once every three refueling cycles (approximately 6 years), with a minimum of 20 percent of the valves tested within any 24-month interval at Nine Mile Point, Unit 1. This 20 percent would consist of valves that have not been tested during the current 72-month interval, if they exist. The test interval for any individual valve would not exceed 72 months, except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods and certification of the valve prior to installation.

In Relief Request RBCLC-PR-01, pursuant to 10 CFR 50.55a(z)(2), the licensee requested to use the proposed alternative on the basis that complying with the specified requirement would result in hardship or unusual difficulty, without a compensating increase in the level of qualify or safety. Specifically, the licensee proposed measuring RBCLC pumps vibration quarterly during normal system operation, measuring all applicable parameters (i.e., flow rate, vibration, and differential pressure during cold shutdown, and performing a comprehensive test biennially at Nine Mile Point, Unit 1.

In Relief Request MSS-VR-01, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety. Specifically, the licensee proposed testing the affected pressure main steam safety relief valves (SRVs) at least once every three refueling cycles (approximately 6 years) with a minimum of 20 percent of the valves tested within any 24-month interval instead of the required 5-year test interval at Nine Mile Point, Unit 2.

2.0 REGULATORY EVALUATION

Section 50.55a(f) of 10 CFR states, in part, that inservice testing (IST) of certain ASME Code Class 1, 2, and 3 pumps and valves be performed in accordance with the specified ASME OM Code and applicable addenda incorporated by reference in the regulations.

Section 50.55a(z) of 10 CFR states, in part, that alternatives to the requirements of paragraph (f) of 10 CFR 50.55a may be used when authorized by the NRC if the licensee demonstrates (1) the proposed alternatives would provide an acceptable level of quality and safety or (2) compliance 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(a)(3), alternatives to requirements may be authorized by the NRC if the licensee demonstrates that: (i) the proposed alternatives provide an acceptable level of

quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety.
Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request, and the Commission to authorize, the alternatives requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Relief Request GVRR-3

3.1.1 Applicable Code Requirements

The applicable ASME OM Code edition and addenda for the Nine Mile Point, Unit 1, fifth 10-year IST interval and Nine Mile Point, Unit 2, fourth 10-year IST interval is the 2012 Edition with no addenda. The licensee requested an alternative to the requirements in Section ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," of the OM Code, 2012 Edition with no Addenda.

ASME OM Code, ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," states, in part, 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 the 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."

ASME OM Code, ISTC-3630(a), "Frequency," states that, "Tests shall be conducted at least once every 2 years."

3.1.2 Code Components Affected

Alternative testing is for the following valves:

Table 1

Valve ID	Function	Category	Class
CKV-40-03	Core Spray (CS)	A/C	1
CKV-40-13	CS	A/C	1
CKV-40-20	CS	A/C	2
CKV-40-21	CS	A/C	1
CKV-40-22	CS	A/C	1
CKV-40-23	CS	A/C	2
CKV-38-165	Shut Down Cooling (SDC)	A/C	2
CKV-38-166	SDC	A/C	2
CKV-38-167	SDC	A/C	2
CKV-38-168	SDC	A/C	2
CKV-38-169	SDC	A/C	1
CKV-38-170	SDC	A/C	1
CKV-38-171	SDC	A/C	1
CKV-38-172	SDC	A/C	1
2CSH*V108	High Pressure Core Spray (CSH)	A/C	1
2CSH*MOV107	CSH	A	1
2CSL*V101	Low Pressure Core Spray (CSL)	A/C	1

Valve ID	Function	Category	Class
2CSL*MOV104	CSL	A	1
2ICS*V156	Reactor Core Isolation Cooling (ICS)	A/C	1
2ICS*V157	ICS	A/C	1
2RHS*V16A	Residual Heat Removal (RHS)	A/C	1
2RHS*V16B	RHS	A/C	1
2RHS*V16C	RHS	A/C	1
2RHS*V39A	RHS	A/C	1
2RHS*V39B	RHS	A/C	1
2RHS*MOV104	RHS	A	1
2RHS*MOV112	RHS	A	1
2RHS*MOV113	RHS	A	1
2RHS*MOV24A	RHS	A	1
2RHS*MOV24B	RHS	A	1
2RHS*MOV24C	RHS	A	1
2RHS*MOV40A	RHS	A	1
2RHS*MOV40B	RHS	A	1
2RHS*MOV67A	RHS	A	1
2RHS*MOV67B	RHS	A	1

3.1.3 Reason for Request

The licensee stated, in part:

> ISTC-3630 requires that leakage rate testing for pressure isolation valves (PIVs) be performed at least once every two years. PIVs are not specifically included in the scope for performance-based testing as provided for in 10 CFR 50 Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Option B, "Performance Based Requirements." These motor-operated and check valve PIVs are, in some cases, containment isolation valves (CIVs), but are not within the Appendix J scope since the Reactor Shutdown Cooling System valves are considered water-sealed.
>
> ....
>
> The Nine Mile Point, Unit 1 (NMP1) Technical Specifications (TS) contain a requirement to establish the leakage rate testing program is in accordance with NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," Revision 0, dated July 21, 1995.
>
> The Nine Mile Point, Unit 2 (NMP2) Technical Specifications contain a requirement to establish the leakage rate testing program in accordance with the guidelines contained in NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated October 2008.
>
> NEI 94-01, Paragraph 10.2.3.2, "Extended Test Interval," [as approved in the final safety evaluation for NEI 94-01, Revision 3, via letter dated June 8, 2012 (ADAMS Accession No.ML121030286)], states:

> Test intervals for Type C valves may be increased based upon completion of two consecutive periodic as-found Type C tests where the result of each test is within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive passing tests used to determine performance shall be 24months or the nominal test interval (e.g., refueling cycle) for the valve prior to implementing Option B to Appendix J. Intervals for Type C testing may be increased to a specific value in a range of frequencies from 30 months up to a maximum of 60 months. Test intervals for Type C valves should be determined by a licensee in accordance with Section 11.0.

The concept behind the Option B alternative for CIVs is that licensees should be allowed to adopt cost effective methods for complying with regulatory requirements. Additionally, NEI 94-01 describes the risk-informed basis for the extended test intervals under Option B. That justification shows that for CIVs which have demonstrated good performance by the successful completion of two consecutive leakage rate tests over two consecutive cycles, may increase their test frequencies. Further, it states that if the component does not fail within two operating 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 conclusion that "the risk impact associated with increasing [leak rate] test intervals is negligible (i.e., less than 0.1 percent of total risk)."

The valves identified in this relief request are all in water applications. 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 proposed alternative is intended to provide for a performance-based scheduling of PIV tests at NMP1 and NMP2. The reason for requesting this alternative is dose reduction to conform with NRC and industry As Low As Reasonably Achievable (ALARA) radiation dose principles. The nominal fuel cycle lengths at NMP1 and NMP2 are 24 months. However, since refueling outages may be scheduled slightly beyond 24 months, a 4-1/2 year period is used to provide a bounding timeframe to encompass two refueling outages. The review of recent historical data identified that PIV testing each refueling outage results in a total personnel dose of approximately 1 Rem [roentgen equivalent man], assuming all of the PIVs remain classified as good performers. The proposed extended test intervals would provide for a savings of approximately 1 Rem over an approximate 4-year period (two refuel outages).

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-1985 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 valve's ability to reposition from open to closed.

For check valves, functional testing is accomplished in accordance with ASME OM Code paragraph ISTC-3522, "Category C Check Valves." For power-operated valves, full stroke functional testing is accomplished in accordance with the ASME OM Code paragraph ISTC-3521 "Category A and Category B Valves." Performance of the separate two-year PIV leak rate testing does not contribute any additional assurance of functional capability; it only determines the seat tightness of the closed valves.

The licensee also provided the following additional basis for this relief request:

- Separate functional testing of motor-operated valve (MOV) PIVs and Check Valve PIVs per ASME OM Code will continue.

- The low likelihood of valve mis-positioning during power operations (e.g., procedures, interlocks).

- Relief valves in the low pressure (LP) piping - these relief valves may not provide Inter-System Loss of Coolant Accident (ISLOCA) mitigation for inadvertent PIV mis-positioning 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 ISLOCA and to take appropriate actions.

