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

October 31, 2017

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, UNIT 2 – ISSUANCE OF AMENDMENT TO REDUCE STEAM DOME PRESSURE IN REACTOR CORE SAFETY LIMITS (CAC NO. MF8942; EPID L-2016-LLA-0038)

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 164 to Renewed Facility Operating License No. NPF-69 for the Nine Mile Point Nuclear Station, Unit 2 (Nine Mile Point 2). The amendment consists of changes to the technical specifications (TSs) in response to your application dated December 13, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16348A368), as supplemented by letter dated February 17, 2017 (ADAMS Accession No. ML17048A034).

The amendment revises the Nine Mile Point 2 TSs safety limit to increase the low pressure isolation setpoint allowable value, which will result in earlier main steam line isolation. The revised main steam line low pressure isolation capability and the revised safety limit are intended to ensure that Nine Mile Point 2 remains within the TSs safety limits in the event of a pressure regulator failure maximum demand transient.

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

Michael L. Marshall, Jr., Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-410

Enclosures:
1. Amendment No. 164 to NPF-69
2. Safety Evaluation

cc w/Enclosures: Distribution via Listserv

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

NINE MILE POINT NUCLEAR STATION, LLC

LONG ISLAND LIGHTING COMPANY

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-410

NINE MILE POINT NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 164
Renewed License No. NPF-69

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Exelon Generation Company, LLC (Exelon, the licensee) dated December 13, 2016, as supplemented by letter dated February 17, 2017, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-69 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 164, are hereby incorporated into this license. Exelon Generation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 180 days.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:
Changes to the Facility Operating License
and Technical Specifications

Date of Issuance: October 31, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 164

NINE MILE POINT NUCLEAR STATION, UNIT 2

RENEWED FACILITY OPERATING LICENSE NO. NPF-69

DOCKET NO. 50-410

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page	Insert Page
4	4

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
2.0-1	2.0-1
3.3.6.1-6	3.3.6.1-6

(1) Maximum Power Level

Exelon Generation is authorized to operate the facility at reactor core power levels not in excess of 3988 megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 164, are hereby incorporated into this license. Exelon Generation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Fuel Storage and Handling (Section 9.1.SSER 4)*

a. Fuel assemblies, when stored in their shipping containers, shall be stacked no more than three containers high.

b. When not in the reactor vessel, no more than three fuel assemblies shall be allowed outside of their shipping containers or storage racks in the New Fuel Vault or Spent Fuel Storage Facility.

c. The above three fuel assemblies shall maintain a minimum edge-to-edge spacing of twelve (12) inches from the shipping container array and approved storage rack locations.

d. The New Fuel Storage Vault shall have no more than ten fresh fuel assemblies uncovered at any one time.

(4) Turbine System Maintenance Program (Section 3.5.1.3.10 SER)

The operating licensee shall submit for NRC approval by October 31, 1989, a turbine system maintenance program based on the manufacturer's calculations of missile generation probabilities. (Submitted by NMPC letter dated October 30, 1989 from C.D. Terry and approved by NRC letter dated March 16, 1990 from Robert Martin to Mr. Lawrence Burkhardt, III).

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* The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report (SER) and/or its supplements wherein the license condition is discussed.

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 700 psia or core flow < 10% rated core flow:

THERMAL POWER shall be ≤ 23% RTP.

2.1.1.2 With the reactor steam dome pressure ≥ 700 psia and core flow ≥ 10% rated core flow:

MCPR shall be ≥ 1.15 for two recirculation loop operation or ≥ 1.15 for single recirculation loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be ≤ 1325 psig.

2.2 SL Violations

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

Table 3.3.6.1-1 (page 1 of 5)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level – Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 10.8 inches
b. Main Steam Line Pressure – Low	1	2	E	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 814 psig
c. Main Steam Line Flow – High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 184.4 psid
d. Condenser Vacuum – Low	1,2[(a)], 3[(a)]	2	D	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 7.6 inches Hg vacuum
e. Main Steam Line Tunnel Temperature – High	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 170.6°F
f. Main Steam Line Tunnel Differential Temperature – High	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 71.7°F
g. Main Steam Line Tunnel Lead Enclosure Temperature – High	1,2,3	2 per area	D	SR 3.3.6.1.1 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 175.6°F[(b)]
h. Manual Initiation	1,2,3	4	G	SR 3.3.6.1.6	NA

(continued)

(a) With any turbine stop valve not closed.

UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 164

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-69

NINE MILE POINT NUCLEAR STATION, LLC

LONG ISLAND LIGHTING COMPANY

EXELON GENERATION COMPANY, LLC

NINE MILE POINT NUCLEAR STATION, UNIT 2

DOCKET NO. 50-410

1.0 INTRODUCTION

By letter dated December 13, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16348A368), as supplemented by letter dated February 17, 2017 (ADAMS Accession No. ML17048A034), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request for changes to the Nine Mile Point Nuclear Station, Unit 2 (Nine Mile Point 2), Technical Specifications (TSs). The requested changes would revise the Nine Mile Point 2 TSs safety limit (SL) to increase the low pressure isolation setpoint allowable value, which will result in earlier main steam line isolation. The revised main steam line low pressure isolation capability and the revised SL are intended to ensure that Nine Mile Point 2 remains within the TSs SLs in the event of a pressure regulator failure maximum demand transient.

The supplement dated February 17, 2017, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC or the Commission) staff's initial proposed no significant hazards consideration determination noticed in the *Federal Register* on March 28, 2017 (82 FR 15381).

The proposed change addresses a condition with the potential to momentarily exceed the reactor core safety limits (SLs) during a pressure regulator failure maximum demand (open) (PRFO) transient. This condition was identified by GE Energy-Nuclear (GE) in a March 29, 2005, notification (ADAMS Accession No. ML050950428) to the NRC under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance."

When the steam dome pressure is less than 785 pounds per square inch gauge (psig) or core flow is less than 10 percent of rated core flow, TS 2.1.1.1 currently requires that thermal power shall be less than or equal to 23 percent of rated thermal power (RTP) for Nine Mile Point 2. GE, in its 10 CFR Part 21 notification, identified, by using newer computer analysis codes, that a PRFO transient could result in a condition where the reactor steam dome pressure momentarily decreases below 785 psig, while thermal power is above the plant-specific thermal power limit

specified in TS 2.1.1.1. This condition would exceed the reactor core SL in TS 2.1.1.1. The proposed changes are to fix the potential of exceeding the low steam dome pressure SL.

2.0 REGULATORY EVALUATION

2.1 Proposed Change

The licensee has determined that the current main steam line isolation valve low pressure isolation setpoint (LPIS) analytical limit (AL) of 720 psig at Nine Mile Point 2 is not sufficient to preclude reactor vessel steam dome pressure from falling below the proposed 700 psia SL, while thermal power exceeds 23 percent of rated power during a PRFO event. The licensee proposed in the license amendment request (LAR) to reduce the reactor steam dome pressure consistent with the lower-bound pressure of the critical power correlations for the fuel designs that currently comprise the Nine Mile Point 2 core. The proposed TS changes are:

- Reduce the reactor vessel steam dome pressure limit specified in TS SL 2.1.1.1 from < 785 psig to < 700 pound per square inch absolute (psia),

- Reduce the reactor vessel steam dome pressure limit specified in TS SL 2.1.1.2 from ≥ 785 psig to ≥ 700 psia, and

- Increase the Allowable Value for TS Table 3.3.6.1-1, Function 1.b, Main Steam Line Pressure - Low, from ≥ 746 psig to ≥ 814 psig.

The LAR also provided revised TS Bases pages to be implemented with the associated TS changes. These pages were provided for information only and were not reviewed by the NRC staff. Changes to the TS Bases would be made in accordance with the Nine Mile Point 2 TS Bases Control Program.

2.2 Applicable Regulatory Requirements and Guidance

The regulatory requirements and guidance documents the NRC staff considered in its review of the LAR are:

Requirements

- 10 CFR Section 50.36, "Technical specifications," provides the regulatory requirements for the content of the TSs. Safety limits are required to be included in TSs. Safety limits are defined in 10 CFR 50.36(c)(1)(i)(A) as limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity. Also, 10 CFR 50.36(c)(1)(i)(A) requires, in part, that where a limiting safety system setting (LSSS) is specified for a variable on which a safety limit has been placed, the setting be so chosen that automatic protective action will correct the abnormal situation before a safety level is exceeded.

- 10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants" describes the minimum requirements for the principal design criteria for water-cooled nuclear power plants. For Nine Mile Point 2, Section 1.2.1.1, "General Criteria," of the Updated Final Safety Analysis Report (UFSAR) evaluates the plant design basis against the general design criteria (GDC) or draft GDC, as appropriate. The UFSAR evaluation

concludes that the GDCs of 10 CFR Part 50, Appendix A, have been satisfied in the Nine Mile Point 2 design. GDC 10 requires the reactor core and associated coolant, control, and protection systems be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences (AOOs).

