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

February 26, 2016

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

SUBJECT: BYRON STATION, UNIT NOS. 1 AND 2 - RELIEF FROM THE REQUIREMENTS OF THE ASME CODE (CAC NOS. MF6432 AND MF6433)

Dear Mr. Hanson:

By letter dated June 22, 2015 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML15173A209), as supplemented by letter dated September 21, 2015 (ADAMS Accession No. ML15264A982), Exelon Generation Company, LLC (the licensee), submitted alternative requests RG-1, RP-2, and RP-3 to the U.S. Nuclear Regulatory Commission (NRC). The licensee proposed alternatives to certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), for the fourth 10-year IST program at Byron Station (Byron), Unit Nos. 1 and 2. The licensee also proposed alternative request RP-1, which was addressed by separate NRC staff correspondence and RV-1, which was withdrawn by the September 21, 2015, letter.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternatives in RP-2 and RP-3 on the basis that the alternatives provide an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(z)(2), the licensee requested to use the proposed alternatives in RG-1 on the basis that the alternatives provide reasonable assurance that the components are operationally ready and that compliance with the ASME OM Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The NRC staff has reviewed the subject requests and concludes, as set forth in the enclosed safety evaluation (SE), that the proposed alternatives RP-2 and RP-3 provide an acceptable level of quality and safety and that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

The NRC staff also concludes, as set forth in the enclosed SE, that the proposed alternative RG-1 provides reasonable assurance that the affected components are operationally ready, complying with the ASME OM Code requirements, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2).

Therefore the NRC staff authorizes the proposed alternatives RG-1, RP-2, and RP-3 for the fourth IST interval at Byron, Unit Nos. 1 and 2.

If you have any questions, please contact the Senior Project Manager, Joel S. Wiebe, at 301-415-6606 or via e-mail at Joel.Wiebe@nrc.gov.

Sincerely,

Justin C. Poole, Acting Branch Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454 and STN 50-455

Enclosure:
Safety Evaluation

cc w/encl: Distribution via ListServ

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ALTERNATIVE REQUESTS RG-1, RP-2, AND RP-3

FOR THE FOURTH 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

EXELON GENERATION COMPANY, LLC

BYRON STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-454 AND 50-455

1.0 INTRODUCTION

By letter dated June 22, 2015 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML15173A209), Exelon Generation Company, LLC (the licensee), submitted alternative requests RG-1, RP-2, and RP-3 to the U.S. Nuclear Regulatory Commission (NRC). The licensee proposed alternatives to certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), for the fourth 10-year IST program at Byron Station (Byron), Unit Nos. 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternatives in RP-2 and RP-3 on the basis that the alternatives provide an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(z)(2), the licensee requested to use the proposed alternative in RG-1 on the basis that it provides reasonable assurance that the components are operationally ready and that compliance with the ASME OM Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

2.0 REGULATORY EVALUATION

10 CFR 50.55a(f), "Inservice Testing Requirements," requires, in part, that the IST of certain ASME Code Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized by the NRC pursuant to paragraphs (z)(1) or (z)(2) of 10 CFR 50.55a.

In proposing alternatives or requesting relief, a licensee must demonstrate that: (1) the proposed alternative provides an acceptable level of quality and safety (10 CFR 50.55a(z)(1)),

and (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety (10 CFR 50.55a(z)(2)). Section 50.55a allows the NRC to authorize alternatives to ASME OM Code requirements upon making necessary findings.

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 NRC to grant the relief requested by the licensee.

3.0 TECHNICAL EVALUATION

The Code of Record for Byron, Unit Nos. 1 and 2 fourth 10-year IST program is the 2004 Edition through 2006 Addenda of ASME OM Code.

3.1 Licensee's Alternative Request RG-1

3.1.1 Applicable Code Requirements

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

ISTA-3120, "Inservice Test Interval," (a) states, "The frequency for inservice testing shall be in accordance with the requirements of Section IST."

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," notes that Group A and Group B pump tests are to be conducted quarterly and comprehensive pump tests are to be conducted biennially.

