

March 16, 2006

Mr. Christopher M. Crane  
President and Chief Nuclear Officer  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3  
NRC INITIAL LICENSE EXAMINATION REPORT 05000237/2006301(DRS);  
05000249/2006301(DRS)

Dear Mr. Crane:

On February 10, 2006, the NRC completed initial operator licensing examinations at your Dresden Nuclear Power Station. The enclosed report documents the results of the examination which were discussed on February 10, 2006, with Mr. D. Bost and other members of your staff. A subsequent telephone conversation was conducted on February 27, 2006, with Mr. C. Symonds and other members of your staff to discuss the NRC's resolution of the written examination post-examination comments.

NRC examiners administered the operating test during the week of February 6, 2005. Members of the Dresden Nuclear Power Station Training Department staff administered the written examination on February 13, 2006. Five Senior Reactor Operator (SRO) applicants were administered license examinations. The results of the examinations were finalized on March 1, 2006. Four applicants passed all sections of their examinations, two of these applicants were issued senior operator licenses. One SRO applicant failed the written examination and will not be issued a license. Two applicants scored either less than an 82 percent overall or 74 percent on the SRO only portion of the written examination; and, in accordance with the guidelines of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," ES-501.D.3.c, these licenses will be withheld until any appeal rights of the failed applicant are exhausted.

In accordance with 10 CFR Part 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).

C. Crane

-2-

We will gladly discuss any questions you have concerning this examination.

Sincerely,

*/RA/*

Hironori Peterson, Chief  
Operations Branch  
Division of Reactor Safety

Docket Nos. 50-237; 50-249  
License Nos. DPR-19; DPR-25

Enclosures: 1. Operator Licensing Examination  
Report 05000237/2006301(DRS); 05000249/2006301(DRS)  
2. Simulation Facility Report  
3. Post Examination Comments and  
Resolutions  
4. Written Examinations and Answer  
Keys (RO & SRO)

cc w/encls 1 & 2: Site Vice President - Dresden Nuclear Power Station  
Dresden Nuclear Power Station Plant Manager  
Regulatory Assurance Manager - Dresden  
Chief Operating Officer  
Senior Vice President - Nuclear Services  
Senior Vice President - Mid-West Regional  
Operating Group  
Vice President - Mid-West Operations Support  
Vice President - Licensing and Regulatory Affairs  
Director Licensing - Mid-West Regional  
Operating Group  
Manager Licensing - Dresden and Quad Cities  
Senior Counsel, Nuclear, Mid-West Regional  
Operating Group  
Document Control Desk - Licensing  
Assistant Attorney General  
Illinois Emergency Management Agency  
State Liaison Officer  
Chairman, Illinois Commerce Commission

cc w/encls 1, 2, 3, and 4: C. Symonds, Training Manager

We will gladly discuss any questions you have concerning this examination.

Sincerely,

**/RA/**

Hironori Peterson, Chief  
Operations Branch  
Division of Reactor Safety

Docket Nos. 50-237; 50-249  
License Nos. DPR-19; DPR-25

- Enclosures:
1. Operator Licensing Examination  
Report 05000237/2006301(DRS); 05000249/2006301(DRS)
  2. Simulation Facility Report
  3. Post Examination Comments and Resolutions
  4. Written Examinations and Answer Keys (RO & SRO)

cc w/encls 1 & 2:

Site Vice President - Dresden Nuclear Power Station  
 Dresden Nuclear Power Station Plant Manager  
 Regulatory Assurance Manager - Dresden  
 Chief Operating Officer  
 Senior Vice President - Nuclear Services  
 Senior Vice President - Mid-West Regional Operating Group  
 Vice President - Mid-West Operations Support  
 Vice President - Licensing and Regulatory Affairs  
 Director Licensing - Mid-West Regional Operating Group  
 Manager Licensing - Dresden and Quad Cities  
 Senior Counsel, Nuclear, Mid-West Regional Operating Group  
 Document Control Desk - Licensing  
 Assistant Attorney General  
 Illinois Emergency Management Agency  
 State Liaison Officer  
 Chairman, Illinois Commerce Commission

cc w/encls 1, 2, 3, and 4: C. Symonds, Training Manager

DOCUMENT NAME: C:\MyFiles\Copies\DRE 2006 301 DRS.wpd

Publicly Available       Non-Publicly Available       Sensitive       Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII		RIII				
NAME	CPhillips:co		HPeterson				
DATE	03/08/06		03/16/06				

**OFFICIAL RECORD COPY**

ADAMS Distribution:

GYS

MXB

RidsNrrDirslrib

GEG

KGO

DRC1

CAA1

C. Pederson, DRS (hard copy - IR's only)

DRPIII

DRSIII

PLB1

JRK1

[ROPreports@nrc.gov](mailto:ROPreports@nrc.gov)

MAB1

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-237; 50-249  
License Nos: DPR-19; DPR-25

License No.: DPR-43

Report No.: 000237/2006301(DRS); 05000249/2006301(DRS)

Licensee: Exelon Generation Company

Facility: Dresden Nuclear Power Station

Location: 6500 North Dresden Road  
Morris, IL 60450

Dates: February 6 through February 10, 2006

Examiners: C. Phillips, Chief Examiner  
C. Zoia, Examiner

Approved by: H. Peterson, Chief  
Operations Branch  
Division of Reactor Safety

Enclosure 1

## SUMMARY OF FINDINGS

ER 05000237/2006301(DRS); 05000249/2006301(DRS); 02/06/2006-02/10/06; Dresden Nuclear Power Station; Initial License Examination Report.

