



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

March 1, 2018

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

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2
INITIAL OPERATOR LICENSING EXAMINATION REPORT
ER 05000352/2017302 AND 05000353/2017302

Dear Mr. Hanson:

On January 4, 2018, 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 January 30, 2018, with Messrs. Keith Kemper, Dan Semeter, and other members of your staff.

The examination included the evaluation of three applicants for reactor operator licenses, three 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 11. The license examiners determined that seven of the eight applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses were issued on January 30, 2018.

No findings were identified during this examination. One applicant for a reactor operator failed the written portion of the exam and was denied a license.

In accordance with Title 10 of "*Code of Federal Regulations* (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's 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's 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. 50-352 and 50-353
License Nos. NPF-39 and NPF-85

B. Hanson

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Enclosure:

Examination Report 05000352/2017302 and 05000353/2017302
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2
 INITIAL OPERATOR LICENSING EXAMINATION REPORT
 ER 05000352/2017302 AND 05000353/2017302 DATED MARCH 1, 2018

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

Dockets: 50-352 and 50-353

Licenses: NPF-39 and NPF-85

Report : 05000352/2017302 and 05000353/2017302

Enterprise Identifier I-2017-302-0003

Licensee: Exelon Generation Company, LLC

Facility: Limerick Generating Station, Units 1 And 2

Location: Sanatoga, PA

Dates: 12/18-21/2017 (Operating Test Administration)
1/4/2018 (Written Examination Administration)
1/16/2018 (Licensee Submitted Post Exam Package)
1/18/2018 (NRC Examination Grading)
1/30/2018 (Licenses Issued)

Examiners: B. Fuller, Chief Examiner, Operations Branch
P. Presby, Senior Operations Engineer
T. Fish, Senior Operations Engineer
M. Patel, Operations Engineer

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

Enclosure

SUMMARY

ER 05000352/2017302 and 05000353/2017302; 12/18/17 – 1/30/18; Limerick Generating Station, Units 1 and 2; Initial Operator Licensing Examination Report.

Four NRC examiners evaluated the competency of three applicants for reactor operator licenses; three applicants for instant senior reactor operator licenses and two applicants for upgrade senior reactor operator licenses 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 11. The written examination was administered by the facility on January 4, 2018. NRC examiners administered the operating tests on December 18-21, 2017. The NRC examiners determined that seven of the eight applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

A. NRC-Identified and Self-Revealing Findings

No findings were identified.

B. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA5 Other Activities (Initial Operator License Examination)

.1 License Applications

a. Scope

The examiners reviewed all eight 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 eight 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 4, 2018, the licensee proctored the administration of the written examinations to all eight applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on January 16, 2018.

The NRC examination team administered the various portions of the operating examination to all eight applicants on December 18-21, 2017. The three applicants for reactor operator licenses participated in two 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 three applicants seeking an instant senior reactor operator license participated in two 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 senior reactor operator licenses participated in one 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

All eight of the applicants passed all parts of the operating test. One reactor operator applicant failed the written examination. For the written examinations, the reactor operator applicants' average score was 81.33 percent and ranged from 74.67 to 88.0 percent, the senior operator applicants' average score was 92.0 percent and ranged from 83.0 to 96.0 percent. The overall written examination average was 88.0 percent.

The NRC examiners completed the final grading of the written examination on January 18, 2018, 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 two 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 four questions that met these criteria and submitted the analysis to the chief examiner.

.3 Initial Licensing Examination Development

a. Examination Scope

The facility licensee developed the examinations in accordance with NUREG-1021, Revision 11. All licensee facility training and operations staff involved in examination preparation and validation were listed on a security agreement. The facility licensee submitted operating examination outline on July 21, 2017. 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 October 14, 2017. The chief examiner reviewed the draft examination package against the requirements of NUREG-1021, and provided comments to the licensee on the examination on November 20, 2017. The NRC conducted an onsite validation of the operating examinations and provided further comments during the week of November 20, 2017. The licensee satisfactorily completed comment resolution on December 12, 2017.

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, Revision 11 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 Messrs. Keith Kemper, Training Manager, and other members of the licensee's management staff on January 30, 2018.

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

**ATTACHMENT:
SUPPLEMENTARY INFORMATION**

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Semeter, Operations Training Manager
T. Byers, Exam Author
C. Bihl, Exam Author

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed

NONE

Closed

NONE

Discussed

NONE

ADAMS DOCUMENTS REFERENCED

Accession No. ML18038B436 – 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. ML18038B410 – FINAL-Operating Exam