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

November 29, 2012

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Rd.
Warrenville, IL 60555

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 - NRC EXAMINATION REPORT 05000352/2012301 and 05000353/2012301

Dear Mr. Pacilio:

On October 19, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an initial operator licensing examination at Limerick Generating Station, Units 1 and 2. The enclosed report documents the examination findings, which were discussed on November 15, 2012, with Messrs. Anthony Wasong, Training Director and Robert Kreider, Operations Director and other members of your staff.

The examination included the evaluation of four reactor operator applicants, five instant senior reactor operator applicants, and two upgrade senior reactor operator applicants. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The license examiners determined that eight of 11 applicants satisfied the requirements of 10 CFR Part 55, and seven licenses were issued on November 15, 2012. One of applicants for an upgrade senior reactor operator (SRO) license passed the exam but his license is being held based on his SRO only written exam grade until the applicant who failed the written examination has had an opportunity to appeal his license denial in accordance with ES-501, D.3.c.

No findings were identified during this examination.

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 document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

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

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

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Senior Vice President, Exelon Generation Company, LLC
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Sincerely,

/RA/

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

Docket Nos. 50-352, 50-353
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NAME	JCaruso	DJackson			
DATE	11/20/12	11/29/12			

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Enclosure:
NRC Examination Report 05000352/2012301
and 05000353/2012301
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Dockets:	50-352, 50-353
Licenses:	NPF-39, NPF-85
Report:	05000352/2012301 and 05000353/2012301
Licensee:	Exelon Generation Company, LLC
Facility:	Limerick Generating Station, Units 1 and 2
Location:	Sanatoga, PA 19464
Dates:	October 9-15, 2012 (Operating Test Administration) October 19, 2012 (Written Examination Administration) October 26, 2012 (Licensee Submitted Post Exam Package) October 16 - November 14, 2012 (NRC Examination Grading) November 15, 2012 (Licenses Issued)
Examiners:	J. Caruso, Chief Examiner, Operations Branch S. Hansell, Senior Resident Inspector/Examiner C. Lally, Operations Engineer M. Patel, Operations Engineer J. DeMarshall, Reactor Operations Engineer (Certification Exam) J. Tomlinson, Operations Engineer (Part Time)
Approved by:	Donald E. Jackson, Chief Operations Branch Division of Reactor Safety

SUMMARY OF FINDINGS

ER 05000352/2012301 and 05000353/2012301; October 9 - 19, 2012; Limerick Generating Station Units 1 and 2; Initial Operator Licensing Examination Report.

NRC examiners evaluated four reactor operator applicants, five instant senior reactor operator (SRO) applicants, and two upgrade senior reactor operator applicants at Limerick Generating Station, Units 1 and 2. The NRC developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The written examination was administered by the facility on October 19, 2012. NRC examiners administered the operating tests on October 9-15, 2012. The license examiners determined that eight of 11 applicants satisfied the requirements of 10 CFR Part 55, and seven licenses were issued on November 15, 2012. One of applicants for an upgrade SRO license passed the exam but his license is being held based on his SRO only written exam grade until the applicant who failed the written examination has had an opportunity to appeal his license denial in accordance with ES-501, D.3.c.

A. NRC-Identified and Self-Revealing Findings

No findings were identified.

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Mitigating Systems – Reactor Operator (RO) and Senior Reactor Operator (SRO) Initial License Examination

.1 License Applications

a. Scope

The examiners reviewed all 11 license applications submitted by the licensee to ensure 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 examiner also audited nine 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 October 19, 2012, the licensee proctored the administration of the written examinations to all 11 applicants. The licensee staff graded the written examinations in parallel with the NRC, analyzed the results, and presented their analysis to the NRC on October 26, 2012.

The NRC examination team administered the various portions of the operating examination to all 11 applicants during the period, October 9-15, 2012. The four applicants for reactor operator licenses participated in two to 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 senior operator license participated in three dynamic simulator scenarios, a control room and facilities walkthrough test consisting of 10 system tasks, and an administrative test consisting of five administrative tasks. The two applicants seeking an upgrade senior 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

Eight of 11 applicants passed all parts of the examination (i.e., two applicants failed the operating test and one failed the written exam). For the written examinations, the reactor operator applicants' average score was 85.33 percent and ranged from 84.00 to 88.00 percent, the senior operator applicants' average score was 86.42 percent and ranged from 77.00 to 91.00 percent. The overall written examination average was 86.02 percent. In accordance with current NRC policy, the release of this written examination will be delayed for 2 years. The text of the examination questions, and the licensee's examination analysis may be accessed in the Agencywide Documents Access and Management System (ADAMS) under the accession numbers noted in attachment 1.

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 six questions that met these criteria and submitted the analysis to the chief examiner. This analysis concluded that all six of these questions were valid as written. There were no post written examination comments submitted by the licensee.