ISTC-3510, "Exercising Test Frequency," states, "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months, except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221, and ISTC-5222. Power-operated valves shall be exercise tested once per fuel cycle."

ISTC-3540, "Manual Valves," states, "Manual valves shall be full-stroke exercised at least once every 2 years, except where adverse conditions may require the valve to be tested more frequently to ensure operational readiness. Any increased testing frequency shall be specified by the Owner. The valve shall exhibit the required change of obturator position."

ISTC- 3630, "Leakage Rate for Other Than Containment Isolation Valves," (a) "Frequency," states, "Tests shall be conducted at least once every 2 years."

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

ISTC-5221,"Valve Obturator Movement," (c)(3), states, "At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in each group shall be disassembled and examined at least once every 8 years."

Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," (a), "5-Year

Test Interval," states, in part, "Class 1 pressure relief valves shall be tested at least once every 5 years, starting with initial electric power generation."

Mandatory Appendix I, I-1330, "Test Frequency, Class 1 Nonreclosing Pressure Relief Devices," states, "Class 1 nonreclosing pressure relief devices shall be replaced every 5 years unless historical data indicates a requirement for more frequent replacement."

Mandatory Appendix I, I-1340, "Test Frequency, Class 1 Pressure Relief Valves That Are Used for Thermal Relief Application," states, "Tests shall be performed in accordance with I-1320, Test Frequencies, Class 1 Pressure Relief Valves."

Mandatory Appendix I, I-1350, "Test Frequency, Classes 2 and 3 Pressure Relief Valves," (a), "10-Year Test Interval," states, in part, "Class 2 and 3 pressure relief valves, with the exception of PWR main steam safety valves, shall be tested every 10 years, starting with initial electric power generation."

Mandatory Appendix I, I-1360, "Test Frequency, Classes 2 and 3 Nonreclosing Pressure Relief Devices," states, "Classes 2 and 3 non-reclosing pressure relief devices shall be replaced every 5 years, unless historical data indicates a requirement for more frequent replacement."

Mandatory Appendix I, I-1370, "Test Frequency, Classes 2 and 3 Primary Containment Vacuum Relief Valves," states, "(a) Tests shall be performed on all Classes 2 and 3 containment vacuum relief valves at each refueling outage or every 2 years, whichever is sooner, unless historical data requires more frequent testing. (b) Leak tests shall be performed on all Classes 2 and 3 containment vacuum relief valves at a frequency designated by the Owner in accordance with Table ISTC-3500-1."

Mandatory Appendix I, I-1380, "Test Frequency, Classes 2 and 3 Vacuum Relief Valves, Except for Primary Containment Vacuum Relief Valves," states, "All Classes 2 and 3 vacuum relief valves shall be tested every 2 years, unless performance data suggest the need for a more appropriate test interval."

Mandatory Appendix I, I-1390, "Test Frequency, Classes 2 and 3 Pressure Relief Devices That Are Used for Thermal Relief Application," states, "Tests shall be performed on all Classes 2 and 3 relief devices used in thermal relief application every 10 years, unless performance data indicate more frequent testing is necessary. In lieu of tests the Owner may replace the relief devices at a frequency of every 10 years, unless performance data indicate more frequent replacements are necessary."

Mandatory Appendix II, "Check Valve Condition Monitoring Program," II-4000, "Condition-Monitoring Activities," (a), "Performance Improvement Activities," (1), states, in part, "If sufficient information is not currently available to complete the analysis required in II-3000, or if this analysis is inconclusive, then the following activities shall be performed at sufficient intervals over an interim period of the next 5 years or two refueling outages, whichever is less, to determine the cause of failure or the maintenance patterns."

Mandatory Appendix II, II-4000, (b), "Optimization of Condition-Monitoring Activities," (1)(e), states, "Identify the interval of each activity. Interval extensions shall be limited to one fuel cycle per extension. Intervals shall not exceed the maximum intervals shown in Table II-4000-1. All valves in a group sampling plan must be tested or examined again, before the interval can be extended again, or until the maximum interval would be exceeded. The requirements of ISTA-3120, Inservice Test Interval, do not apply."

