



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

October 19, 2011

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: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 – NRC INITIAL  
OPERATOR LICENSING EXAMINATION REPORT 05000289/2011301

Dear Mr. Pacilio:

On September 7, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an examination at Three Mile Island Nuclear Station, Unit 1. The enclosed report documents the examination findings, which were discussed on September 16, 2011, with Mr. Thomas Van Wyen, Training Director, and other members of your staff.

The examination included the evaluation of three applicants for reactor operator licenses, one applicant for instant senior operator license, and one applicant for upgrade senior operator license. 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 all five of the applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses were issued on September 16, 2011.

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 Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams/web-based.html> (the Public Electronic Reading Room).

Sincerely,

A handwritten signature in black ink, appearing to read "D. E. Jackson", followed by the word "for" in a smaller, cursive script.

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

Docket No. 50-289  
License No. DPR-50

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Sincerely,

*/RA by Peter R. Wilson for/*

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

Docket No. 50-289  
 License No. DPR-50

SUNSI Review Complete: JGC (Reviewer's Initials)

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NAME	JCaruso/JGC	DJackson/PRW for						
DATE	10/19/11	10/19/11						

OFFICIAL RECORD COPY

M. Pacilio

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Enclosure: NRC Initial Operator Licensing Examination Report 05000289/2011301  
w/Attachment: Supplemental Information

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J. Caruso, Chief Examiner, DRS  
DRS Master Exam File (C. Bixler) (w/concurrences)  
DRS File

**EXAMINATION REPORT**

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

Dockets: 50-289  
Licenses: DPR-50  
Report : 05000289/2011301  
Licensee: Exelon Generation Company LLC  
Facility: Three Mile Island Nuclear Station, Unit 1  
Location: P O Box 480  
Middletown, PA 17057-0480  
Dates: August 31 - September 2, 2011 (Operating Test Administration)  
September 7, 2011 (Written Examination Administration)  
September 14, 2011(Licensee Submitted Post Exam Package)  
September 6 -14, 2011 (NRC Examination Grading)  
September 16, 2011 (Licenses Issued)

Examiners: John Caruso, Chief Examiner, Operations Branch  
Joseph D'Antonio, Senior Operations Engineer  
Thomas Hedigan, Operations Engineer

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

## SUMMARY OF FINDINGS

ER 05000289/2011301; August 31 – September 16, 2011; Three Mile Island Nuclear Station, Unit 1; Initial Operator Licensing Examination Report.

NRC examiners evaluated the competency of three applicants for reactor operator licenses, one applicant for instant senior operator license, and one applicant for upgrade senior operator license at Three Mile Island Nuclear Station, Unit 1. The facility licensee 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 September 7, 2011. NRC examiners administered the operating tests on August 31-September 2, 2011. The license examiners determined that all five of the 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 five 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 four 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 September 7, 2011, the licensee proctored the administration of the written examinations to all five applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on September 14, 2011.

The NRC examination team administered the various portions of the operating examination to all five applicants on August 31-September 2, 2011. 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 one applicant seeking an instant senior operator license participated in 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 operator license 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

All five of the applicants passed all parts of the operating test. For the written examinations, the reactor operator applicants' average score was 87.10 percent and ranged from 82.66 to 90.66 percent, the senior operator applicants' average score was

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85.00 percent and ranged from 84.00 to 86.00 percent. The overall written examination average was 86.26 percent. The text of the examination questions, and the licensee's examination analysis, may be accessed in the ADAMS system under the accession numbers noted in Attachment 1. In accordance with current NRC policy, the release of this written examination in ADAMS to the public will be delayed for two years.

The NRC examiners completed the final grading of the written examination on September 14, 2011, 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 fourteen questions that met these criteria and submitted the analysis to the chief examiner. This analysis concluded that all questions on the written examination were technically accurate as written and no post exam comments were submitted by the licensee for this examination.

### .3 Initial Licensing Examination Development

#### a. Examination Scope

The facility licensee developed the examinations in accordance with NUREG-1021, Revision 9, Supplement 1. 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 May 4, 2011. The chief examiner reviewed the outlines against the requirements of NUREG-1021, and provided comments to the licensee. The facility licensee submitted the draft operating test examination package on July 1, 2011 and the draft written examination package on July 8, 2011. The chief examiner reviewed the draft examination package against the requirements of NUREG-1021, and provided comments to the licensee on the examination between July 21 and July 26, 2011. The NRC conducted an onsite validation of the operating examinations and provided further comments during the week of August 1, 2011. The licensee satisfactorily completed comment resolution on the operating test on August 19, 2011 and on the written examination on August 25, 2011.

#### b. Findings

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

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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. Thomas Van Wyen, Training Director, and other members of the licensee's management staff on September 16, 2011.

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

ATTACHMENTS:

1. SUPPLEMENTAL INFORMATION
2. SIMULATOR FIDELITY REPORT
3. PROCEDURAL ISSUES IDENTIFIED

Enclosure

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

**Licensee Personnel**

T. Van Wyen, Training Director  
L. Blair, Operations training Manager  
J. Ward, Licensed Operator Initial Training Supervisor  
G. Hoek, Training Instructor, Exam Developer  
R. Megill, Nuclear Training Instructor, Exam Developer

**NRC Personnel**

D. Jackson, Chief Operations Branch  
J. Caruso, Chief Examiner

**ITEMS OPENED, CLOSED, AND DISCUSSED**

**Opened/Closed/Discussed**

NONE

**ADAMS DOCUMENTS REFERENCED**

Accession No. ML112620105 – 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. ML112620125 – FINAL-Operating Exam

ES-501

## Simulator Fidelity Report

Attachment 2

Facility Licensee: Three Mile Island Nuclear  
Station, Unit 1

Facility Docket No.: 50-289

Operating Test Administered on: August 31-  
September  
2, 2011

*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
AR 01258499	First Simulator Scenario interrupted by Simulator going to freeze.
AR 01258056	Simulator stopped and went to freeze during NRC JPM administration.
SWR 13509	Delete Malfunctions IC 37 and 41 – EFW actuation system failures do not appear credible.

Item	Procedural Issues Identified	Attachment 3
1	EP-AA-114-F-01, Procedural enhancement identified during the NRC initial license examination determination of release in-progress was not clear. Evaluate a method to specify the applicable effluent monitors for determining whether a radiation release is in-progress either directly or by specified reference (AR 01261114).	
2	OP-TM-424-901, Procedural enhancement identified during the NRC initial license examination to ensure following an instrumentation failure that a valid instrumentation is selected (AR 01264747).	
3	1107-11, Procedural enhancement identified during the NRC initial license examination additional guidance needs to be incorporated to address the possibility of restoring the 1D and 1E 4Kv busses from the EDG or SBO operations (AR 01264883).	