Guidance

- Chapter 4, "Reactor," of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (ADAMS Package Accession No. ML070660036), provides guidance to the NRC staff on the acceptability of the reactivity control systems, reactor core, and fuel system design. Specifically, Section 4.2, "Fuel System Design" (ADAMS Accession No ML070740002), specifies the fuel damage criteria to be used in evaluating whether a fuel design meets the specified acceptable fuel design limits. Section 4.4, "Thermal and Hydraulic Design" (ADAMS Accession No. ML070550060), provides guidance for reviewing thermal-hydraulic design in meeting the requirement of GDC 10 and the fuel design criteria established in Section 4.2. Section 4.4 also states that the critical power ratio (CPR) is to be established such that at least 99.9 percent of fuel rods in the core would not be expected to experience departure from nucleate boiling, or onset of transition boiling, during normal operation or AOOs.

- Branch Technical Position 7-12, "Guidance on Establishing and Maintaining Instrument Setpoints" (ADAMS Accession No ML16019A200), in NUREG-0800, provides guidance to NRC staff for reviewing the process a licensee follows to establish and maintain instrument setpoints.

- Regulatory Guide 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation" (ADAMS Accession No. ML993560062), provides guidance for ensuring that instrument setpoints are initially within and remain within the TS SLs. This regulatory guide endorses ISA-S67.04-1994, Part I, "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Power Plants."[1]

3.0 TECHNICAL EVALUATION

3.1 Reactor

3.1.1 Evaluation

Each fuel vendor has developed critical power correlations valid over specified pressure and flow ranges (mass flow rates). These critical power correlations have become increasingly fuel design dependent as advanced fuel designs evolve. The critical power correlations for some advanced fuel designs have received NRC approval, or were developed using NRC-approved methodologies, to a lower pressure than those approved previously. The lower bound of the extended pressure ranges for these advanced fuel designs can be used to justify a lower reactor steam dome pressure than specified in the TSs for previous fuel designs. As such, a wider pressure range would be available for transients to demonstrate compliance with minimum critical power ratio (MCPR) limits.

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[1] Copies may be obtained from the Instrument Society of America, 67 Alexander Drive, Research Triangle Park, NC 20779.

As stated above, the licensee proposes to reduce the reactor steam dome pressure specified in TS 2.1.1.1 and TS 2.1.1.2 from 785 psig to 700 psia at Nine Mile Point 2 based on the lower-bound pressure for the critical power correlation for the fuel currently used in the reactor core for the facility. Also, the Allowable Value (AV) in TS Table 3.3.6.1-1, Function 1b, Main Steam Line Pressure-Low, is proposed to change from $\geq$ 746 psig to $\geq$ 814 psig.

In its application, the licensee stated that Nine Mile Point 2 currently has a mixed core of GE14 and GNF2 fuel produced by Global Nuclear Fuel – Americas, LLC (GNF). The CPR calculations for GE14 and GNF2 fuel use the critical power correlations known as GEXL14 and GEXL17, respectively. The GEXL14 correlation is documented in GNF Topical Report NEDC-32851P-A, "GEXL14 Correlation for GE14 Fuel," Revision 5, dated April 2011 (ADAMS Package Accession No. ML111290540). The GEXL17 correlation is documented in GNF Topical Report NEDC-33292P, "GEXL17 Correlation for GNF2 Fuel," Revision 3, dated June 2009.[2] As discussed in these reports, the GEXL14 and GEXL17 correlations are used in the core design process to determine the expected thermal margin for the operating cycle. In the safety analysis process, the correlations are used to determine the change in CPR during postulated transients and to determine the MCPR SL.

The acceptability of the GEXL14 and GEXL17 correlations is associated with the NRC-approved GNF Licensing Topical Report (LTR) NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel" (referred to as GESTAR II). This LTR provides generic information relative to the fuel design and analyses of boiling-water reactors that use the GE and GNF fuel designs. This LTR consists of a description of the fuel licensing criteria and fuel thermal-mechanical, nuclear, and thermal-hydraulic analyses bases. In accordance with TS 5.6.5, "Core Operating Limits Report (COLR)," Nine Mile Point 2 may use the analytical methods in versions of GESTAR II that have been previously reviewed and approved by the NRC to determine the core operating limits.