3.1.2 Components for which Reliefs are Requested

All pumps and valves contained within the Byron IST Program scope.

3.1.3 Licensee's Reason for Requesting Relief

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 specification (TS) surveillance requirements (SRs). The TSs typically allow for a less than or equal to 25 percent extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting a TS surveillance (SR 3.0.2). However, Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying SRs 3.0.2 and 3.0.3 to Administrative Control Program Tests," states that SRs 3.0.2 and 3.0.3 cannot be applied to TS 5.5, "Programs and Manuals," for tests that are not associated with a TS SR.

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

With the TS-required surveillance testing, some tolerance is needed to allow adjusting ASME OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling IST that would minimize the conflicts between the need to complete the testing and plant conditions.

3.1.4 Licensee's Proposed Alternative

The licensee proposed to perform IST per ASME OM Code Case OMN-20, repeated below, for determining acceptable tolerances for pump and valve test frequencies. This Code Case was approved by the ASME OM Code Standards Committee in February 2012, and subsequently published in 2012 Edition of ASME OM Code. The proposed alternative will be utilized for the entire fourth 10-year interval and will apply to the various frequency specifications of the ASME OM Code for all pumps and valves contained within the IST Program scope.

ASME OM Code Case OMN-20 "Inservice Test Frequency"

IST and earlier editions and addenda of ASME OM Code specify component test frequencies 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 Section IST with a specified time period between tests as shown in the table below.

Frequency	Specified Time Period Between Tests
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

The specified time period between tests may be reduced or extended as follows:

(1) For periods specified as less than two years, the period may be extended by up to 25 percent for any given test.
(2) For periods specified as greater than or equal to two years, the period may be extended by up to 6 months for any given test.
(3) All periods specified may be reduced at the discretion of the Owner (i.e., there is no minimum period requirement).

Period extension is used to facilitate test scheduling and considers plant operating conditions that may not be suitable for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test or maintenance activities). Period extensions are not intended to be used repeatedly merely as an operational convenience to extend test intervals beyond those specified.

Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range) and other less than two year test frequencies not specified in the table above.

Period extensions may not be applied to the test frequency requirements specified in ASME OM Code Subsection ISTD, *Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-water Reactor Nuclear Power Plants*, as Subsection ISTD contains its own rules for period extensions.

(b) Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by the ASME OM Code.

A similar alternative request was authorized for Callaway Plant, Unit 1, by the NRC staff in a letter dated July 15, 2014 (ADAMS Accession No. ML14178A769).

3.1.5 NRC Staff Evaluation

Historically, licensees have applied and the NRC staff has accepted the standard TS definitions for IST intervals (including allowable interval) extensions to ASME OM Code required testing (Reference NUREG-1482 Revision 1, Section 3.1.3). Recently, the NRC staff reconsidered the allowance of the TS testing intervals and interval extensions for IST not associated with TS SRs. As noted in RIS 2012-10, the NRC determined that programmatic test frequencies can't be extended in accordance with the TS SR 3.0.2. This includes all IST described in the ASME OM Code not specifically required by the TS SRs.

The lack of a tolerance band on the ASME OM Code IST frequency restricts operational flexibility. The NRC staff recognized that, just as with TS required surveillance testing, some tolerance is needed to allow adjusting ASME OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. To provide operational flexibility when scheduling IST that minimize the conflicts between the need to complete the testing and plant conditions, the NRC staff sponsored and co-authored an ASME OM Code inquiry and Code Case to modify the ASME OM Code to include TS-like test interval definitions and interval extension criteria. The resultant ASME-Approved Code Case OMN-20, as shown above, was approved by the ASME Operation and Maintenance Standards Committee on February 15, 2012, with the NRC representative voting in the affirmative. Code Case OMN-20 was subsequently published in conjunction with the 2012 Edition of ASME OM Code.

