



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

July 3, 2018

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

**SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2 – RELIEF FROM THE  
REQUIREMENTS OF THE ASME CODE FOR OPERATION AND  
MAINTENANCE OF NUCLEAR POWER PLANTS (EPID L-2018-LLR-0004)**

Dear Mr. Hanson:

By application dated February 27, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18039A123), Exelon Generation Company (the licensee) pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), submitted the relief request (RR) RV-02 related to excess flow check valves testing frequency from the inservice testing requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) and the license amendment request to adopt TSTF-334-A, "Relaxed Surveillance Frequency for Excess Flow Check Valve (EFCV) Testing," for Renewed Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station, Unit Nos. 1 and 2.

Specifically, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that it provides an acceptable level of quality and safety.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that the proposed alternative provides an acceptable level of quality and safety, and the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1), and is in compliance with the ASME OM Code requirements. Therefore, the NRC authorizes the licensee to use the alternative, as proposed in RR RV-02, for the remainder of the for the fourth 10-year IST program interval which began on October 12, 2017, and ends October 11, 2027.

B. Hanson

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If you have any questions, please contact the Project Manager Bhalchandra Vaidya at 301-415-3308 or via e-mail at [Bhalchandra.Vaidya@nrc.gov](mailto:Bhalchandra.Vaidya@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "D. Wrona".

David J. Wrona, Chief  
Plant Licensing Branch III  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-373 and 50-374

Enclosures:  
Safety Evaluation

cc: Listserv



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO INSERVICE TESTING (IST) PROGRAM PLAN  
RELIEF REQUEST RV-02 FOR EXCESS FLOW CHECK VALVE TEST FREQUENCY  
EXELON GENERATION COMPANY  
LASALLE COUNTY STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

By application dated February 27, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18039A123), Exelon Generation Company (the licensee) pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), submitted the relief request (RR) RV-02 related to excess flow check valves (EFCV) testing frequency from the inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) and the license amendment request (LAR) to adopt Technical Specification Task Force (TSTF)-334-A, "Relaxed Surveillance Frequency for Excess Flow Check Valve (EFCV) Testing," for Renewed Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Unit Nos. 1 and 2. The LAR proposes technical specifications (TSs) surveillance requirements (SR) change to adopt TSTF-334-A

The current LSCS SR requires each EFCV shall be tested in accordance with surveillance frequency control program. The licensee's request proposes to test the EFCVs on a representative sample basis at the frequency specified in the LSCS TS SR 3.6.1.3.8.

The licensee proposes TSTF-334-A to revise TS SR 3.6.1.3.8 to relax the SR frequency by allowing a representative sample of EFCVs to be tested. The licensee states that the representative sample consists of an approximately equal number of EFCVs, such that each EFCV is tested at least once every 10 years (nominal).

Although both TSTF-334-A and RR RV-02 proposed the same request to test a representative sample of EFCVs instead of all EFCVs, LSCS requires an IST relief pursuant to 10 CFR 50.55a in order to implement the TSTF-334-A changes.

This RR RV-02 is for the fourth 10-year IST program interval which begins on October 12, 2017, and ends October 11, 2027.

Enclosure

Specifically, pursuant to 10 CFR 50.55a(z)(1), the licensee requested to use the proposed alternative on the basis that it provides an acceptable level of quality and safety.

## 2.0 REGULATORY EVALUATION

Regulation 10 CFR 50.55a(f), "Inservice Testing Requirements," requires, in part, that 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. Exceptions are allowed where alternatives have been authorized by the U.S. Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(z)(1), 50.55a(z)(2), or 50.55a(f)(6)(i).

In proposing alternatives, the licensee must demonstrate that the proposed alternatives provide an acceptable level of quality and safety (10 CFR 50.55a(z)(1)). 10 CFR, Part 50, Section 50.55a allows the NRC to authorize alternatives from ASME OM Code requirements upon making the necessary findings.

The following ASME OM Code requirements are applicable to the licensee's submittal request:

1. ISTC-3522(a), "Category C Check Valves," states, in part, "During operation at power, each check valve shall be exercised or examined in a manner that verifies obturator travel by using the methods in ISTC-5221."
2. ISTC-3522(c), Category C Check Valves, "If exercising is not practicable during operation at power and cold shutdowns, it shall be performed during refueling outages."
3. 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."

