



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

August 18, 2016

Mr. George H. Gellrich  
Site Vice President  
Calvert Cliffs Nuclear Power Plant, LLC  
Exelon Generation Company, LLC  
1650 Calvert Cliffs Pkwy.  
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – INITIAL  
OPERATOR LICENSING EXAMINATION REPORT 05000317/2016301 AND  
05000318/2016301

Dear Mr. Gellrich:

On June 22, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an examination at Calvert Cliffs Nuclear Power Plant, Units 1 and 2. The enclosed examination report documents the examination results, which were discussed on July 21, 2016, with Messrs. Tim Riti, Operations Director; Pete Beavers, Training Director; and other members of your staff.

The examination included the evaluation of five applicants for reactor operator licenses, five applicants for instant senior reactor operator licenses, and two applicants for upgrade senior reactor operator licenses. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10. The license examiners determined that 10 of the 12 applicants satisfied the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55, and the appropriate licenses were issued on July 21, 2016.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. Because compliance with the regulations was promptly restored, the issue was not repetitive or willful, and it was entered into your corrective action program, this violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in this examination report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region I; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) Mr. R. Clagg, Senior Resident Inspector, at the Calvert Cliffs facility.

One applicant for an instant senior reactor operator failed the operating portion of the exam and was denied a license. One applicant for a reactor operator license failed the written portion of the exam and was also denied a license.

G. Gellrich

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Donald E. Jackson, Chief  
Operations Branch  
Division of Reactor Safety

Docket Nos. 50-317 and 50-318  
License Nos. DPR-53 and DPR-69

Enclosure:  
Examination Report 05000317/2016301 and 05000318/2016301  
w/Attachments: Supplementary Information and Simulator  
Fidelity Report

cc w/encl: Distribution via ListServ

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**EXAMINATION REPORT****U.S. NUCLEAR REGULATORY COMMISSION  
REGION I**

Docket Nos. 50-317 and 50-318

License Nos. DPR-53 and DPR-69

Report Nos. 05000317/2016301 and 05000318/2016301

Licensee: Exelon Generation Company, LLC (Exelon)

Facility: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Location: Lusby, MD

Dates: 6/13-21/2016 (Operating Test Administration)  
6/24/2016 (Written Examination Administration)  
7/5/2016 (Licensee Submitted Post Exam Package)  
7/6/2016 (NRC Examination Grading Completed)  
7/21/2016 (Licenses Issued)

Examiners: D. Silk, Chief Examiner, Operations Branch  
J. D'Antonio, Senior Operations Engineer  
B. Fuller, Senior Operations Engineer  
P. Ott, Operations Engineer

Approved By: Donald E. Jackson, Chief  
Operations Branch  
Division of Reactor Safety

Enclosure

## SUMMARY

ER 05000317/2016301 and 05000318/2016301; 06/13/2016 – 06/24/2016; Calvert Cliffs Nuclear Power Plant, Units 1 and 2; Initial Operator Licensing Examination Report; One non-cited violation (NCV) was identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Four NRC examiners evaluated the competency of five applicants for reactor operator (RO) licenses; five applicants for instant senior reactor operator (SRO) licenses; and two applicants for upgrade SRO licenses at the Calvert Cliffs Nuclear Power Plant, Units 1 and 2. The facility licensee developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10. NRC examiners administered the operating tests on June 13-22, 2016. The written examination was administered by the facility on June 24, 2016. The NRC examiners determined that 10 of the 12 applicants satisfied the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55, and the appropriate licenses have been issued.

A. NRC-Identified Violations

Severity Level IV. The NRC identified a Severity Level IV NCV of 10 CFR 50.54(i-1) and 10 CFR 55.59(a)(1), in that Exelon reduced the scope of the requalification program without NRC approval by allowing two SRO upgrade candidates, who were not current in requalification training, to perform RO duties with their qualifications lapsed. Immediate actions by Exelon included relieving one of these individuals from duty and replacing him with a qualified operator, suspending the RO qualifications for both SRO upgrade candidates, and initiating an apparent cause evaluation (CR 02648066).