GESTAR II includes a methodology for development of critical power correlations and also contains criteria for when NRC approval of new critical power correlations is needed. The GEXL14 correlation report was approved by the NRC, and a copy of the associated NRC safety evaluation is included with NEDC-32851P-A. The GEXL17 correlation report did not require NRC approval. The acceptability of the GEXL17 correlation is based on the NRC staff's approval of Amendment No. 33 to GESTAR II.[3] As such, the GEXL17 correlation for GNF2 fuel is approved for use per GESTARII by reference. In a letter dated March 5, 2010 (ADAMS Package Accession No. ML100700464), GNF submitted proposed Amendment No. 33 to GESTAR II for NRC review and approval. The letter also provided GNF report NEDC-33270P, "GNF2 Advantage Generic Compliance with NEDE-24011-P-A (GESTAR II)," Revision 3, dated March 2010. NEDC-33270P documented the completion of the requirements for the new GNF2 fuel design per the criteria in GESTAR II, including an explanation of how the development of the GEXL17 correlation complies with the GESTAR II methodology. Based on this, the NRC staff considers the use of GEXL14 and GEXL 17 correlations for GE14 and GNF2 fuel, respectively, to be acceptable for use in CPR calculations at Nine Mile Point 2.

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[2] This proprietary report was submitted to the NRC by letter dated June 30, 2009 (ADAMS Accession No. ML091830614). A public version of the report was included with the submittal and is available at ADAMS Accession No. ML091830624.

[3] Amendment No. 33 was incorporated in Revision 17 to NEDE-24011-P-A by GNF letter dated September 22, 2010 (ADAMS Package Accession No. ML102660094). A copy of the NRC staff's approval and safety evaluation for Amendment No. 33 is included in NEDE-24011-P-A.

The GEXL14 and GEXL17 correlation reports discuss the pressure range over which the critical power correlations are valid for the GE14 fuel and GNF2 fuel, respectively. As discussed in Section 3.0 of the application, the lower-bound pressure limit for the GEXL14 and GEXL17 correlations is 700 psia. The licensee's application proposed to reduce the reactor steam dome pressure specified in Nine Mile Point 2 TS 2.1.1.1 and TS 2.1.1.2 to 700 psia. The proposed 700 psia value falls within the pressure range over which the critical power correlations are valid for both the GE14 fuel and GNF2 fuel; therefore, the NRC staff determined that the proposed 700 psia limit for TS 2.1.1.1 and TS 2.1.1.2 is acceptable for the fuel in the 2 core.

The proposed change to the LPIS AV from 746 psig to 814 psig was derived from a revised LPIS AL of 805 psig. The revised plant-specific AL was calculated using a methodology that employs the most limiting plant configuration and operating conditions for evaluating the effect of the PRFO transient and a scaling technique. The NRC staff reviewed the plant-specific calculation and determined that the scaling LPIS AL being applied to plant conditions is applicable to the Nine Mile Point 2 configuration. The scaling of the LPSI setpoints for an increased LPIS AL to 805 psig meets the acceptance criterion for the minimum calculated pressure that would be considered acceptable for the PRFO event. The NRC staff determined this to be acceptable based on the fact that the new setpoint results in an earlier steam line isolation to terminate depressurization making the transient less severe. Further, the proposed changes will not alter the PRFO transient to a limiting event.

The revised AV at 814 psig is higher than the current AV of 746 psig and will result in earlier main steam line isolation to terminate a rapid depressurization event. The combination of the lower TS SLs and the higher LPIS trip setpoint and AV from 746 psig to 814 psig provides a wider pressure range for transients, while maintaining compliance with MCPR limits. Thus, the proposed change offers a greater pressure margin in TS 2.1.1.1 for the PRFO transient than what is currently available such that the reactor pressure remains above the proposed low pressure SL of 700 psia; therefore, the NRC staff finds this acceptable.

3.1.2 Technical Conclusion

The NRC staff concludes that the proposed TS 2.1.1.1 requires thermal power to be less than or equal to 23 percent RTP when the reactor steam dome pressure is less than 700 psia, or core flow is less than 10 percent rated core flow. Reducing the reactor vessel steam dome pressure limit specified in TS SLs 2.1.1.1 and 2.1.1.2, in conjunction with increasing the AV and trip setpoint specified in TS Table 3.3.6.1-1, Function 1.b, for the main steam line low pressure isolation, adequately mitigates the PRFO transient event such that the reactor vessel steam dome pressure will remain above the proposed revision to the TS SLs.