The primary basis for this relief request is the historically good performance of the PIVs. The historical test data that demonstrate acceptable PIVs performance was provided earlier in the previous proposed alternative for the Nine Mile Point, Unit 1, fourth 10-year IST interval, and Nine Mile Point, Unit 2, third 10-year IST Interval, dated December 27, 2016 (ADAMS Accession No. ML17003A096).

3.1.4 Proposed Alternative and Basis for Use

The licensee stated:

NMP1 and NMP2 propose to perform PIV testing at intervals ranging from every refueling outage to every third refueling outage. 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. A conservative control will be established such that if any valve fails either PIV test, the test interval for both tests will be reduced consistent with Appendix J, Option B requirements until good performance is reestablished.

The functional capability of the check valves is demonstrated by the open and close exercising. This testing is separate and distinct from PIV testing and is performed at a refuel outage frequency in accordance with ASME OM Code, paragraph ISTC-3522.

The proposed alternative would apply to the Nine Mile Point, Unit 1, fifth 10-year IST and Nine Mile Point, Unit 2, fourth 10-year IST intervals, which are scheduled to begin January 1, 2019, and conclude on December 31, 2028.

3.1.5 NRC Staff Evaluation

The licensee has proposed an alternative test in lieu of the requirements found in the 2012 Edition of the ASME OM Code, Section ISTC-3630(a), for 35 PIVs noted in Table 1 above. Specifically, the licensee proposes to functionally test and verify the leakage rate of these PIVs using the 10 CFR Part 50, Appendix J, Option B performance-based schedule. Valves would initially be tested at the required interval schedule, which is currently every refueling outage, or 2 years, as specified by ASME OM Code Section ISTC-3630(a). Valves that have demonstrated good performance for two consecutive cycles may have their test interval extended to 75 months. Any PIV leakage test failure would require the component to return to the initial interval of every refueling outage, or 2 years, until good performance can again be established.

Pressure isolation valves are defined as two valves in series within the reactor coolant pressure boundary, which separate the high pressure reactor coolant system from an attached lower pressure system. Failure of a PIV could result in an over-pressurization event, which could lead to a system rupture and possible release of fission products to the environment. This type of failure event was analyzed under NUREG/CR-5928, "ISLOCA Research Program," dated July 1993. The purpose of NUREG/CR-5928 was to quantify the risk associated with an ISLOCA event. NUREG/CR-5928 analyzed boiling-water reactor (BWR) and pressurized-water reactor designs. The conclusion of the analysis resulted in ISLOCA not being a risk concern for BWR design. Nine Mile Point, Units 1 and 2, are a BWR design.

Option B in 10 CFR Part 50, Appendix J, is a performance-based leakage test program. Guidance for implementation of acceptable leakage rate test methods, procedures, and analyses is provided in Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995 (ADAMS Accession No. ML003740058). RG 1.163 endorses Nuclear Energy Institute (NEI) Topical Report 94-01, Revision 0, "Industry Guideline For Implementing Performance-Based Option of 10 CFR 50, Appendix J," dated July 26, 1995, with the limitation that Type C component test intervals cannot extend greater than 60 months. The current version of NEI 94-01 is Revision 3-A (ADAMS Package Accession No. ML122210254), which allows Type C containment isolation valves test intervals to be extended to 75 months, with a permissible extension for non-routine emergent conditions of 9 months (i.e., 84 months total). As stated in a letter dated December 6, 2012, the NRC staff finds the guidance in NEI 94-01, Revision 3-A, acceptable (ADAMS Accession No. ML12226A546), with the following conditions:

1) Extended interval for Type C local leak rate tests (LLRTs) may be increased to 75 months with the requirement that a licensee's post-outage report include the margin between Type B and Type C leakage rate summation and its regulatory limit. In addition, a corrective action plan shall be developed to restore the margin to an acceptable level. Extensions of up to 9 months (total maximum interval of 84 months for Type C tests) are permissible only for non-routine emergent conditions. This provision (9-month extension) does not apply to valves that are restricted and/or limited to 30-month intervals in Section 10.2 (such as BWR main steam isolation valves) or to valves held to the base interval (30 months) due to unsatisfactory LLRT performance.

2) When routinely scheduling any LLRT valve interval beyond 60-months and up to 75 months, the primary containment leakage rate testing program trending or monitoring must include an estimate of the amount of understatement in the Type B and Type C total and must be included in a licensee's post-outage report. The report must include the reasoning and determination of the acceptability of the extension, demonstrating that the LLRT totals calculated represent the actual leakage potential of the penetrations.

The 35 PIVs are currently being leak-tested every refueling outage, or 2 years. The licensee considers performance of the leakage test of the 35 PIVs to be inconsistent with ALARA based on radiation exposure. Overall completion of leak test requirements averages a dose of 1 Rem over a 4-year period. As noted in the licensee's relief request proposal, the valves have maintained a history of good performance. Extending the leakage test interval based on good performance and the low risk factor is in consistent with Option B of 10 CFR Part 50, Appendix J, and NUREG/CR-5928. Therefore, the NRC staff concludes that the licensee's proposed alternative provides an acceptable level of quality and safety.

3.2 <u>Relief Request ADS-VR-01</u>

3.2.1 <u>Applicable Code Requirements</u>

The applicable ASME OM Code edition and addenda for Nine Mile Point, Unit 1, fifth 10-year IST interval is the 2012 Edition with no Addenda.

The licensee requested relief from the following Code requirements:

- ISTC-3510, Exercising Test Frequency, states, in part: "Power-operated relief valves shall be exercise tested once per fuel cycle."

- ISTC-3700, Position Verification Testing, states, in part: Valves with remote position indicators shall be observed at least once every 2 years to verify that valve operation is accurately indicated."

- ISTC-5111, Valve Testing Requirements, states, in part: "(a) Testing shall be performed in the following sequence or concurrently. If testing in the following sequence in impractical, it may be performed out of sequence, and a justification shall be documented in the record of tests for each test or in the test plan:

    (1) leakage testing
    (2) stroke testing
    (3) position indication testing"

- ISTC-5113, Valve Stroke Testing, states, in part: "(a) Active valves shall have their stroke times measured when exercised in accordance with para. ISTC-3500."

- ISTC-5114, Stroke Test Acceptance Criteria, states, in part: "Test results shall be compared to the reference values established in accordance with para. ISTC-3300, ISTC-3310, or ISTC-3320."

3.2.2 Code Components Affected

Alternative testing is required for the following main steam electronic relief valves (ERVs):

Table 2

Component	Description	Class	Category
PSV-01-102A	Main Steam ERV	1	B
PSV-01-102B	Main Steam ERV	1	B
PSV-01-102C	Main Steam ERV	1	B
PSV-01-102D	Main Steam ERV	1	B
PSV-01-102E	Main Steam ERV	1	B
PSV-01-102F	Main Steam ERV	1	B

3.2.3 Reason for Request

The licensee stated, in part:

> There are six ERVs installed on the main steam (MS) lines inside the drywell. Each ERV consists of a main valve, a pilot valve assembly, and a solenoid actuator. The ERVs are opened by either signals from automatic actuation instrumentation or manually and, thus, do not rely on spring setpoints for valve actuation.
>
> The ASME OM-2012 Code-required testing for the six ERVs would be satisfied by manually stroking open each ERV with the reactor at pressure once every operating cycle. It would be performed during plant startup following a refueling outage (RFO). Experience in the industry and at NMP1 indicates that manually opening the ERVs during plant operation can increase the potential for main disc seat leakage and pilot valve seat leakage. NMP1 experienced main disc seat leakage in March 2001 and pilot valve seat leakage in December 2002, both of which were attributed to debris on the seats caused by testing the valves using steam. Leakage from the main valve disc can cause increases in suppression pool (torus) temperature and level, requiring more frequent suppression pool cooling and pump-down operations, and diverts steam from the power generation steam cycle. Excessive leakage from the pilot valve can cause inadvertent opening of the main valve and impair its ability to re-close.
>
> The proposed alternative will allow testing of the ERVs that is appropriate to demonstrate functionality without cycling the valves in place using reactor steam pressure. The request is consistent with NUREG-0737, "Clarification of TMI Action Item Requirements," Item II.K.3.16, "Reduction of Challenges and Failures of Relief Valves," which recommended that the number of relief valve openings

be reduced as much as possible and that unnecessary challenges should be avoided.

