



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-2713

March 13, 2017

Mr. Bryan 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 05000352/2017301 AND 05000353/2017301

Dear Mr. Hanson:

On January 27, 2017, 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 23, 2017, with Messrs. David Lewis, Keith Kemper, and other members of your staff.

The examination included the evaluation of five applicants for reactor operator licenses, four applicants for instant senior reactor operator licenses, and one applicant for upgrade senior reactor operator license. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10. The license examiners determined that all ten of the ten applicants satisfied the requirements of 10 CFR Part 55, and the appropriate license were issued on February 23, 2017.

No findings were identified during this examination.

In accordance with Title 10 of "*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's Public Document Room or from the Publicly Available Records (PARS) component of NRC 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 and 05000353/2017301
w/Attachment Supplementary Information

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SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 - INITIAL OPERATOR
LICENSING EXAMINATION REPORT 05000352/2017301 AND 05000353/2017301

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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 : 05000352/2017301 and 05000353/2017301

Licensee: Exelon Generation Co., LLC

Facility: Limerick Generating Station, Units 1 and 2

Location: 3146 Sanatoga Rd
Pottstown, PA 19464

Dates: January 17, 2017 – January 24, 2017 (Operating Test Administration)
January 27, 2017 (Written Examination Administration)
February 3, 2017 (Licensee Submitted Post Exam Package)
January 27 - February 23, 2017 (NRC Examination Grading)
February 23, 2017 (Licenses Issued)

Examiners: P. Presby, Chief Examiner, Senior Operations Engineer
T. Fish, Senior Operations Engineer
M. Patel, Operations Engineer
T. Dunn, Operations Engineer

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

Enclosure

SUMMARY

ER 05000352/2017301 05000353/2017301; January 17-27, 2017; Limerick Generating Station, Units 1 and 2; Initial Operator Licensing Examination Report

NRC examiners evaluated the competency of five applicants for reactor operator licenses; four applicants for instant senior reactor operator licenses and one applicant for 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 27, 2017. NRC examiners administered the operating tests on January 17-24, 2017. The NRC examiners determined that all ten of the ten 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 ten 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 27, 2017, the licensee proctored the administration of the written examinations to all ten applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on February 3, 2017.

The NRC examination team administered the various portions of the operating examination to all ten applicants on January 17-24, 2017. The five applicants for reactor operator licenses participated in 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 four 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 an upgrade senior reactor operator license participated in one dynamic simulator scenario, a control room and facilities walkthrough test consisting of five system tasks, and an administrative test consisting of five administrative tasks.

b. Findings

All ten of the applicants passed all parts of the operating test. For the written examinations, the reactor operator applicants' average score was 85.06 percent and ranged from 80.00 to 88.00 percent, the senior operator applicants' average score was 86.66 percent and ranged from 80.80 to 93.93 percent. The overall written examination average was 85.87 percent.

The NRC examiners completed the final grading of the written examination on February 23, 2017, and conducted a review of each missed question 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. The licensee conducted this performance analysis for 13 questions that met these criteria and submitted the analysis to the chief examiner.

The licensee submitted two post-examination question comments on February 3, 2017. The NRC reviewed the facility's post-exam comment submittal package and accepted the facility recommendation on one of the two questions.

- For Q5, the facility recommended and the NRC accepted two answers, Choices B and C, for the question.
- For Q92, the facility recommended accepting two correct answers (both B and D). The NRC did not agree and instead deleted Q92 from the exam.

The text of the examination questions, the licensee's examination analysis, and the licensee's post-examination comments with the NRC resolutions may be accessed in the ADAMS system under the accession numbers noted in the Attachment 1.

In accordance with current NRC policy, the release of this written examination will be delayed for two years.

.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 18, 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 November 17, 2016. The chief examiner reviewed the draft examination package against the requirements of NUREG-1021, and provided comments to the licensee on the examination on December 5, 2016 and December 19, 2016. The NRC conducted an onsite validation of the operating examinations and provided comments during the week of December 5, 2016. The licensee satisfactorily completed comment resolution on January 13, 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 10 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. David Lewis, Plant Manager, and other members of the licensee's management staff on February 23, 2017. The licensee acknowledged the findings presented.

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

4OA7 Licensee-Identified Violations

No findings were identified.

ATTACHMENTS:
SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Semeter, Operations Training Manager
B. Devine, Facility Exam Representative
T. Byers, Exam Developer
R. Forst, Exam Developer
F. Bruns, Corporate Exam Representative
T. Brennan, Initial License Training Lead

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed

NONE

Closed

NONE

Discussed

NONE

ADAMS DOCUMENTS REFERENCED

Accession No. ML17075A382 – FINAL-Written Exam
Accession No. ML17075A384 – FINAL-Operating Exam

Note: In accordance with current NRC policy, the public release of the written examination and operating test in ADAMS will be delayed for two years from the date of this Examination Report.

Accession No. ML17072A432 – FINAL-Post Exam Comments, Resolutions, and Technical References