Requiring the licensee to meet the ASME OM Code requirements, without an allowance for defined frequency and frequency extensions for IST of pumps and valves, results in a hardship without a compensating increase in the level of quality and safety. Based on the licensee's proposal to adopt the ASME-Approved Code Case OMN-20 in its entirety and prior acceptance of the similar TS test interval definitions and interval extension criteria, the NRC staff finds that implementation of the ASME-approved OM Code Case OMN-20 provides reasonable assurance of operational readiness of pumps and valves subject to the IST requirements of ASME OM Code.

3.2 Licensee's Alternative Request RP-2

3.2.1 Applicable Code Requirements

Table ISTB-3510-I requires instrument accuracy of ± 0.5 percent for pressure during comprehensive pump test (CPT).

3.2.2 Components for Which Relief is Requested

OSX02PA Essential Service Water Makeup Pump A
OSX02PB Essential Service Water Makeup Pump B

3.2.3 Licensee's Reason for Requesting Relief

Due to the design of the Essential Service Water (SX) makeup pumps (vertical line shaft), the suction pressure can only be determined by using a combination of river level, traveling screen differential level and pump elevation. However, due to high turbulence and inherent gauge quality, it is not possible to calibrate this instrument to less than 0.5 percent. The installed traveling screen differential level instrument accuracy is 1.8 percent, and the accuracy does not meet the requirements of Table ISTB-3510-1.

3.2.4 Licensee's Proposed Alternative

In lieu of direct measuring of the differential pressure, differential pressure is determined by subtracting the suction pressure from the discharge pressure. Due to the vertical design of these pumps, suction pressure is determined as follows:

$P_s = [L_r - (DL/12) - 661.75]/2.31$; where,
P_s = suction pressure in pounds per square inch gauge (psig)
L_r = river level (feet)
DL = traveling screen differential level (inches)
661.75 = pump elevation (feet)
2.31 = constant conversion for water (feet of head to psi)

The river elevation (L_r) is the determining factor in the calculation of suction pressure. River elevation varies between approximately 670 to 680 feet based on seasonal factors. The traveling screen differential level is normally less than 6 inches. The accuracy of the existing level instrument is ± 2 percent. This equates to a possible error of 0.12 inches. When converted to per square inch (psi), the maximum error is 0.0043 psi ([0.12 inches/12 inches/f] / 2.31). For the CPT of these pumps, the ASME OM Code-required accuracy for pressure is 0.5 percent. This equates to a maximum possible error of 0.03 inches. When converted to psi, the maximum error in the suction pressure is 0.0011 psi ([0.03 inches/12 inches/foot] / 2.31). The difference between the installed instrument and the code-required 0.5 percent accuracy amounts to 0.0032 psi. The difference is inconsequential when determining the suction pressure (normal range 3.0 to 5.0 per square inch gauge (psig). Therefore, the licensee proposes to perform the CPT of these pumps using 2 percent accuracy instruments for determining suction pressure. All other measurements and methods will meet the 0.5 percent accuracy requirements for determining pump differential pressure.

The proposed alternative was authorized for Byron's third 10-year IST program interval by NRC letter dated September 7, 2006 (ADAMS Accession No. ML062230351).

3.2.5 NRC Staff Evaluation

The ASME OM Code, Table ISTB-3510-1, requires that CPT differential pressure instrument accuracy be within ± 0.5 percent. The licensee requests relief from the ASME OM Code requirement because they have determined that the traveling screen level instrument does not meet the accuracy requirements for the SX Makeup Pumps A and B (0SX02PA and 0SX02PB). The licensee proposed to use the existing traveling screen level instrument that would determine the pump suction pressure to an accuracy of ± 2 percent. Differential pressure is driven primarily by discharge pressure, and the traveling screen level has little effect on the overall pressure differential calculation. With a reference value of 150 psi differential, a 2 percent accuracy for suction pressure would cause an error of 0.003 percent for differential pressure. Whereas, a 0.5 percent accuracy gauge would reduce the error to 0.00075 percent, and the effects of the small improvements are insignificant when compared to the reference values of pressure differential of 150 psig. The licensee has also demonstrated in Section 3.2.4 above that the difference between the installed instrument of 2 percent and the code-required 0.5 percent accuracy amounts to 0.0032 psi, and is inconsequential when determining the suction pressure of normal range 3.0 to 5.0 psig. Therefore, the NRC staff finds that use of the installed travelling screen instrument has little effect on the overall differential pressure of 150 psig.