The inspectors determined that this violation was associated with a minor deficiency because the failure to follow training and qualification procedures had no safety impact. However, this violation impacted the regulatory process in that these licensed operators performed licensed duties while in non-compliance with their licenses. According to the Enforcement Policy, operators being in noncompliance with a condition stated on their licenses could be a Severity Level III violation. However, because no operational issues resulted from these individuals' performance, the NRC determined that a Severity Level IV violation was more appropriate. In accordance with Inspection Manual Chapter 0612, because this violation involved traditional enforcement and does not have an underlying technical violation that would be considered more than minor, a cross-cutting aspect was not assigned to this violation. (4OA5.1)

B. Licensee-Identified Violations

None.

## REPORT DETAILS

## 4. OTHER ACTIVITIES (OA)

4OA5 Other Activities (Initial Operator License Examination).1 License Applicationsa. Scope

The examiners reviewed all 12 license applications submitted by Exelon to ensure the applications reflected that each applicant satisfied relevant license eligibility requirements. The applications were submitted on NRC Form 398, "Personal Qualification Statement," and NRC Form 396, "Certification of Medical Examination by Facility Licensee." The examiners also reviewed the applicants' control manipulations for significant reactivity changes. Training details for selected applicants were also reviewed.

b. Findings

Introduction: The NRC identified a Severity Level IV NCV of 10 CFR 50.54(i-1) and 10 CFR 55.59(a)(1). Specifically, two SRO upgrade candidates performed RO duties without completing their designated requalification training program.

Description: On March 31, 2016, in a telephone conversation between Exelon and operations branch personnel, the NRC became aware of two SRO upgrade candidates in the June 2016 class who had been standing control room watches as ROs without being concurrently enrolled in requalification training. Exelon erroneously thought that because the ROs had passed the last biennial requalification exam and were currently attending initial license training in preparation for an upcoming SRO exam, they could stand watch as ROs. Exelon was informed that if the two individuals were not current in their RO requalification training then their qualifications had lapsed and that they were in violation of NRC requirements.

During the week of May 16, 2016, during the examination preparation visit, inspectors gathered information pertaining to this issue. The inspectors determined that following the March 31, 2016, telephone conversation, immediate actions by Exelon included relieving one of these individuals and replacing him with a qualified operator; the RO qualifications for both SRO upgrade candidates were suspended; and Exelon initiated an apparent cause evaluation (CR 02648066). Exelon determined that this issue was caused by a failure to follow procedure TQ-AA-150, "Operator Training Programs," to restrict operators from shift duty while they are attending initial license training or if they have been absent from requalification training for more than one cycle. Exelon checked and confirmed that no unqualified SRO upgrade candidates from the last two examination classes had stood watch as ROs.

10 CFR 50.54 (i-1), states, in part, that, the facility licensee may not, except as specifically authorized by the Commission, decrease the scope of an approved operator requalification program. 10 CFR 55.59(a)(1) requires that each licensee shall complete a requalification program and that the requalification program must be conducted for a

continuous period. Although the two SRO upgrade candidates were in initial license training, the training was not equivalent to the requalification training that was being conducted during the same period and therefore credit for continuing or completing requalification training could not be given. Hence, the RO qualifications for the two operators lapsed on May 15, 2015, based upon Exelon's training program. Since that date, these two operators stood a total of 36 watches (20 and 16, respectively) in violation of the requirements.

Neither of these operators were involved with any operational errors during the period that their qualifications had lapsed. Furthermore, although they were not attending requalification training, it was confirmed that these individuals were alerted to procedure changes via required reading and that they were informed of plant modifications during initial license training. Also, no work-hour rules were violated by these individuals by their participation in training and standing control room watches during this period.

Analysis: The inspectors determined that two SRO upgrade candidates performing licensed duties while not attending requalification training, in contradiction with licensee procedures and with 10 CFR 50.54(i-1), "Conditions of Licenses," and 10 CFR 55.59(a)(1), "Requalification," was a performance deficiency. The NRC determined this violation was associated with a minor performance deficiency because the failure to follow procedures had no safety impact. However, this violation impacted the regulatory process in that these licensed operators performed licensed duties while in non-compliance with their licenses. The Reactor Oversight Process significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter non-compliance. The inspectors reviewed Section 6.4.c.1(c) of the NRC Enforcement Policy and determined that operators being in non-compliance with a condition stated on their licenses could be a Severity Level III violation. However, since no operational issues resulted from these individuals' performance, the NRC determined that a Severity Level IV violation was more appropriate. In accordance with Inspection Manual Chapter 0612, because the violation involved traditional enforcement and does not have an underlying technical violation that would be considered more than minor, a cross-cutting aspect was not assigned to this violation.

