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December 17, 2021

U.S. Nuclear Regulatory Commission Attn: Document Control Desk Washington, DC 20555-0001

> Nine Mile Point Nuclear Station, Unit 2 Renewed Facility Operating License No. NPF-69 NRC Docket No. 50-410

- Subject: Supplemental Information Relief Request Associated with Excess Flow Check Valves
- References: 1) Letter from D. Gudger (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Relief Request Associated with Excess Flow Check Valves," dated September 8, 2021 (ML21251A491)
  - Email from R. Guzman (U.S. Nuclear Regulatory Commission) to T. Loomis (Exelon Generation Company, LLC), "Nine Mile Point Nuclear Station, Unit 2 - REQUEST FOR ADDITIONAL INFORMATION, Alternative Request GV-RR-10 (EPID L-2021-LLR-0066)," dated November 2, 2021 (ML21306A331)
  - Letter from D. Gudger (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information -Relief Request Associated with Excess Flow Check Valves," dated November 15, 2021 (ML21320A049)

In the Reference 1 letter, Exelon Generation Company, LLC (Exelon) requested NRC approval of a proposed relief request associated with the Inservice Testing (IST) Program for the Nine Mile Point Nuclear Station, Unit 2. This request revises the testing frequency of Excess Flow Check Valves (EFCVs). In Reference 2, the U.S. Nuclear Regulatory Commission requested additional information. Reference 3 provided our response.

Based on a discussion with the NRC Staff on December 14, 2021, supplemental information is being provided in Attachment 1.

There are no regulatory commitments contained in this letter.

Supplemental Information - Relief Request Associated with the Excess Flow Check Valves December 17, 2021 Page 2

If you have any questions, please contact Tom Loomis at 610-765-5510.

Respectfully,

David T. Gudger

David T. Gudger Sr. Manager - Licensing and Regulatory Affairs Exelon Generation Company, LLC

Attachment 1: Supplemental Information

cc: Regional Administrator - NRC Region I NRC Senior Resident Inspector – Nine Mile Point NRC Project Manager – Nine Mile Point A. L. Peterson - NYSERDA

## Attachment 1

Supplemental Information

As discussed in the Reference 1 letter, Exelon Generation Company, LLC (Exelon) requested relief from ISTC-3700, *Position Verification Testing*. EFCVs are installed on instrument lines penetrating containment to minimize leakage in the event of an instrument line failure outside the containment in accordance with Regulatory Guide 1.11. The excess flow check valve is a spring-loaded check valve, with a position indication feature. Since the system is normally in a static condition, the valve flow restrictor is held open by the spring. When the valve is in its normal open position, the light indication is off. Any sudden increase in flow through the valve (i.e., line break) will result in a differential pressure across the valve which will overcome the spring and close the valve. This in turn results in a change in position indication (light on). The valve is designed to allow some leakage past the seat in the closed position. This leakage will act to equalize pressure across the valve in the event the excess flow condition is corrected, thus allowing the spring to reopen the valve.

Functional testing of valve closure and position verification is accomplished by connecting a temporary air supply and drain line to the EFCV, then venting the instrument side of the valve while the process side is under low pressure and observing a change in position indication and by verifying that only a small amount of leakage (flow) exits through the vent. The testing of the EFCV requires the removal of the associated instrument or instruments from service.

The EFCVs are classified as ASME Code, Category C and are also containment isolation valves. However, these valves are excluded from 10 CFR Part 50, Appendix J, Section III.C., leakage rate testing due to the size of the instrument lines; therefore, these EFCVs have no safety-related seat leakage criterion.

As previously stated, the internal design of the excess flow check valve contains a flow restrictor which is spring-loaded and is therefore not designed with any type of pinned stem to disk connection, thus making the EFCV at NMP2 non susceptible to stem-to-disk separation. The field test procedure and the IST Program Plan will be revised to assure that each EFCV failure is entered into the CAP and evaluated against performance criteria with appropriate corrective actions taken based on the failure analysis and trend in failures. If failures exceed the performance criteria of less than or equal to one failure during a 24-month rolling average, the IST Program Plan will require a cause evaluation and determination of additional testing requirements. The failed valves will be tested in the next refueling outage.

Industry experience, as documented in Topical Report NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation," dated June 2000, indicates the ECFVs have a very low failure rate. The NMP2 test experience is consistent with the findings in the NEDO document. The NEDO document indicates that many reported test failures at other plants were related to test methodologies and not actual EFCV failures. An evaluation of the maintenance history and a comparison to the acceptance criteria in NEDO-32977-A concludes that NMP2 has demonstrated that the low-pressure EFCVs are highly reliable and that failures to isolate are very infrequent (4 out of approximately 286 tests in 22 years). The failure rate of the Unit 2 low pressure EFCVs was also confirmed to be below the highest failure rates presented in NEDO-32977-A. Based on the high reliability of the EFCVs and the low failure rate, ISTC-3700 position verification provides little to no added benefit to safety.

Position verification in accordance with ISTC-3700 will be performed as part of the proposed 20% sampling.

Based on the high degree of reliability and availability of the EFCVs at NMP2, and the alternate sampling approach discussed above, this proposed alternative will provide an acceptable level of quality and safety as compared to meeting the requirements of ISTC-3700.