.3 Initial Licensing Examination Development

a. Examination Scope

The NRC developed the examinations in accordance with NUREG-1021, Revision 9, Supplement 1. All licensee facility training and operations staff involved in examination review, validation, and administration were listed on a security agreement. The NRC conducted an onsite pre-validation of the operating examinations the week of August 6, 2012 and a final validation of the operating examinations the week of September 10, 2012. The licensee was afforded an opportunity to provide comments during these periods and the NRC Chief Examiner ensured resolution of all licensee comments prior to operating examination approval.

b. Findings

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 examination results to Messrs. Anthony Wasong, Training Director and Robert Kreider, Operations Director, on November 15, 2012.

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

Attachment:
Supplemental Information

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

A. Wasong, Training Director
R. Kreider, Operations Director
M. Gillin, Shift Operations Superintendent
J. Murphy, Senior Manager Operations Support and Services
R. Ruffe, Operations Training Director
J. Walton, Licensed Operator Initial Training Lead
H. Weissinger, Operations Shift Manager
L. Stanford, Exam Team Lead

NRC Personnel

J. Caruso, Chief Examiner
S. Hansell, Senior Resident Inspector/Examiner
C. Lally, Operations Engineer
M. Patel, Operations Engineer
J. DeMarshall, Senior Operations Engineer (Certification Exam)
J. Tomlinson, Operations Engineer (Part Time)

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed/Discussed

NONE

ADAMS DOCUMENTS REFERENCED

Accession No. ML12325A303 – FINAL-Written Exam
Accession No. ML12325A335 – FINAL-Written Exam Performance Analysis
Accession No. ML12325A347 – FINAL-Operating Exam (Sections A, B, and C)

ES-501	Simulator Fidelity Report	Attachment 2

Facility: Limerick Generating Station Units 1 and 2

Facility Docket No.: 50-352; 50-353

Operating Test Administered on: October 9 - 15, 2012

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.

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

Item	Description
1	During the JPM "E" administration, "Synchronize and Load D12 Diesel Generator to 1000 KW", when closing the EDG breaker the EDG breaker tripped on four different occasions. The licensee indicated that a simulator electric plant mod was installed about 6 months ago that might have unintentionally caused this issue. SWR 2012084/14329
2	Simulator Vibration Monitoring System (VMS): Observed during Exam Validation that the screen vibration color did not change from yellow to red when the danger alarm was received for the "1A" Recirculation Pump. SWR 2001298/2680
3	No malfunction currently exists for simulating a runaway Recirculation Pump with the new Adjustable Speed Drive (ASD) controller. In order to simulate this malfunction, the Booth Operator had to repeatedly insert a 10 RPM raise pushbutton override and then immediately delete the override to prevent pushbutton lockout. It was only possible to simulate an ASD controller incremental speed increase rather than an actual runaway pump, as can be done with the Unit 2 Recirc MG Sets. IR 1441285

Item	Procedural Issues Identified	Attachment 3
1	OT-112 provides no direct guidance for monitoring/managing Thermal Hydraulic Instability (THI), except in Attachment 3, which is only entered if all four OPRMs are inoperable due to common cause failure. IR 1441184	
2	Event procedure E-D134 does not address Refuel Floor isolation on Low Zone differential pressure and the fact that both Standby Gas Treatment Fans will start and draw down the Refuel Floor several minutes after a loss of D-134. IR 1441184	
3	The examiners observed that some of the applicants when performing sync of the EDG in accordance with procedure S92.1.O.had the sync scope rotating faster than expected in the fast direction and closed the EDG output breaker in on the bus at the five past twelve position. The current procedure does not define what "slow in the fact direction" means. A suggestion was made to benchmark other utilities and consider enhancing procedural guidance in S92.1.O.for sync scope rotation to define what "slow in the fast direction" means. IR 1441285	
4	Event procedure E-D134 directs performance of S76.8.B for Manually Initiating a Reactor Enclosure Secondary Containment Isolation. Either Section 4.4 or 4.5 may be used to accomplish the Manual Initiation. Section 4.5, "Reactor Enclosure Secondary Containment Manual Low DP Isolation," is desirable from the standpoint that the associated actions do not result in PCIG Containment Valve Isolations. However, Step 4.5.5 for initiating an "A" Channel Isolation is unable to be performed due to the Loss of D134 (i.e., no power to N2 Inerting Block Valve, HV-57-160A). It was unclear as to whether or not Section 4.5 can be successfully accomplished if unable to perform this step associated with initiating a Channel "A" Isolation. IR 1441184	
5	GP5, Appendix 2, Rev. 67, step 3.1.1.2.c incorrectly references Attachment 3 on Page 11. The step should reference Attachment 2. IR 1441184	
6	SE-10 has no bases document, and provides no basis for injecting SLC post-LOCA. IR 1441184	
7	The simulator malfunction guide, MPR011B lists 108 E-3 as an expected annunciator. The actual annunciator number is 108 F-3. IR 1441184	
8	S51.6.B provides no direct guidance to close the RHR F009 valve, instead it is relied on to be closed in S51.8.L IR 1441184	
9	T-117 LQ-11 says 'reator' instead of 'reactor' IR 1441184	