#### Enforcement:

10 CFR 50.54(i) states that, except as provided in § 55.13 of this chapter, a facility licensee may not permit the manipulation of the controls of any facility by anyone who is not a licensed operator or senior operator as provided in part 55 of this chapter.

10 CFR 55.53(h) requires that individual licensees shall complete a requalification program as described by § 55.59.

10 CFR 55.59(a)(1) requires that each individual licensee shall successfully complete a requalification program developed by the facility licensee that has been approved by the Commission. This program shall be conducted for a continuous period not to exceed 24 months in duration.

10 CFR 55.59(c)(2) requires, in part, the requalification program must include preplanned lectures on a regular and continuing basis throughout the license period in those areas

where operator and senior operator written examinations and facility operating experience indicate that emphasis in scope and depth of coverage is needed.

10 CFR 50.54 (i-1), states, in part, that, notwithstanding the provisions of § 50.59, the facility licensee may not, except as specifically authorized by the Commission decrease the scope of an approved operator requalification program.

Contrary to the above, between May 15, 2015, and March 31, 2016, Calvert Cliffs permitted the manipulation of the controls of its facility by individuals who were licensed operators, while not meeting the license conditions listed in 10 CFR Part 55. Specifically, the facility licensee assigned two licensed operators who had not completed a requalification program to stand a total of 36 combined watches. Although the operators were in training to become SROs, that training was not commensurate with the scope of the approved requalification program for the individuals' operator licenses. In particular, their training did not include instruction in the form of lectures in those areas where operator written examinations and facility operating experience indicated that emphasis in scope and depth of coverage was needed. Consequently, the operators had not successfully completed the Commission-approved requalification program and the Commission had not specifically authorized the facility licensee to decrease the scope of its program in this manner. **(NCV 050000317&318/2016301-01, SRO upgrade candidates performing RO duties without completing the requalification program.)**

## .2 Operator Knowledge and Performance

### a. Examination Scope

On June 24, 2016, Exelon proctored the administration of the written examinations to all 12 applicants. Exelon staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on July 5, 2016.

The NRC examination team administered the various portions of the operating examination to all 12 applicants on June 13-22, 2016. The five applicants for RO licenses participated in either two or three dynamic simulator scenarios, in a control room and facilities walkthrough test consisting of 11 system tasks, and an administrative test consisting of four administrative tasks. The five applicants seeking an instant SRO license participated in either two or three dynamic simulator scenarios, a control room and facilities walkthrough test consisting of ten system tasks, and an administrative test consisting of five administrative tasks. The two applicants for upgrade SRO licenses participated in two dynamic simulator scenarios, a control room and facilities walkthrough test consisting of five system tasks, and an administrative test consisting of five administrative tasks.

### b. Findings

One of the SRO instant applicants failed the walk through portion of the operating test. Additionally, one RO applicant failed the written examination. For the written examinations, the RO applicants' average score was 84.5 percent and ranged from 68.0 to 94.7 percent, the SRO applicants' average score was 88.9 percent and ranged from 85.0 to 94.0 percent. The overall written examination average was 87.0 percent. The NRC examiners completed the final grading of the written examination on July 6, 2016,



and conducted a review of the most frequently missed questions to determine the accuracy and validity of the examination questions. Chapter ES-403 and Form ES-403-1 of NUREG 1021 require the licensee to analyze the validity of any written examination questions that were missed by half or more of the applicants. Exelon conducted this performance analysis for four questions that met these criteria and submitted the analysis to the chief examiner. The text of the examination questions may be accessed in the NRC's Agencywide Documents Access and Management System (ADAMS) using the accession numbers noted in Attachment 1. In accordance with current NRC policy, the public release of this written examination and operating test in ADAMS to the public will be delayed for two years from the date of this Examination Report. No post-examination question comments were submitted by Exelon.