The announced operator licensing initial examination was conducted by regional examiners in accordance with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9.

### Examination Summary:

- Five Senior Reactor Operator examinations were administered.
- Four applicants passed all sections of their examinations, two of these applicants were issued senior operator licenses. One SRO applicant failed the written examination and will not be issued a license. Two applicants scored either less than 82 percent overall or less than 74 percent on the SRO only portion of the written examination; and, in accordance with the guidelines of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," ES-501.D.3.c, these licenses will be withheld until any appeal rights of the failed applicant are exhausted.

## REPORT DETAILS

### 4. OTHER ACTIVITIES (OA)

#### 4OA5 Other

##### .1 Initial Licensing Examinations

###### a. Examination Scope

The NRC examiners conducted an announced initial operator licensing examination during the week of February 6, 2006. The licensee used the guidance established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, to prepare the examination outline and to develop the written examination and operating test. The NRC examiners administered the operating test February 6 through 10, 2005. Members of the Dresden Nuclear Power Station Training Department administered the written examination on February 13, 2006. Five Senior Reactor Operator (SRO) applicants were examined.

###### b. Findings

###### Written Examination

The licensee developed the written examination. During their internal review, the NRC examiners determined that the examination, as submitted, was within the range of acceptability expected for a proposed examination. Written examination comments developed during review by the NRC staff, and as a result of examination validation were incorporated into the written examination in accordance with the guidance contained in NUREG-1021.

A total of two post-examination comments on the reactor operator portion of the examination were submitted by the applicants and station training department personnel on February 17, 2006. The results of the NRC's review of the comments are documented in Attachment 3, Post Examination Comments and Resolutions.

###### Operating Test

The NRC examiners determined that the operating test, as originally submitted by the licensee, was within the range of acceptability for a proposed examination. The examiners validated the operating test during the validation week and replaced or modified several items in the proposed operating test. Test changes, agreed upon between the NRC and the licensee, were made in accordance with NUREG-1021 guidelines.

###### Examination Results

Four applicants passed all sections of their examinations, two of these applicants were issued senior operator licenses. One SRO applicant failed the written examination and will not be issued a license. Two applicants scored either less than 82 percent overall or

less than 74 percent on the SRO only portion of the written examination; and, in accordance with the guidelines of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," ES-501.D.3.c, these licenses will be withheld until any appeal rights of the failed applicant are exhausted.

.2 Examination Security

a. Inspection Scope

The NRC examiners briefed the facility contact on the NRC's requirements and guidelines related to examination physical security (e.g., access restrictions and simulator considerations). The examiners observed the implementation of examination security and integrity measures (e.g., security agreements) throughout the examination process.

b. Findings

No findings were noted in this area. There was one observation made by the examiners during the on-site validation week. The licensed operators performing the validation were using radios to communicate with the simulator booth. The examiners verified that there were only two radios and that they had a different frequency than those radios available to the operators in the plant. The examiners also verified that transmissions from the building could easily be received in the parking lot. The examiners' concern was that the capability existed to listen to the transmissions with a radio scanner from the parking lot. The licensee documented this concern in Issue Report 440959. Licensee management stated that in the future operators validating the examination would use the internal phone system instead of the radios.

40A6 Meetings

.1 Exit Meeting

The chief examiner presented the examination team's preliminary observations and findings on February 10, 2006, to Mr. D. Wozniak and other members of the Operations and Training Department staff. A subsequent exit via teleconference was held on February 27, 2006, with Mr. C. Symonds following review of the site post-examination comments. The licensee acknowledged the observations and findings presented. No proprietary information was identified by the station's staff during the exit meetings.

ATTACHMENT: SUPPLEMENTAL INFORMATION



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

D. Wozniak, Plant Manager  
R. Gadbois, Operations Director  
A. Khanifar, Nuclear Oversight Manager  
C. Symonds, Training Director  
G. Graff, Operations Training Director

#### NRC

None.