The NRC staff has reviewed the Table ISTB-3510-1 requirements. The intent of the requirements is to ensure that accurate readings are obtained from differential pressure instrumentation to make degradation monitoring meaningful. Based on the above evaluation, the NRC staff finds that use of the installed traveling screen level instrumentation has

inconsequential effect when determining the suction pressure, and very little effect when determining overall differential pressure. Therefore, the NRC staff finds that the proposed alternative provides an acceptable level of quality and safety, and that the technical requirements of 10 CFR 50.55a (z)(1) have been met.

3.3 Licensee's Alternative Request RP-3

3.3.1 Applicable Code Requirements

ISTB-5121, "Group A Test Procedure," (b) states, in part, that "The resistance of the system shall be varied until the flow rate equals the reference point."

ISTB-5122, "Group B Test Procedure," (c) states, in part, that "System resistance may be varied as necessary to achieve the reference point."

ISTB-5123, "Comprehensive Test Procedure," (b) states, in part, that for centrifugal and vertical line shaft pumps, the resistance of the system shall be varied until the flow rate or, alternatively, differential pressure equals the reference point.

ISTB-5221, "Group A Test Procedure," (b) states, in part, that "The resistance of the system shall be varied until the flow rate equals the reference point."

ISTB-5222, "Group B Test Procedure," (c) states, that "System resistance may be varied as necessary to achieve the reference point."

ISTB-5223, "Comprehensive Test Procedure," (b) states, in part, that "The resistance of the system shall be varied until the flow rate equals the reference point."

ISTB-5321, "Group A Test Procedure," (b) states, in, part, that "The resistance of the system shall be varied until the discharge pressure equals the reference point."

ISTB-5322, "Group B Test Procedure," (c) states, in part, that "System resistance may be varied as necessary to achieve the reference point."

STB-5323, "Comprehensive Test Procedure," (b) states, in part, that "The resistance of the system shall be varied until the discharge pressure equals the reference point."

3.3.2 Components for Which Relief is Requested

The components for which relief is requested are all pumps currently tested in the Byron IST Program.

3.3.3 Licensee's Reason for Requesting Relief

The licensee states that for pump testing there is difficulty adjusting system throttle valves with sufficient precision to achieve exact flow, differential pressure or discharge pressure to exact reference values during subsequent IST examinations. Section ISTB of the ASME OM Code does not allow for variance from a fixed reference value for pump testing. However, NUREG-1482, Revision 2, "Guidelines for Inservice Testing at Nuclear Power Plants,"

acknowledge that certain pump system designs do not allow for the licensee to set the flow, differential pressure, or discharge pressure at an exact value because of limitations in the instruments and controls for maintaining steady flow.

The licensee further states that ASME OM Code Case OMN-21 provides guidance for adjusting flow, differential pressure or discharge pressure to reference values within a specified tolerance during the IST. The code case states, "It is the opinion of the Committee that when it is impractical to operate a pump at a specified reference point and adjust the resistance of the system to a specified reference point for either flow rate, differential pressure or discharge pressure, the pump may be operated as close as practical to the specified reference point with the following requirements. The Owner shall adjust the system resistance to as close as practical to the specified reference point where the variance from the reference point does not exceed +2 percent or -1 percent of the reference point when the reference point is flow rate, or +1 percent or -2 percent of the reference point when the reference point is differential pressure or discharge pressure.

3.3.4 Licensee's Proposed Alternative

The licensee proposes to perform future inservice pump testing in a manner consistent with the requirements as stated in ASME OM Code Case OMN-21. Specifically, testing of pumps will be conducted such that flow rate is adjusted as close as practical to the reference value and within procedural limits of +2 percent or -1 percent of the reference value. Conversely, if the reference parameter is differential pressure or discharge pressure, tests will be conducted such that differential pressure or discharge pressure is adjusted as close as practical to the reference value and within procedural limits of +1 percent or -2 percent of the reference value.