### .3 Initial Licensing Examination Development

#### a. Examination Scope

The facility licensee developed the examinations in accordance with NUREG-1021, Revision 10. All licensee facility training and operations staff involved in examination preparation and validation were listed on a security agreement. The facility licensee submitted both the written and operating examination outlines on March 14, 2016. The chief examiner reviewed the outlines against the requirements of NUREG-1021, and provided comments to the licensee. The facility licensee submitted the draft examination package on April 13, 2016. The chief examiner reviewed the draft examination package against the requirements of NUREG-1021, and provided comments to the licensee. The NRC conducted an onsite validation of the operating examinations and provided further comments during the week of May 16, 2016. The licensee satisfactorily completed comment resolution on June 1, 2016.

#### b. Findings

No findings were identified.

The NRC approved the initial examination outline and advised Exelon to proceed with the operating examination development.

The examiners determined that the written and operating examinations initially submitted by Exelon were within the range of acceptability expected for a proposed examination.

### .4 Simulation Facility Performance

#### a. Examination Scope

The examiners observed simulator performance with regard to plant fidelity during the examination validation and administration.

#### b. Findings

One minor simulator performance issue was identified during the examination administration and was documented on the attached Simulator Fidelity Report.

.5 Examination Security

a. Examination Scope

The examiners reviewed examination security for examination development and for both the onsite preparation week and examination administration week to ensure compliance with NUREG-1021, Revision 10 requirements. Plans for simulator security and applicant control were reviewed and discussed with Exelon personnel.

b. Observation

During the administration of the dynamic simulator examination, a potential examination compromise occurred when applicants for the second scenario run of the day were brought into the simulator through an area that was used by the NRC examiners to place examination material. Copies of the upcoming scenario Form ES-D-1s were left unattended by the examiners as they were walking down the control panels in preparation for the upcoming scenario. The applicants were able to see the scenario guidelines because of a lack of coordination between the examiners and Exelon staff as to when the applicants were being brought into the simulator. The chief examiner recognized that the compromise situation occurred immediately after the applicants had been brought into the simulator. The solution to this situation was to sequester this particular crew of applicants from the rest of the applicants (two more crews) who were going to be evaluated on that scenario later that day. The sequestered crew was then rescheduled to be evaluated in a third run of the scenario that was being used two days later. Thus, there was no need to use the backup scenario.

4OA6 Meetings, Including Exit

The chief examiner presented the examination results to Messrs. Tim Riti, Operations Director; Peter Beavers, Training Director; and other members of Exelon's management staff on July 21, 2016. Exelon acknowledged the findings presented.

Exelon did not identify any information or materials used during the examination as proprietary.

**ATTACHMENTS:**

- 1. SUPPLEMENTARY INFORMATION**
- 2. SIMULATOR FIDELITY REPORT**

**SUPPLEMENTARY INFORMATION**

**KEY POINTS OF CONTACT**

**Licensee Personnel**

P. Beavers, Operations Training Manager  
J. Barton, Senior Operations Instructor  
J. Jaeger, Senior Operations Instructor

**NRC Personnel**

R. Clagg, Senior Resident Inspector

**ITEMS OPENED, CLOSED, AND DISCUSSED**

**Opened and Closed**

05000317&318/2016301-01	NCV	SRO upgrade candidates performing RO duties without completing the requalification program.
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**ADAMS DOCUMENTS REFERENCED**

Accession No. ML16188A279 – FINAL-Written Exam (Note: In accordance with current NRC policy, the release of this written examination in ADAMS to the public will be delayed for two years.)

Accession No. ML16188A304 – FINAL-Operating Exam (Note: In accordance with current NRC policy, the release of this written examination in ADAMS to the public will be delayed for two years.)

*Use for all previously undocumented deficiencies encountered on the simulator. If none, then delete this page.*

**ES-501****Simulator Fidelity Report****Attachment 2**Facility Licensee: Calvert CliffsFacility Docket No.: 50-317 & 318Operating Test Administered: 6/13-22/2016

*This form is to be used only to report observations. These observations do not constitute audit or inspection findings and, without further verification and review in accordance with IP 71111.11, are not indicative of noncompliance with 10 CFR 55.46. No licensee action is required in response to these observations.*

While conducting the simulator portion of the operating tests, examiners observed the following items:

Item	Description
SFF Serial #: 16-026	The PPC indication on the containment environment screen did not trend with LI 4146 & 4147. Per the SPDS alarm manual, input to these screens come from these wide range sump level indicators.