The NRC staff further concludes that as long as the core pressure and flow are within the range of validity of the critical power correlation applicable to the current Nine Mile Point 2 reactor core, the proposed changes to TS 2.1.1.1 and TS 2.1.1.2 provide reasonable assurance that 99.9 percent of the fuel rods in the core are not expected to experience onset of transition boiling during normal operation or AOOs. As such, the SLs will continue to ensure that specified acceptable fuel design limits are not exceeded during normal operation or AOOs, consistent with the requirements in GDC 10. Furthermore, the staff concludes that the proposed changes establish reactor core SLs reasonably certain to protect the integrity of the fuel cladding barrier and guard against an uncontrolled release of radioactivity, consistent with the requirements in 10 CFR 50.36(c)(1). Therefore, the NRC staff concludes that the proposed amendments are acceptable.

3.2 Instrumentation

3.2.1 Evaluation

Based on the new steam dome pressure SL of 700 psia, it was determined that the existing main steam line isolation valve LPIS AL of 720 psig is not sufficient to prevent steam dome pressure from falling below the proposed 700 psia with reactor power above 23 percent during a PRFO event. It became necessary to increase the AL for LPIS. The new AL has been established as 805 psig. The new setpoint and the allowable values have been established based on 805 psig.

Exelon confirmed in its letter dated February 17, 2017, that the methodology used for the setpoint calculation was developed in accordance with the NRC-approved Topical Report NEDC-31336P-A, "General Electric Setpoint Methodology" (ADAMS Accession No. ML073450560), dated September 1996. The Nine Mile Point 2 setpoint calculations comply with Regulatory Guide 1.105. Both the setpoint calculation methodology and compliance to Regulatory Guide 1.105 are described in Section 7.1.2.3 of the Nine Mile Point 2 UFSAR.

The licensee did not request any changes to the design of the main steam line LPIS actuation instrumentation. The objective of this calculation is to determine the nominal trip setpoint and the AV for the main steam line low pressure isolation actuation instrumentation, as described in Nine Mile Point 2, TS Table 3.3.6-1, Function 1.b.

The process parameters used in the calculation remain unchanged. The calculation methodology has not changed. In particular, the assumptions, types of errors, error combinations method, and thus the error magnitude remain unchanged. However, due to changes in the SL value and the associated changes in the analytical value, recalculations for the new trip setpoint and the new allowable valve become necessary. Based on the new analytical value of 805 psig, the recalculated nominal trip setpoint is ≥ 821 psig and the AV is ≥ 814 psig. The as-found and as-left tolerances have been established as ± 4 psig. Corrective actions are taken per the plant corrective action program if the tolerances exceed the allowed values.

TS Table 3.3.6. 1-1, Function 1.b, only requires the AV value. The main steam line pressure setpoint of ≥ 821 psig for the LPIS is a calculated value based on the setpoint summary sheet provided in the LAR. The calculation was reviewed as explained in the paragraph above. The staff has reviewed the new AL of 805 psig and the allowable value of 814 psig and finds the AL acceptable.

3.2.2 Technical Conclusion

The reduction of the reactor vessel steam dome pressure limit specified in TS SLs 2.1.1.1 and 2.1.1.2, in conjunction with increasing the LPIS AV and trip setpoint specified in TS Table 3.3.6-1, Function 1.b, for the main steam line low pressure isolation is determined to adequately mitigate the PRFO transient event such that the reactor vessel steam dome pressure will remain above the proposed revision to the TS SLs. The combination of the lower TS SLs and the higher LPIS trip setpoint and AV provides a wider pressure range for transients while maintaining compliance with MCPR limits. The calculation review confirms that the changes to the actual trip setpoint and the allowable value are consistent with the NRC-approved GE methodology and Regulatory Guide 1.105. The NRC staff finds the changes to the setpoint and allowable value acceptable because the higher LPIS trip setpoint and AV

provide an automatic protective action that will correct the abnormal situation before a safety level is exceeded.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment on September 7, 2017. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (March 28, 2017; 82 FR 15381). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The NRC staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: M Razzaque
M. Li
G. Singh

Date: October 31, 2017

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT 2 – ISSUANCE OF AMENDMENT TO REDUCE STEAM DOME PRESSURE IN REACTOR CORE SAFETY LIMITS (CAC NO. MF8942; EPID L-2016-LLA-0038) DATED OCTOBER 31, 2017

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