3.2.4 Proposed Alternative and Basis for Use

The licensee stated, in part:

> This relief request proposes an alternative to performing in-situ ERV stream pressure testing every RFO [refueling outage]. The proposed alternative consists of a combination of offsite steam testing of the main valves, actuator cycling, and other inspections and maintenance activities.
>
> The proposed alternative will allow testing of the ERVs that is appropriate to demonstrate functionality without cycling the valves in place using reactor steam pressure. The request is consistent with NUREG-0737, "Clarification of TMI Action Item Requirements," Item II.K.3.16, "Reduction of Challenges and Failures of Relief Valves," which recommended that the number of relief valve openings be reduced as much as possible and that unnecessary challenges should be avoided.

The licensee stated, in part:

> This relief request proposes an alternative to performing in-situ ERV steam pressure testing every RFO. The proposed alternative consists of a combination of offsite steam testing of the main valves, actuator cycling, and other inspections and maintenance activities. The proposed alternative would provide an acceptable level of quality and safety, as further discussed below.
>
> System Description
>
> There are six Dresser model 1525VX solenoid-actuated, pilot-operated ERVs installed at NMP1. The ERVs are connected to the MS lines between the MS line flow restrictor and the inboard MS isolation valve. Each ERV has its own discharge pipe that is equipped with an acoustic monitor to detect flow noise and a thermocouple to sense discharge fluid temperature to monitor for valve actuation and/or leakage.
>
> Valve Operation
>
> Steam under pressure from the reactor enters the main valve and passes upward around the disc guide. Steam enters the chamber below the main disc through a small orifice located in the disc retainer plate. Inlet steam pressure holds the main valve disc closed. A main disc spring is provided to keep the main valve disc in the closed position at low pressures or while depressurized. The pilot valve disc is held in the closed position by a pilot valve spring and steam pressure in the chamber below the pilot disc. When the solenoid actuator is energized, the actuator plunger depresses the pilot valve operating lever, thereby opening the pilot valve. When the pilot valve is opened, steam is released through the outlet port at a faster rate than supplied through the inlet orifice. This causes the chamber below the main disc to depressurize, causing the valve to

open. To close the valve, the solenoid actuator is de-energized, thereby closing the pilot valve and allowing steam pressure to reseat the main valve.

Exercise Test Frequency Alternative to ISTC-3510

For the proposed alternative, all six of the ERV solenoid actuators will be exercised each RFO, and two (2) of the six (6) main valves will be replaced with pretested spare valves each RFO such that all six valves will be replaced with pretested spare valves over a 6-year period with a six month grace period. Inspections and precision preventive maintenance (described below) will be performed each RFO for all six of the solenoid actuators and pilot valve assemblies, with the IST requirements incorporated as part of the preventive maintenance activities.

Solenoid Actuator

Each ERV solenoid actuator will be exercised each RFO. The closing stroke de-energizes the solenoid and allows the actuator to return to its fail-safe (closed) position. This test will be performed with the pilot valve and solenoid actuator mounted in their normal installed positions inside the drywell, which allows the solenoid actuator to be actuated electrically from the control room by placing the control switch in the Open position. The pilot valve operating lever and pilot valve stem will be secured in the open position during this test to prevent damage to the pilot valve assembly, which could result from dry-stroking with no backpressure. The maintenance activities include detailed inspections of the electrical and mechanical components of the solenoid actuator.

NMP1 licensee event report (LER) 03-001, "Technical Specification Cooldown Rate Exceeded During Required Cooldown for the Failed Solenoid Actuated Pressure Relief Valve," reported an event involving an ERV that failed to open due to high resistance in the solenoid actuator cutout switch contacts. The high resistance contacts limited the current through the solenoid operating coil, which reduced the force that the plunger applied to the pilot valve operating lever. Further investigation and examination showed that the high contact resistance was due to the tin coating having been worn off the cutout switch contacts, allowing excessive contact oxidation to occur. Preventive maintenance activities now include inspection and cleaning of the cutout switch contacts, as necessary, to assure that the contact surfaces are clean and free of oxidation, corrosion, and discoloration. The contact tin plating will be verified to be intact and not worn off exposing the copper base material. Associated springs and mechanisms will be inspected, and the as-left contact resistances are verified. Resistance checks will be performed on both actuator coils, and actuator operating currents during electrical actuation are verified to be within acceptance limits. These steps provide substantial indication that the solenoid actuator is capable of functioning as designed and producing its full output force.

Stroke timing of the solenoid actuator will not be performed since the actuator is a sub-component of the total ERV. Degradation is monitored through the preventive maintenance inspections in lieu of trending millisecond stroke-time variations.

Pilot Valve

Each ERV pilot valve will be exercised each RFO when the new/refurbished pilot valve assembly is installed in the pilot housing. Note that the pilot valve housing is permanently welded to the outside of the ERV enclosure located in the drywell. Removal and reinstallation of the pilot valve assembly does not affect the ERV main valve. The maintenance activities will include inspections of the pilot valve assembly parts and the pilot valve housing interior to identify any damage or wear that could impair free movement of the stem or proper valve seating. Parts are refurbished or replaced as necessary. Cleanliness of parts and components and absence of foreign material are verified prior to reassembly.

NMP1 has experienced a stuck-open ERV event caused by improper maintenance. NMP1 LER 04-001, "Manual Reactor Scram and Cooldown Rate Exceeding Technical Specification Limits Due to Electromatic Relief Valve Failure to Close," reported an event involving an ERV that stuck open due to a maintenance error in which an extraneous gasket was installed in the pilot valve housing. This condition allowed steam to bypass the pilot valve seat, thereby preventing steam pressure from building up under the main valve disc to close the valve when given the closure signal. Appropriate precautions and instructions have been incorporated into the ERV maintenance procedure to ensure that the correct gasket is used and sufficient torque is applied to prevent steam from bypassing the pilot valve seat.

Prior to re-installing the pilot valve assembly inside the pilot housing, pilot stem/disc leak testing and freedom of movement and reseat functionality will be demonstrated. A complete cleanliness inspection will be performed prior to installing the pilot valve assembly back into the housing. The housing is thoroughly cleaned and vacuumed to remove moisture and debris to minimize the potential for debris blocking or hindering pilot valve performance. Following installation of the pilot valve assembly inside the housing, the pilot valve operating lever and pilot valve assembly freedom of movement and clearance adjustments are confirmed, followed by stroking the solenoid actuator plunger by hand to the full extent of travel. This ensures that the solenoid actuator plunger, pilot valve operating lever, and pilot valve assembly function as a unit, while eliminating the risk of damage resulting from electrically stroking the pilot valve in the absence of steam pressure (referred to as dry-stroking). The pilot valve freedom of movement check allows the pilot valve disc to return to its fail-safe (closed) position. NMP1 LER 00-004-01, "Manual Reactor Scram and Unusual Event Declaration Due to Stuck Open Electromatic Relief Valve and Failed Vacuum Breaker on Electromatic Relief Valve Discharge Line," reported an event involving an ERV that unexpectedly opened and would not reclose. The cause was attributed to a bent stem in the pilot valve assembly and partial disengagement of the pilot valve disc from the stem. It was determined that the pilot valve stem-disc separation had occurred as a result of dry-stroking the ERV pilot valve using the solenoid actuator.

Stroke timing of the pilot valve is not practical since the test is performed by hand and the pilot valve is a sub-component of the total ERV. Degradation of the pilot valve assemblies will be monitored through the preventive maintenance inspections.

Main Valve

A sampling program is proposed that will be replaced every three RFOs (approximately 6 years). Each ERV main valve will be stroke tested at an offsite steam test facility once every 6 years (three RFOs) [rather than once every RFO (approximately 24 months)]. A 6-month grace period would be allowed to accommodate variations in fuel cycle length and extended shutdown periods. The main valve testing will capture the exercise and stroke-time test data required by the ASME OM-2012 Code.

