



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

March 21, 2016

Mr. Bryan Hanson  
Senior Vice President, Exelon Generation  
President and Chief Nuclear Officer, Exelon Nuclear  
4300 Winfield Rd.  
Warrenville, IL 60555

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 - NRC INITIAL  
OPERATOR LICENSING EXAMINATION REPORT 05000352/2016301 AND  
05000353/2016301

Dear Mr. Hanson,

On January 29, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an examination at Limerick Generating Station, Units 1 and 2. The enclosed examination report documents the examination results, which were discussed on February 25, 2016, with Mr. Bob Ruffe, Training Director, and other members of your staff.

The examination included the evaluation of seven applicants for reactor operator licenses, five applicants for instant senior reactor operator licenses, and one applicant for an upgrade senior reactor operator license. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, Supplement. The license examiners determined that all applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses were issued on February 25, 2016.

No findings were identified during this examination.

In accordance with Title 10 of the *Code of Federal Regulation* (CFR) 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 Management System (ADAMS). ADAMS is accessible from the NRC Web site <http://www.nrc.gov/reading-rm/adams.html#web-based-adams> (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket Nos. 50-352 and 50-353  
License Nos. NPF-39 and NPF-85

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NAME	JDAntonio	DJackson			
DATE	3/17/16	3/21/16			

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B. Hanson

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Enclosure:

Examination Report 05000352 and  
050000353/2016301  
w/Attachment: Supplementary Information

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## **EXAMINATION REPORT**

### **U.S. NUCLEAR REGULATORY COMMISSION REGION I**

Dockets: 50-352 and 50-3253

Licenses: NPF-39 and NPF-85

Report : 05000352/2016301 and 05000353/2016301

Licensee: Exelon Generation

Facility: Limerick Generating Station, Units 1 and 2

Location: Sanatoga, PA 19464

Dates: January 19 - 28, 2016 (Operating Test Administration)  
January 29, 2016 (Written Examination Administration)  
February 5, 2016 (Licensee Submitted Post Exam Package)  
February 24, 2016 (Completion of NRC Examination Grading)  
February 25, 2016 (Licenses Issued)

Examiners: J. D'Antonio, Chief Examiner, Operations Branch  
T. Fish, Senior Operations Engineer  
M. Patel, Operations Engineer  
T. Dunn, Operations Engineer  
T. Hedigan, Operations Engineer

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

## SUMMARY

ER 05000352/2016301 and 05000353/2016301; January 19-29, 2016; Limerick Generating Station, Units 1 and 2; Initial Operator Licensing Examination Report.

NRC examiners evaluated the competency of seven applicants for reactor operator licenses, five applicants for instant senior reactor operator licenses, and one applicant for an upgrade senior reactor operator license at Limerick Generating Station, Units 1 and 2. The facility licensee developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10. The written examination was administered by the facility on January 29, 2016. NRC examiners administered the operating tests on January 19-28, 2016. The NRC examiners determined that all 13 applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

No findings were identified.

## REPORT DETAILS

### 4. OTHER ACTIVITIES (OA)

#### 4OA5 Other Activities (Initial Operator License Examination)

##### .1 License Applications

###### a. Scope

The examiners reviewed all 13 license applications submitted by the licensee 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 audited three of the license applications in detail to confirm that they accurately reflected the subject applicant's qualifications. This audit focused on the applicant's experience and on-the-job training, including control manipulations that provided significant reactivity changes.

###### b. Findings

No findings were identified.

##### .2 Operator Knowledge and Performance

###### a. Examination Scope

On January 29, 2016, the licensee proctored the administration of the written examination to all 13 applicants. The licensee staff graded the written examination, analyzed the results, and presented their analysis to the NRC on February 5, 2016.

The NRC examination team administered the various portions of the operating examination to all 13 applicants on January 19-28, 2016. The seven applicants for reactor operator licenses participated in two or three dynamic simulator scenarios, in a control room and facilities walkthrough test consisting of eleven system tasks, and an administrative test consisting of four administrative tasks. The five applicants seeking an instant senior reactor operator license participated in 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 one applicant for upgrade senior reactor operator 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.

Enclosure

b. Findings

All applicants passed all parts of the examination. For the written examination, the reactor operator applicants' average score was 88.56 percent and ranged from 82.66 to 96 percent, the senior operator applicants' average score was 89.66 percent and ranged from 88 to 94 percent. The overall written examination average was 89 percent. The text of the examination questions, the licensee's examination analysis, and the licensee's post-examination comments may be accessed in the ADAMS system under the accession numbers noted in Attachment 1.

The NRC examiners completed the final grading of the written examination on February 10, 2016, and conducted a review of each missed question to determine the accuracy and validity of the examination questions. In accordance with current NRC policy, the release of this written examination will be delayed for 2 years. The text of the examination questions, the licensee's examination analysis, and the licensee's post-examination comments may be accessed in the ADAMS system under the accession numbers noted in the attachment.

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. The licensee conducted this performance analysis for all questions that met these criteria and submitted the analysis to the chief examiner

The licensee submitted one post-examination scenario comment on February 18, 2016. The NRC reviewed the facility's comment and accepted the facility recommendation to change the correct Technical Specification call for event 3 in Scenario SEG-6213E. The text of the examination questions, the licensee's examination analysis, and the licensee's post-examination comment with the NRC resolution may be accessed in the ADAMS system under the accession numbers noted in the Attachment 1.

.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 October 26, 2015. 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 November 23, 2015. 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 December 7, 2015. The licensee satisfactorily completed comment resolution prior to administration of the examination.



b. Findings

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

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

No findings were identified.

.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

No findings were identified.

.5 Examination Security

a. Examination Scope

The examiners reviewed examination security for examination development and during both the onsite preparation week and examination administration week for compliance with NUREG-1021 requirements. Plans for simulator security and applicant control were reviewed and discussed with licensee personnel

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

The chief examiner presented the examination results to Mr. Bob Ruffe, Training Director, and other members of the licensee's management staff on February 25, 2016. The licensee acknowledged the findings presented.

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

**ATTACHMENTS: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

D. Molteni, Operations Training Manager

NRC Personnel

J. D'Antonio, Chief Examiner

**ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

NONE

Opened and Closed

NONE

Closed

NONE

Discussed

NONE

**ADAMS DOCUMENTS REFERENCED**

Accession No. ML16064A161 – 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 2 years.)

Accession No. ML16064A163 – FINAL-Operating Exam

Accession No. ML16064A159 – FINAL-Post Exam Comments, Resolutions, and Technical References