## 3.0 TECHNICAL EVALUATION

### 3.1 The Licensee's Relief Request

The NRC staff noted that ISTC-3522(a) and ISTC-3522(c) of ASME OM Code require all check valves to be tested and ISTC-3700 requires all valves with remote position indicators shall be observed locally to verify that valve operation is accurately indicated. The licensee's proposed alternative is that the EFCVs are tested and verified in accordance with Surveillance Frequency Control Program (SFCP) which requires each EFCV to be tested at least once every 24 months. The licensee's proposed alternative is to relax the frequency specified in LSCS TS SR 3.6.1.3.8 by allowing a representative sample of EFCVs to be tested in accordance with SFCP. The representative sample is based on approximately 20 percent of the reactor instrumentation line EFCVs such that each valve will be tested at least once every 10 years.

### 3.2 NRC Staff Evaluation

The licensee's justification for the alternative is based on General Electric (GE) Topical Report (TR) NED0-32977-A "Excess Flow Check Valve Testing Relaxation," dated June 2000 (ADAMS Accession No. ML003729011). The NRC staff reviewed and accepted the GE TR and issued its evaluation on March 14, 2000 (ADAMS Accession No. ML003691722). This TR indicates that EFCVs have a very low failure rate. The NRC staff reviewed the licensee's proposal for its

applicability to GE TR NEDO-32977-A and conformance with the staff's guidance regarding radiological dose assessment, EFCV failure rate and release frequency, and the proposed failure feedback mechanism and corrective action program.

The licensee's submittal provides their review of the maintenance history for EFCVs over six 24-month operating cycles from February 2005 through February 2017. LSCS's maintenance history has shown that EFCVs have been extremely reliable over the life of the plant showing less than 1 percent failure rate associated with testing of these valves and summarized their EFCV failure rate analysis. The licensee also states that LSCS's surveillance test history review shows no evidence of time-based failure mechanisms or common mode failures associated with EFCVs. The NRC staff concurs that the LSCS test experience is consistent with the findings in the TR NEDO document and finds that the EFCVs at LSCS are consistent with the industry, have exhibited a high degree of reliability, availability, and provide an acceptable level of quality and safety.

The licensee states that the SR provides assurance that the instrument line EFCVs will perform to address any operational considerations associated with an instrument line break. The risk of EFCV failure has been discussed in TR NEDO-32977-A. The 0.25-inch orifice, effective valve restriction, and instrument tubing size ensures that the predicted radiological consequence will not be exceeded during postulated instrument line break event as evaluated in the LSCS updated final safety analysis report (UFSAR). The NRC staff confirmed this factor by comparing the LSCS UFSAR to the evaluation and discussion of TR NEDO-32977-A for the radiological release frequency. The staff finds that failure of EFCVs to close will not involve a significant increase in the probability or consequences of an accident previously evaluated. In the evaluation of the TR, the staff concluded that the magnitude of a test interval extension may be as great as 10 years.

The NRC staff noted that the EFCVs have position indication in the control room and check valve remote position indication is excluded from Revision 3 of Regulatory Guide 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants," dated May 1983 (ADAMS Accession No. ML003740282), as a required parameter for evaluating containment isolation. However, LSCS will continue to verify the remote position indication at the same frequency as the exercise test prescribed in TS SR 3.6.1.3.8. Corrective action documents are initiated for any EFCV that fails to actuate during the program testing and for any EFCV with abnormal position indication displays.

Additionally, the licensee's submittal provides three past precedents for this request for relief. The NRC staff finds these past precedents provide the basis for the acceptance of LSCS's request.

Based on the evaluation discussed above, the NRC staff finds that the licensee's proposal is an appropriate application of GE TR NEDO-32977-A based on its conformance with the staff's guidance regarding radiological dose assessment, EFCV failure rate and release frequency, and the proposed failure feedback mechanism and corrective action program.

#### 4.0 CONCLUSION

As set forth above, the NRC staff has determined that the proposed alternative provides an acceptable level of quality and safety, and the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1), and is in compliance with the ASME OM Code requirements. Therefore, the NRC authorizes the licensee to use the alternative, as

proposed in RR RV-02, for the remainder of the for the fourth 10-year IST program interval which began on October 12, 2017, and ends October 11, 2027.

All other ASME Code or ASME OM Code requirements for which relief was no specifically requested and approved remain applicable.

Principal Contributor(s): K. Hsu, NRR/EMIB

Date of issuance: July 3, 2018

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**ADAMS Accession No.: ML18163A054**

(\*) by e-mail or memo

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