The main valve is housed in a heavy, steel enclosure that is attached to the main steam line inlet flange. The pilot valve assembly is installed inside the pilot valve housing, and the housing is welded onto the outside of the enclosure and physically separated from the ERV main valve body. Thus, only the main valve of the ERV can be sent to the test facility. A spare pilot valve assembly and a spare solenoid actuator, both representative of the components used at the plant, will be installed at the test facility to allow testing the main valve. The valve will be installed on a test steam header in the same orientation as the plant installation. The test conditions at the test facility will be similar to those in the plant, including ambient temperature and steam conditions. The main valve will receive an initial seat leak test, a functional test to ensure it is capable of opening and closing, and a final seat leak test. Valve stroke time will be obtained during the exercise test. Valve seat tightness will be verified by a cold bar test, and if not free of fog, leakage will be measured and verified to be below specified acceptance criteria. This initial testing will be completed prior to plant startup from the RFO.

After initial testing, the main valves will be completely disassembled, inspected and refurbished, and then retested. The refurbished main valves will be stored at the offsite test facility and returned to the plant prior to the next scheduled use. The offsite test facility's storage requirements will ensure the valves are protected from physical damage. The valves will be stored in an area meeting ANSI/ASME N45.2.2 Class B storage requirements, with the storage area temperature maintained between 50°F and 90°F. Maintaining the ERVs in a controlled environment during storage minimizes the potential for any valve degradation.

Prior to installation at the plant, the spare main valves will be inspected for foreign material and damage. The steam line and ERV discharge line openings will also be inspected to verify cleanliness and absence of foreign material. Procedural requirements will ensure that the proper ERV inlet flange gasket separating ring thickness is provided so proper crush of the flexitallic gasket is achieved when the valve is installed. The valves will then be installed and necessary connections completed, including connecting the vent tube and installing the enclosure cover and bellows assembly. Proper connections will be verified per procedure.

The four main valve discs that are not exercised during each RFO will have inspections and maintenance performed on their solenoid actuators and pilot valve assemblies as described above. Review of past surveillance testing and preventive maintenance history indicates that the ERV main valves are highly reliable.

The testing and refurbishment activities performed at the off-site test facility on the partial compliment sample (two valves each RFO) will ensure that main valve degradation mechanisms are detected in a timely manner. Monitoring of the ERV discharge line temperatures during plant operation also provides an indication of degradation of the installed main valves.

Position Indication Verification Alternative to ISTC-3700 and ISTC-5111

This proposed alternative performs position indication verification for the six ERVs by observing the control room position indicating lights during the solenoid actuator test. Each ERV is equipped with red and green indicating lights which provide control room open and close indication, respectively, by monitoring the solenoid actuator plunger position. A blue indicating light is also provided in the control room which monitors power to the solenoid actuator. The blue light is "On" when the solenoid is deenergized (valve closed) and "Off" when the solenoid is energized (valve open). As previously noted, the pilot valve operating lever and pilot valve stem will be secured in the open position during this test to prevent damage to the pilot valve assembly, which could result from dry-stroking with no backpressure. Solenoid actuator plunger movement will be observed locally in the drywell and compared to the control room indication to verify that solenoid actuator operation is accurately indicated. The proposed position indication verification alternative provides indirect pilot valve position, which ultimately represents the position of the main valve disc when steam is present, without cycling the ERVs in place with reactor steam pressure.

This test will be performed every RFO for each of the six ERVs. The proposed position indication verification alternative provides an acceptable level of quality and safety without requiring indication of main valve obturator movement.

Stroke Time Testing Alternative to ISTC-5113 and ISTC-5114

Since the ERVs are not being in-situ tested, and since only the main valve is being tested at the offsite test facility (as previously noted), ERV full stroke time from initiating signal to indication of the end of the operating stroke cannot be obtained. Instead, main valve stroke times will be measured at the test facility. Stroke time acceptance criteria will use a pre-established reference value that represents good performance for this valve type. Since the whole valve assembly is not being tested and the test facility cannot duplicate the control circuitry, a simplified valve actuation circuit will be used. Although these differences may result in minor differences in measured stroke time compared to previous test data for in-situ testing of the complete ERV, the stroke times measured at the test facility will be comparable to each other and, thus, can be used to detect abnormalities in valve performance.

3.2.5 NRC Staff Evaluation

The licensee has proposed alternatives in lieu of the requirements found in the 2012 Edition of the ASME OM Code, Sections ISTC-3510, ISTC-3700, ISTC-5111, ISTC-5113, and ISTC-5114, for six ERVs noted in Table 2 above. Specifically, the licensee proposes to exercise all six of the ERV solenoid actuators each refueling outage. Two of the six main valves would be replaced with pretested spare valves each refueling outage such that all six valves would be replaced with pretested spare valves over a 6-year period with a 6-month grace period. Inspections and precision preventive maintenance would be performed each refueling outage for all six of the solenoid actuators and pilot valve assemblies, with the IST requirements incorporated as part of the preventive maintenance activities.

The NRC staff has reviewed the licensee's proposed alternative testing of the ERVs. The functional capability of the valves is adequately verified. A manual actuation and valve leakage test will be performed at a steam test facility using test conditions similar to those for the installed valves in the plant, including valve orientation, ambient temperature, and steam conditions. Following ERV installation, the licensee's proposed testing includes verifying proper electrical connections and actuator performance. Although the tests of the ERVs at the steam test facility are not performed with the actual valve solenoids installed in the plant, the solenoids are adequately tested and verified by separate tests. This combination of testing, inspections, and maintenance activities provides an acceptable level of quality and safety, without requiring the six ERVs to be stroked with reactor steam during plant startup.

The NRC staff also finds that the licensee has had no failures of the valves to stroke open in the past 10 years. The licensee has adequately considered the applicable Nine Mile Point, Unit 1, operational experience regarding the necessary verification and testing of the ERV solenoid capability and the prevention and detection of possible damage to the ERV pilot valves during dry stroke testing following installation. The licensee stated that all of the components necessary to manually actuate the ERVs will continue to be tested to demonstrate the functional capability of the valves, without the need to stroke test the valves on-line with system steam pressure. The NRC staff also notes that the current testing requirements could result in seat leakage of the ERVs during power operation. Excessive seat leakage could result in excessive suppression pool temperature and level or in unidentified drywell leakage, which would likely be identified and corrected.

The proposed ERVs sampling test program is similar to the requirements of ASME OM Code Case OMN-17 for ASME Class 1 pressure safety/relief valves, which is approved for use in RG 1.192, Revision 2, "Operation and Maintenance Code Case Acceptability, ASME OM Code," dated March 2017 (ADAMS Accession No. ML16321A337). Therefore, the NRC staff finds that the proposed alternative testing in lieu of the ISTC-3510 requirement is acceptable. The NRC staff has reviewed position verification alternative to ISTC-3700 and ISTC-5111. As previously noted, the current dry stroke test with no backpressure will result in damage to the pilot valve assembly. To prevent valve damage, the licensee will secure the pilot valve operating lever and pilot valve stem in the open position while locally observing the solenoid actuator plunger movement, in conjunction with observing the control room indication. The proposed alternative will verify that solenoid actuator operation, and indirectly, that the pilot valve position is accurately indicated. The NRC staff finds that the proposed position verification alternative meets the intent of ASME OM Code requirements. Therefore, the NRC staff finds that the proposed alternative testing is acceptable.

The NRC staff has reviewed stroke-time test alternative to ISTC-5113 and ISTC-5114. Currently, the ASME OM-2012 Code-required testing for the six ERVs is satisfied by manually stroking open each ERV with the reactor at pressure. As previously noted, the proposed alternative will allow testing of main valves at an offsite facility. A pilot valve assembly and a solenoid actuator, both representative of the components used at the plant, will be installed at the test facility to allow the testing of the main valve. The test conditions at the test facility are similar to those normal operating conditions in the plant. The NRC staff finds that the proposed alternative captures the valve stroke testing and the stroke-time test data required by ASME OM-2012 Code, and therefore, is acceptable. The NRC staff finds that with the proposed alternative, the valve stroke time is adequately measured and the results are compared to a pre-established reference value, and therefore, is acceptable.