A similar alternative request was authorized for Callaway Plant, Unit 1 by the NRC staff in a letter dated July 15, 2014 (ADAMS Accession No. ML14178A769).

3.3.5 Staff Evaluation

An inquiry was submitted to the ASME OM Code Committee to determine what alternatives may be used when it is impractical to operate a pump at a specified reference point for flow rate, differential pressure, or discharge pressure. In response to the inquiry, ASME Code Case OMN-21 was developed to provide guidance on alternatives. The guidance in Code Case OMN-21 states that when it is impractical to operate a pump at a specified reference point for flow rate, differential pressure or discharge pressure, the pump may be operated as close as practical to the specified reference point with the following requirements. Code Case OMN-21 specifies that the variance from the reference point shall not exceed +2 percent or -1 percent of the reference point when the reference point is flow rate, or +1 percent or -2 percent of the reference point when the reference point is differential pressure or discharge pressure.

Code Case OMN-21 was approved by the ASME Operation and Maintenance Standards Committee on April 20, 2012, with the NRC representative voting in the affirmative. The licensee proposes to adopt Code Case OMN-21. The language from Code Case OMN-21 has been included in the ASME OM Code, 2012 Edition.

The NRC staff notes that in certain situations, it is not possible to operate a pump at a precise reference point. The NRC staff has reviewed the alternatives proposed in ASME OM Code

Case OMN-21 and found that the proposed alternatives are reasonable and appropriate when a pump cannot be operated at a specified reference point. Operation within the tolerance bands specified in ASME OM Code Case OMN-21 provides reasonable assurance that licensees will be able to utilize the data collected to monitor or detect degradation of the pumps. Based on its review of ASME OM Code Case OMN-21 and the licensee's commitment to use the bands specified in the code case for flow rate, the NRC staff finds that implementation of the alternatives contained in this Code Case provides an acceptable level of quality and safety, and that the technical requirements of 10 CFR 10.55a (z)(1) have been met.

4.0 CONCLUSION

As set forth above, the NRC staff determines that for requests RP-2 and RP-3, the proposed alternatives provide an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

As set forth above, the NRC staff also determines that for request RG-1, the proposed alternative provides reasonable assurance that the affected components are operationally ready, and complying with the ASME OM Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2).

Therefore, the NRC staff authorizes alternative requests RG-1, RP-2, and RP-3 for the Byron fourth 10-year IST program interval, which begins on July 1, 2016, and is scheduled to end on June 30, 2026. All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject requests remain applicable.

Principal Contributor: JHaung

Date of issuance: February 26, 2016

Therefore the NRC staff authorizes the proposed alternatives RG-1, RP-2, and RP-3 for the fourth IST interval at Byron, Unit Nos. 1 and 2.

If you have any questions, please contact the Senior Project Manager, Joel S. Wiebe, at 301-415-6606 or via e-mail at Joel.Wiebe@nrc.gov.

Sincerely,

/RA/

Justin C. Poole, Acting Branch Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454 and STN 50-455

Enclosure:
Safety Evaluation

cc w/encl: Distribution via ListServ

DISTRIBUTION:
PUBLIC
Branch Reading File
RidsACRS_MailCTR Resource
RidsNrrDorlDpr Resource
RidsNrrDorlLpl3-2 Resource
RidsNrrEPNB Resource
RidsNrrLASRohrer Resource
RidsNrrPMByron Resource
RidsRgn3MailCenter Resource
CSantos, EDO RIII

ADAMS Accession No. ML16022A135 ***via e-mail**

OFFICE	NRR/DORL/LPL3-2/PM	NRR/DORL/LPL3-2/LA	NRR/EPNB/BC*	NRR/DORL/LPL3-2/BC
NAME	JWiebe	SRohrer	DAlley	JPoole
DATE	2/25/16	2/1/16	1/15/2016	2/26/16

OFFICIAL RECORD COPY