The NRC staff finds that the proposed alternative testing of the ERVs and associated components provides reasonable assurance that the valves will continue to operate when called upon to perform their safety-related function. Therefore, the NRC staff finds that the proposed alternative testing frequency and methods to those required by the ASME OM-2012 Code Edition provide an acceptable level of quality and safety.

3.3 Relief Request CRD-VR-01

3.3.1 Applicable Code Requirements

The Nine Mile Point, Unit 1, fifth 10-year IST program interval begins on January 1, 2019, and is scheduled to end on December 31, 2028. The applicable ASME OM Code edition for the Nine Mile Point, Unit 1, fifth 10-year IST program interval is the 2012 Edition.

ISTC-5131, "Valve Stroke Testing," (a), states, "Active Valves shall have their stroke times measured when exercised in accordance with para. ISTC-3500."

3.3.2 Code Components Affected

The licensee has requested to use the proposed alternative described below for the scram discharge volume (SDV) containment isolation valves (CIVs) listed in the following table.

Table 3

Component	**Description**	**ASME Code Class**	**ASME OM Valve Category**
IV-44.2-15	SDV Vent Inboard Isolation Valve (IV)	2	A
IV-44.2-16	SDV Vent Outboard IV	2	A
IV-44.2-17	SDV Drain Outboard IV	2	A
IV-44.2-18	SDV Drain Inboard IV	2	A

3.3.3 Reason for Request

The licensee stated:

> The SDV CIVs are normally open valves. These valves close on the loss of air or the de-energizing of the solenoid valves (SOV-113-275 and SOV-113-276 for IV-44.2-16 and IV-44.2-17; and SOV-113-273 and SOV-113-274 for IV-44.2-15 and IV-44.2-18). The SDV air header and valve arrangement are single failure proof. The solenoid valves are powered from either reactor trip bus (RTB) 131 or 141 through fuses. Removing the fuses to fail-safe test these valves causes a scram in approximately six (6) seconds due to the de-energizing of SOV-113-271 and SOV-113-272. Venting the scram air header due to exercising of the valves

by pulling fuses subjects the control rod drives to higher differential pressures than observed during a scram at normal operating conditions. The high differential pressure applied to control rods fully inserted has resulted in equipment damage.

Testing via the safety-related scram exhaust path cannot be performed during power operation since this could result in a plant trip. The safety-related exhaust path (scram path) is through SOV-113-275 and SOV-113-276 or SOV-113-273 and SOV-113-274 exhaust ports. A test solenoid valve (SOV-113-277) was installed as a result of Information Bulletin (IEB) No. BL-80-17, ["Failure of 76 of 185 Control Rods to Fully Insert During a Scram at a BWR,"] dated July 3, 1980, to permit fail-safe and stroke time testing without causing a scram. The test solenoid exhaust path (test path) adds a restriction that is not present in the scram path. When the test solenoid is energized, the SDV air header and valve actuators are vented through SOV-113-277.

The restriction is due to exhausting air through the SOV-113-274 and SOV-113-276 air inlet supply port, since the solenoids are energized. The solenoid valve employs an internal pilot in the inlet port. Air can exhaust through the inlet port; however, the flow path is not a fixed resistance path. The variable resistance can cause variations in the quarterly stroke time measurements of the valves. These variations can result in inaccurate stroke times and mask the true valve performance. This limits the ability to accurately monitor for and detect degradation. Additionally, the test path is not the safety-related exhaust path (scram path) for the CIVs.

Stroke time testing through the scram path can be performed during refueling outages. Stroke times obtained during refueling outage tests (using the scram vent path) have provided consistent accurate results. This testing method provides an accurate indication of valve performance and provides the ability to monitor for and detect degradation.

3.3.4 Proposed Alternative and Basis for Use

The licensee stated that the SDV CIVs listed in Table 3 above will be full stroke exercised and fail safe tested quarterly using the test solenoid valve. These SDV CIVs will be stroke-time tested through the scram path during refueling outages.

3.3.5 NRC Staff Evaluation

Testing of the SDV CIVs by the safety-related scram exhaust path cannot be performed during power operation. A test solenoid valve was installed to permit fail safe and stroke-time testing, without causing a scram. The test solenoid exhaust path adds a restriction that is not present in the scram path and introduces a variable system resistance into the test flow path. The variable resistance can cause variations in the quarterly stroke-time measurements of the valves. These variations can result in inaccurate stroke times and mask true valve performance.

The quarterly test path is not the safety-related exhaust path for the SDV CIVs and does not provide accurate indication as to valve stroke times utilizing the normal flow path. Stroke-time testing through the scram path can be performed during refueling outages. Stroke times obtained during refueling outage tests provide consistent test results. The licensee proposes to full-stroke exercise and fail safe test the valves quarterly using the test solenoid valve and stroke-time test the valves through the scram path during refueling outages, which has provided consistent and accurate stroke times. This testing method provides an accurate indication of valve performance and provides the ability to monitor for and detect degradation. Therefore, the licensee's proposed alternative will provide an acceptable level of quality and safety. The NRC staff finds the use of the proposed alternative for the current Nine Mile Point, Unit 1, IST program interval.

3.4 Relief Request CTNH202-VR-01

3.4.1 Applicable Code Requirements

ISTC-5131(a), "Valve Stroke Testing," states that, "Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500."

ISTC-5132, "Stroke Test Acceptance Criteria," states that, "Test results shall be compared to the reference values established in accordance with ISTC-3300, ISTC-3310, or ISTC-3320."

3.4.2 Code Components Affected

Alternative testing is requested for the following valves:

Table 4

Valve Number	Valve Name	ASME Code Class	ASME OM Category
IV-201.2-109	#11 Torus Return Inboard Isolation Valve	2	A
IV-201.2-110	#11 Torus Sample Inboard Isolation Valve	2	A
IV-201.2-111	#11 Torus Sample Outboard Isolation Valve	2	A
IV-201.2-112	#11 Torus Return Outboard Isolation Valve	2	A
IV-201.7-01	#11 Sample Stream B Inboard Isolation Valve	2	A
IV-201.7-02	#11 Sample Stream B Outboard Isolation Valve	2	A
IV-201.7-08	DW CAM Sample Inboard Isolation Valve	2	A
IV-201.7-09	DW CAM Sample Outboard Isolation Valve	2	A
IV-201.7-10	#11 DW Return Inboard Isolation Valve	2	A
IV-201.7-11	#11 DW Return Outboard Isolation Valve	2	A

3.4.3 Reason for Request

The licensee stated, in part:

> These pneumatically operated valves are grouped together on common control switches. The groups are:
>
> - IV-201.8-08, IV-201.7-09, IV-201.7-10, & IV-201.7-11
> - IV-201.2-109, IV-201.2-112, IV-201.2-110, IV-201.2-111, IV-201.7-01, & IV-201.7-02
>
> These arrangements have a common closed light (green) for a group of valves and individual open lights (red) for each valve. Reference values are established for each group by timing the valves for at least three exercises. The exercising is

conducted over a sufficient interval to prevent erroneous data due to preconditioning. An individual reference value is developed for each valve in a group. A composite (group) reference value is developed by averaging the individual reference values. Typically, the individual valve's reference values are within ± 0.5 second of the group reference value.

As needed, primarily after rework or repair, the individual reference values and the group reference value are re-established. This group reference value is used as a common reference value for each valve in the group. The valve stroke-time test uses switch-actuation-to-red-light-out (closed indication) for open-to-close stroke time. The stroke time of the slowest valve is observed and recorded. Typically, the slowest valve is not always the same component within the group. If the slowest valve exceeds the acceptance criterion (i.e., ± 50% of the group reference value), the group is declared inoperable. Corrective action is then taken, per ISTC-5133, Stroke Test Corrective Action.

The group reference values are less than 10 seconds, significantly below the Updated Final Safety Analysis Report (UFSAR), Table VI-3b, Primary Containment Isolation Valves Lines Entering Free Space of the Containment, maximum operating time of 60 seconds. While some performance degradation is masked by this testing methodology, nuclear safety will not be compromised. Prior to any valve degrading and exceeding the UFSAR maximum operating time of 60 seconds, the acceptance criterion would be significantly exceeded, and corrective action would be taken. The proposed alternative testing method provides an adequate capability to monitor and detect individual valve degradation prior to exceeding the UFSAR maximum operating time. This method provides an equivalent level of quality and safety compared to the Code required individual valve stroke-timing.

3.4.4 Proposed Alternative and Basis for Use

The licensee stated:

> NMPNS proposes to establish individual reference values, group reference values, and group acceptance criteria. Stroke-timing of the valve groups will record the slowest operating valves' corresponding stroke time. NMPNS will then compare the slowest valve stroke time to the acceptance criterion to determine the valve group operability status. Corrective actions will be taken, as required, for exceeding the acceptance criterion.

This request, upon approval, will be applied to the Nine Mile Point, Unit 1, fifth 10-year interval, which begins on January 1, 2019, and is scheduled to end on December 31, 2028.

3.4.5 NRC Staff Evaluation

The ASME OM Code requires that active valves have their stroke times measured and assessed when exercised in accordance with ISTC-3500. The valves listed in Table 4 have been placed in a group that is operated by a common control switch. Each valve group has a common closed light and individual valve open lights. Reference values are established for each group by timing the valves for at least three exercises. The exercising is conducted over a sufficient interval to prevent erroneous data due to preconditioning. An individual reference value is developed for each valve in a group. A composite (i.e., group) reference value is developed by averaging the individual reference values.

The licensee proposes to establish power operated valve group stroke-time reference values and to evaluate acceptance based upon deviation from this reference. If the slowest valve in the group exceeds the acceptance criterion, the group is declared inoperable, and corrective actions are taken. The proposed acceptance criterion is consistent with the Code requirement, which states that valves with reference stroke times less than or equal to 10 seconds shall exhibit no more than a 50 percent change in stroke time when compared to the reference value. The proposed alternative will detect individual valve degradation, provide reasonable assurance of valve operational readiness, and provide an acceptable level of quality and safety.

3.5 Relief Request CTNH202-VR-02

3.5.1 Applicable Code Requirements

ISTC-5151(a), "Valve Stroke Testing," states that, "Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500."

ISTC-5122, "Stroke Test Acceptance Criteria," states that, "Test results shall be compared to the reference values established in accordance with ISTC-3300, ISTC-3310, or ISTC-3320."

3.5.2 Code Components Affected

Alternative testing is requested for the following valves:

Table 5

Valve Number	Valve Name	ASME Code Class	ASME OM Category
IV-201.2-23	#12 Torus Sample Inboard Isolation Valve	2	A
IV-201.2-24	#12 Torus Sample Outboard Isolation Valve	2	A
IV-201.2-29	#12 Drywell Sample Inboard Isolation Valve	2	A
IV-201.2-30	#12 Drywell Sample Outboard Isolation Valve	2	A

3.5.3 Reason for Request

The licensee stated, in part:

> These solenoid operated valves are grouped together on common control switch. The group is:
>
> - IV-201.2-23, IV-201.2-24, IV-201.2-29, & IV-201.2-30
>
> This arrangement has a common closed light (green) for each pair of valves and individual open lights (red) for each valve. A reference value is established for each pair by timing the valves for at least three exercises. The exercising is conducted over a sufficient interval to prevent erroneous data due to pre-conditioning. A composite (group) reference value is developed by averaging the individual valve pair reference values. Individual reference values are not established. These valves stroke in less than 2 seconds and are all designated as

"rapid acting" valves. A limiting value of 2 seconds is assigned to the group. As needed, primarily after rework or repair, the individual reference values and the group reference value are re-established. This group reference value is used as a common reference value for each valve in the group. The valve stroke-time test uses switch actuation to red light out (closed indication) for open to close stroke time. The stroke time of the slowest valve is observed and recorded. Typically, the slowest valve is not always the same component within the group. If the slowest valve exceeds the acceptance criterion (i.e., ± 50% of the group reference value), the group is declared inoperable. Corrective action is then taken, per ISTC-5153, Stroke Test Corrective Action.

The group limiting value of 2 seconds is significantly below the Updated Final Safety Analysis Report (UFSAR), Table VI-3b, Primary Containment Isolation Valves Lines Entering Free Space of the Containment, maximum operating time of 60 seconds. While some performance degradation is masked by this testing methodology, nuclear safety will not be compromised. Prior to any valve degrading and exceeding the UFSAR maximum operating time of 60 seconds, the acceptance criterion would be significantly exceeded, and corrective action would be taken. The proposed alternative testing method provides an adequate capability to monitor and detect individual valve degradation prior to exceeding the UFSAR maximum operating time of 60 seconds. This method provides an equivalent level of quality and safety compared to the Code required individual valve stroke timing.

3.5.4 Proposed Alternative and Basis for Use

The licensee stated, in part:

> NMPNS proposes to establish valve pair reference values, group reference values, and group acceptance criteria. Stroke-timing of the valve groups will record the slowest operating valves' corresponding stroke-time. NMPNS will then compare the slowest valve stroke-time to the acceptance criterion to determine the valve group operability status. Corrective actions will be taken, as required, for exceeding the acceptance criterion.
>
> This request, upon approval, will be applied to the NMPNS, Unit No. 1, fifth 10-year interval, which begins on January 1, 2019, and is scheduled to end on December 31, 2028.

3.5.5 NRC Staff Evaluation

The ASME OM Code requires that active valves have their stroke times measured and assessed when exercised in accordance with ISTC-3500. The valves listed in Table 5 are solenoid operated valves that are grouped together on a common control switch. The valves are paired, and each pair has a common closed light and individual open lights. A reference value is established for each pair of valves by timing the valves for at least three exercises. The exercising is conducted over a sufficient interval to prevent erroneous data due to preconditioning. A composite (i.e., group) reference value is developed by averaging the valve pair reference values. The valves stroke in less than 2 seconds and are designated as rapid acting valves. A limiting value of 2 seconds is assigned to the group.

The licensee proposes to establish valve group stroke-time reference values and to evaluate acceptance based upon deviation from this reference. If the slowest valve in the group exceeds the acceptance criterion, the group is declared inoperable, and corrective actions are taken. The acceptance criterion is consistent with the Code requirement, which states that valves with reference stroke times less than or equal to 2 seconds may have a maximum stroke time of 2 seconds. The proposed alternative will detect individual valve degradation, provide reasonable assurance of valve operational readiness, and provide an acceptable level of quality and safety.

3.6 Relief Request MS-VR-01

3.6.1 Applicable Code Requirements

Appendix I, paragraph I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," (a) "5-Year Test Interval" states that Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested within each interval; however, a minimum of 20 percent of the valves from each valve group shall be tested within any 24-month interval. This 20 percent shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any individual valve shall not exceed 5 years."

ASME OM Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves," from the 2009 Edition of the ASME OM Code, allows a 6-year test interval, plus an additional 6-month grace period coinciding with a refueling outage, in order to accommodate extended shutdown periods.

3.6.2 Code Components Affected

Alternative testing is requested for the following valves:

Table 6

Valve Number	Valve Name	ASME Code Class	ASME OM Category
PSV-01-119A	Reactor Pressure Vessel Safety Valve (RPVSV)	1	C
PSV-01-119B	RPVSV	1	C
PSV-01-119C	RPVSV	1	C
PSV-01-119D	RPVSV	1	C
PSV-01-119E	RPVSV	1	C
PSV-01-119F	RPVSV	1	C
PSV-01-119G	RPVSV	1	C
PSV-01-119H	RPVSV	1	C
PSV-01-119J	RPVSV	1	C
PSV-01-119M	RPVSV	1	C

3.6.3 Reason for Request

The licensee stated, in part:

> The nine (9) reactor pressure vessel safety valves provide Code-required overpressure protection to the reactor pressure vessel and the Class 1 reactor recirculation system and are located on the reactor vessel head inside the primary containment. In the event of main steam isolation valve (MSIV) closure, the safety valves are designed and sized to limit the pressure rise to 110% of the design pressure.
>
> The Dresser Model 3777QA, spring-loaded safety valves have shown exemplary test history at NMP1. However, given the current 24-month operating cycle, NMP1 is required to remove and test approximately fifty (50) percent of the safety valves every refueling outage (i.e., alternating between either four or five of the nine each outage), so that all valves are removed and tested every two refueling outages. This ensures compliance with the ASME OM Code requirements for testing Class 1 pressure relief valves within a 5-year interval.

3.6.4 Proposed Alternative and Basis for Use

The licensee stated, in part:

> As an alternative to the Code-required 5-year test interval per Mandatory Appendix I, paragraph I-1320(a), Exelon proposes that the subject Class 1 Reactor Pressure Vessel Safety Valves be tested at least once every three (3) refueling cycles (approximately 6 years/72 months) with a minimum of 20% of the valves tested within any 24-month interval. This 20% would consist of valves that have not been tested during the current 72-month interval, if they exist. The test interval for any individual valve would not exceed the 72 months, except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods and certification of the valve prior to installation.
> After as-found set pressure testing, the valves shall be disassembled and inspected to verify that parts are free of defects resulting from time-related degradation or service induced wear. As-left set pressure testing shall be performed following maintenance and prior to returning the valve(s) to service. Each valve shall be disassembled and inspected prior to the start of the 72-month interval. [This process is in accordance with ASME OM Code Case-OMN-17.]

The proposed alternative would be used for the entire fifth 10-year interval, which begins June 1, 2018, and ends on September 30, 2027.

3.6.5 NRC Staff Evaluation

ASME published Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves," in the 2009 Edition of the OM Code. Code Case OMN-17 allows extension of the test frequency for SRVs from 5 years to 72 months with a 6-month grace period. The Code case imposes a special maintenance requirement to disassemble and inspect each SRV to verify that parts are free from defects resulting from the time-related degradation or maintenance-induced wear prior to the start of the extended test interval. The NRC staff recognizes that although Mandatory Appendix I, paragraph I-1320(a) of the ASME OM Code does not require that SRVs be routinely refurbished when tested on a 5-year interval, routine refurbishment provides additional assurance that set pressure drift during subsequent operation is minimized. Consistent with the special maintenance requirement in Code Case OMN-17, the licensee stated that each reactor pressure vessel safety valve will be as-found tested, disassembled, inspected, and repaired prior to installation to verify that parts were free from defects resulting from time-related degradation or maintenance-induced wear.

The NRC staff finds that extending the test interval of safety valves listed in Table 1 to 72 months, with a 6-month grace period, is acceptable. Extending the test interval should not adversely affect the operational readiness of the reactor pressure vessel safety valves because they will be disassembled, inspected, and reworked to defect free condition prior to the start of the extended test interval. The additional maintenance that is beyond what is required by OM Code Mandatory Appendix I when testing reactor pressure vessel safety valves on a 5-year interval justifies extension of the test interval for up to 72 months, plus a 6-month grace period, while providing an acceptable level of quality and safety.

3.7 Relief Request RBCLC-PR-01

3.7.1 Applicable Code Requirements

The Nine Mile Point, Unit 1, fifth 10-year IST program interval begins on January 1, 2019, and is scheduled to end on December 31, 2028. The applicable ASME OM Code edition for the Nine Mile Point, Unit 1, fifth 10-year IST program interval is the 2012 Edition. The licensee requested an alternative to the pump testing requirements of the ASME OM Code.

Table ISTB-3000-1,"Inservice Test Parameters," provides the parameters for flow rate (Q) and differential pressure (ΔP) for the Group A pump test.

ISTB-3400, "Frequency of Inservice Tests," states, "An inservice test shall be run on each pump as specified in Table ISTB-3400-1."

Table ISTB-3400-1, "Inservice Test Frequency," provides Group A pump test frequency as quarterly.

ISTB-5121, "Group A Test Procedure," states, in part, that, "Group A tests shall be conducted with the pump operating as close as practical to a specified reference point and within the variances from the reference point as described in this paragraph. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph."

3.7.2 Code Components Affected

The licensee has requested to use the proposed alternative described below for the pumps listed in the following table.

Table 7

Pump ID	Pump Description	ASME Code Class	ASME OM Pump Group
PMP-70-01	Reactor Building Closed Loop Cooling Water (RBCLC) #11	3	A
PMP-70-02	RBCLC #12	3	A
PMP-70-03	RBCLC #13	3	A

3.7.3 Reason for Request

The licensee stated, in part:

> The RBCLC system is not a fixed resistance system. For the RBCLC system, no pump test loops or individual pump flow instrumentation is installed. Individual pump flow can only be determined by measuring system flow rate. The system flow rate and differential pressure are a function of the number of pumps running and system heat loads. During normal plant operations, system heat loads prevent removing the RBCLC system from service. Operating conditions do not permit single pump operation at repeatable test conditions to allow individual pump parameters (i.e., flow rate and differential pressure) to be measured.
>
> Therefore, during normal plant operation, operating a single RBCLC pump at a fixed reference condition to perform a Group A test would require reducing system heat loads and may result in a plant shutdown to cold shutdown conditions. Complying with the Code would require NMP1 to enter cold shutdown conditions every quarter, where RBCLC system operating conditions allow single pump operation. Cold shutdown reduces system heat loads sufficiently to allow single RBCLC pump operation at a fixed reference condition and thus allows measurement of individual pump parameters (i.e., flow rate and differential pressure). [Performing the Group A test on an individual pump on a quarterly basis poses a significant hardship.]
>
> Alternatively, compliance could be achieved by a major system redesign and modification such as installation of individual pump test loops with flow instrumentation. This would allow a single pump to be removed from the system flow path and operated on a test flow path at Code required fixed reference conditions. Such a major system modification would be costly and burdensome with no compensating increase in the level of quality or safety.

3.7.4 Proposed Alternative and Basis for Use

Quarterly, during normal system operation, the licensee will measure vibration for each RBCLC pump. During cold shutdowns, all the applicable parameters for a Group A test (flow rate, vibration, and differential pressure) shall be measured for each RBCLC pump. The comprehensive pump test will also be performed biennially for each RBCLC pump.

3.7.5 NRC Staff Evaluation

There are no test loops or individual flow instrumentation for the RBCLC system pumps. Individual pump flow can only be determined by measuring the system flow rate. The system flow rate and differential pressure are a function of the number of pumps running and the system heat loads. Therefore, the operating conditions when two or more pumps are running do not permit repeatable test conditions for individual pump parameters to be measured. Normal system heat loads require operation of more than one RBCLC pump, and operation of a single RBCLC pump for pump testing may result in a plant shutdown. Imposing the ASME OM Code requirements for a Group A test would necessitate a system redesign and modification such as the installation of a test loop and flow instrumentation, which would be costly and burdensome to the licensee. As such, the licensee proposes for each RBCLC pump to perform the quarterly Group A pump testing only measuring the vibration, and to defer the ASME OM Code-specified Group A test to cold shutdowns using the normal system flow path. The comprehensive pump test will be performed biennially as required by the ASME OM Code. Evaluation of the results from the ASME OM Code specified Group A test at cold shutdown, as well as the results from the pump vibration tests quarterly, along with the biennial comprehensive pump test, should allow an adequate determination of pump operational readiness and permit the detection of degradation.

The NRC staff finds that compliance with the ASME OM Code-required Group A pump test requirements cannot be achieved without major system modifications and would result in hardship or unusual difficulty, without a compensating increase in the level of quality or safety. The NRC staff also finds that the alternative described in the licensee's proposal provides reasonable assurance of pump operational readiness. It is noted that the NRC staff authorized the use of this alternative for the current Nine Mile Point, Unit 1, IST program interval.

3.8 Relief Request MSS-VR-01

3.8.1 Applicable Code Requirements

The applicable Code for the fourth interval of the Nine Mile Point, Unit 2, IST program is the ASME OM-2012 Code Edition with no Addenda.

The licensee requested relief from Mandatory Appendix I, I-1320, which requires that Class 1 pressure relief valves be tested at least once every 5 years, with a minimum of 20 percent of the valves from each valve group tested within any 24-month interval. This 20 percent shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any individual valve shall not exceed 5 years.

3.8.2 Code Components Affected

Relief was requested for the following Nine Mile Point, Unit 2, Class 1 main SRVs:

2MSS*PSV120	2MSS*PSV121	2MSS*PSV122
2MSS*PSV123	2MSS*PSV124	2MSS*PSV125
2MSS*PSV126	2MSS*PSV127	2MSS*PSV128
2MSS*PSV129	2MSS*PSV130	2MSS*PSV131

2MSS*PSV132	2MSS*PSV133	2MSS*PSV134
2MSS*PSV135	2MSS*PSV136	2MSS*PSV137

3.8.3 Reason for Request

The licensee stated in its application:

> Appendix I, Section I-1320(a) of the ASME OM-2012 Code states, in part, that Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation. This section also states a minimum of 20% of the pressure relief valves are tested within any 24-month interval and that the test interval for any individual valve shall not exceed 5 years. The required tests ensure that the Safety Relief Valves (SRVs), which are located on each of the Main Steam (MS) lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analysis.
>
> However, given the current 24-month operating cycle, NMP2 would be required to remove and test approximately half of the SRVs every refueling outage in order to ensure that all valves are removed and tested in compliance with the ASME OM-2012 Code requirements for testing Class 1 pressure relief valves within a 5-year interval. With a 5-year interval, NMP2 would be required to remove all 18 SRVs over 2 refuel cycles (i.e., 4 years). However, consistent with the previously approved alternative MSS-VR-01, Revision 1 (ML15345A006), approval of extending the test interval to 6.5 years will reduce the number of SRVs removed during an individual outage, such that the full scope of 18 SRVs are replaced over 3 refuel cycles (i.e., 6 years, plus 6 months grace). This is consistent with the test interval and grace period described in ASME Code Case OMN-17, Alternate Rules Class 1 Pressure/Safety Valves, and continues to provide an acceptable level of quality and safety while restoring the operational and maintenance flexibility that was lost when the 24-month fuel cycle produced the unintended consequence of additional testing burden. Without Code relief, the incremental outage work due to the inclusion of the additional 2 - 3 SRVs per outage would be contrary to the principle of maintaining radiation dose As Low As Reasonably Achievable (ALARA). The removal and replacement of the additional 2 - 3 SRVs per outage without Code relief results in an additional exposure of approximately 2 - 4 Rem each outage. Additionally, the grace period allows for flexibility in the scheduling of as-left and as-found set-pressure testing, which is based on a test-to-test frequency.

3.8.4 Proposed Alternative and Basis for Use

The licensee stated in its application:

> As an alternative to the Code required 5-year test interval per Appendix I, paragraph I-1320(a), Exelon proposes that the subject Class 1 pressure relief valves be tested at least once every three (3) refueling cycles (approximately 6 years/72 months) with a minimum of 20% of the valves tested within any 24-month interval. This 20% would consist of valves that have not been tested during the current 72-month interval, if they exist. The test interval for any individual valve would not exceed 72 months except that a 6-month grace period

is allowed to coincide with refueling outages to accommodate extended shutdown periods and certification of the valve prior to installation. As-found testing using steam and subsequent valve maintenance are currently performed at an off-site test facility. Subsequent to completion of as-found testing, each SRV in the removed complement is disassembled to perform inspections and a complete valve overhaul. Any SRV that failed the as-found set-pressure test is inspected to determine the cause of the test failure. Valve overhaul is performed to ensure that parts are free of defects resulting from time related degradation or service induced wear. All identified adverse conditions are corrected, the disc and seats are lapped, and the valve is reassembled. Each SRV is then recertified for service through inspection and testing consistent with ASME OM Code requirements, including set-pressure, seat tightness, stroke time and disc lift verifications, solenoid coil pick up/drop out, and air actuator integrity tests.

After recertification testing, the SRVs are stored at the test facility for future use. The storage area is inspected and maintained to the requirements of ANSI/ASME N45.2.2, Packing, Handling, Shipping, Storage and Handling of Items for Nuclear Power Plants, which will minimize the potential for any valve degradation.

3.8.5 <u>NRC Staff Evaluation</u>

The Nine Mile Point, Unit 2, main steam SRVs are ASME Code Class 1 pressure relief valves, which provide overpressure protection for the reactor coolant pressure boundary to prevent unacceptable radioactive release and exposure to plant personnel. ASME OM Code, Mandatory Appendix I, requires that Class 1 pressure relief valves be tested at least once every 5 years. However, Mandatory Appendix I does not require that pressure relief valves be disassembled and inspected as part of the 5-year test requirement. In lieu of the 5-year test interval, the licensee proposed to implement requirements similar to ASME OM Code Case OMN-17, which allows a test interval of 6 years, plus a 6-month grace period. The ASME Committee on OM developed Code Case OMN-17 and published it in the 2009 Edition of the ASME OM Code. However, ASME OM Code Case OMN-17 imposes an additional special maintenance requirement to disassemble and inspect each pressure relief/safety valve to verify that parts are free from defects resulting from time-related degradation or service-induced wear, coincident with each required test during the interval. The purpose of this maintenance requirement is to reduce the potential for pressure relief valve set-point drift.

ASME OM Code Case OMN-17 has not yet been added to RG 1.192, nor is it included in 10 CFR 50.55a by reference. However, the NRC has allowed licensees to use ASME OM Code Case OMN-17 provided all requirements in the Code Case are met. Consistent with the special maintenance requirement in ASME OM Code Case OMN-17, each main steam SRV at Nine Mile Point, Unit 2, will be disassembled and inspected to verify that internal surfaces and parts are free from defects or service-induced wear prior to the start of the next test interval. This maintenance will also help to reduce the potential for set-point drift and increase the reliability of these SRVs to perform their design requirement functions. Consistent with the special maintenance requirement in ASME OM Code Case OMN-17, critical components will be inspected for wear and defects.

Additionally, the NRC staff's review of recent set-point testing results shows that the SRV maintenance practices employed at Nine Mile Point, Unit 2, have been effective, as evidenced by no test failures over the last three refueling outage test cycles.

Based on the historical performance of the set-point testing of the main steam SRVs at Nine Mile Point, Unit 2, and disassembly and inspection of the main steam SRVs prior to use, the NRC staff finds that the proposed alternative test frequency for the testing of the main steam SRVs at Nine Mile Point, Unit 2, in lieu of the requirements of the 2012 Edition with no Addenda, Mandatory Appendix I, Section 1320 of the ASME OM Code, provides an acceptable level of quality and safety.

4.0 CONCLUSION

As set forth above, the NRC staff has determined that Exelon has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1) for Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, and MSS-VR-01, and in 10 CFR 50.55a(z)(2) for Relief Request RBCLC-PR-01. The proposed alternatives described in Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, and MSS-VR-01 provide an acceptable level of quality and safety. The proposed alternative described in Relief Request RBCLC-PR-01 provides reasonable assurance that the affected pumps are operational ready and compliance with the code requirement would result in hardship or unusual difficultly, without a compensating increase in the level of qualify or safety. The NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorize the use of the alternative requests described in Relief Requests GVRR-3, ADS-VR-01, CRD-VR-01, CTNH202-VR-01, CTNH202-VR-02, MS-VR-01, RBCLC-PR-01, and MSS-VR-01. The fifth and fourth 10-year IST intervals for Nine Mile Point, Units 1 and 2, are scheduled to begin on January 1, 2019, and end on December 31, 2028.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject requests for relief remain applicable.

Principal Contributors: G. Bedi
M. Farnan
R. Wolfgang
I. Tseng

Date: November 13, 2018

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2 - RELIEF FROM THE REQUIREMENTS OF THE ASME CODE (EPID L-2017-LLR-0145 THROUGH EPID L-2017-LLR-0152) DATED NOVEMBER 13, 2018

DISTRIBUTION:
PUBLIC
PM File Copy
RidsNrrDorlLpl1
RidsRgn1MailCenter
RidsACRS_MailCTR
RidsNrrLALRonewicz
RidsNrrPMNineMilePoint
RidsNrrDeEmib
GBedi, NRR
MFarnan, NRR
RWolfgang, NRR
ITseng, NRR
JBowen, OEDO
LBurkhart, OEDO

ADAMS Accession No.: ML18275A139 *by safety evaluation

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LA	NRR/DE/EMIB/BC*	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM
NAME	MMarshall	PTalukdar/LRonewicz	SBailey	JDanna	MMarshall
DATE	10/16/2018	10/16/2018	4/25/2018; 7/18/2018; 8/16/2018; and 9/26/2018	11/09/2018	11/13/2018

OFFICIAL RECORD COPY