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened, Closed, and Discussed

None

### **LIST OF ACRONYMS USED**

ADAMS	Agency-Wide Document Access and Management System
DRS	Division of Reactor Safety
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
RO	Reactor Operator
SRO	Senior Reactor Operator

**SIMULATION FACILITY REPORT**

Facility Licensee: Dresden Nuclear Power Station

Facility Docket No.: 50-237; 50-249

Operating Tests Administered: February 6-10, 2006

The following documents observations made by the NRC examination team during the initial operator license examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following item was observed:

ITEM	DESCRIPTION
Standby Gas Treatment	A problem was noted with the use of the 2/3A Standby Gas Treatment Train. When attempting to restart the 2/3A Standby Gas Treatment Train after a simulated Group II isolation the A train heater repeatedly turned itself on and off and the A train flow fluctuated significantly. The licensee was unable to repair the simulator so that it could consistently perform as expected. The JPM was replaced.

**Post-Examination Comments and Resolution**

Question Number 8.

A small steam leak has developed in the Unit 2 Drywell and the following conditions exist:

RPV level is +30" and steady

- Both loops of Torus Sprays are on
- Torus Cooling is on using both divisions
- 316A and 316B switches are in Manual Override
- Drywell pressure is +5 psig and trending down slowly

If Drywell pressure drops below 1 psig, THEN:

- A. the LPCI system will continue to operate as stated above.
- B. the Torus spray valves in both LPCI loops will auto close.
- C. the Torus cooling valves in both LPCI loops will auto close.
- D. the LPCI inboard injection valve (21A or B) on the "Non-Selected" LPCI loop will auto close.

Answer: B

Applicant Comment:

Torus spray valves will not close when Drywell pressure drops below 1 psig as long as level is > - 59 inches. The Drywell +2 psig drywell pressure signal does not seal in.

Facility Proposed Resolution:

The facility management agreed with the applicant's statement. The original question was written with the premise that the LPCI [low pressure core injection] initiation was a seal-in logic. The original conditions have drywell pressure at + 5 psig. When conditions change and drywell pressure drops to + 1 psig, a valid LPCI initiation signal is no longer present, so the spray valves will not close automatically.

Electrical prints 12E-2437 sh 1 and 2, and 12E-2441 sh 1 have been submitted to the NRC to support the challenge. The two relays for making this determination are the BD-124 and the CR-138. Both of the relays have contacts in the Torus Spray Valve Logic. The basis for the correct answer being 'A', is that the pressure switches that feed the BD-124 relay are set to drop out at 1.81 psig decreasing and the pressure switches for the one pound interlock to the CR-138 relay are set at 1.5 psig. Because of these setpoints and the fact that the logic is not "seal-in," the closed contact in the Torus Spray logic will not be made up.

NRC Resolution:

Upon review of the question, the applicant comment, and the facility proposed resolution it was decided to change the correct answer from "B" to "A." Based on the plant conditions given in the question stem there is no LPCI injection signal present at the time that the drywell pressure drops below + 1 psig. After a review of the electrical drawings supplied by the licensee the Chief Examiner verified that the LPCI initiation signal does not seal-in and therefore there is no signal generated to close the torus spray valves.

The Chief Examiner reviewed the licensee's response from the perspective that if the licensee's response was correct then valve 2-1501-18A, which was open, would not change position. Electrical prints 12E-2437 sh 1 and 2, and 12E-2441 were reviewed. There are two contacts in series that must close, in the close control circuit for valve 2-1501-18A, for the valve to change position and close. There is a 'B' contact from relay CR-138 and an 'A' contact from relay BD-124. For these contacts to close, and therefore energize the closing circuit for 2-1501-18A, the CR-138 relay would have to de-energize and the BD-124 relay would have to remain energized.

For BD-124 to energize two 'A' contacts in series from relays DG-108 and DF-109 must close. To energize relays DG-108 and DF-109 contacts from high drywell pressure switches PS-1632A and PS-1632C must close. The contacts from these pressure switches close, per the Technical Specifications, at less than or equal to 1.81 psig increasing. These contacts will open when the pressure switches reset at greater than or equal to 1.6 psig decreasing.

Therefore, with reactor water level greater than -59 inches as drywell pressure decreases below 1.6 psig relays DG-108 and DF-109 de-energize and the associated 'A' contacts open. When these contacts open then relay BD-124 will de-energize. When relay BD-124 de-energizes then the associated 'A' contacts in the closing circuit for 2-1501-18A will open and the valve will not reposition. This would make "A" the correct answer.

During a review of the Dresden UFSAR Section 7.4.1 the examiners identified that UFSAR stated: "To initiate or maintain drywell and/or torus spray, drywell pressure must be above the low limit setpoint." The examiners discussed this inconsistency between the UFSAR and the electrical drawings with Dresden Station Management. The licensee generated Issue Report 459346 to determine the cause for and correct the inconsistency in the UFSAR. The licensee also tested the above scenario on the Dresden Simulator on February 27, 2006. The simulator behaved as described in the electrical drawings mentioned above. The spray valves did not shut as drywell pressure dropped below 1 psig with reactor water level above -59 inches. The validated the correct answer for Question 8 as "A."

Question Number 73.

Given the following:

- Unit 2 was at rated power
- CHANNEL 'A' AND 'B' MN STM TUNN TEMP HI annunciators alarm
- All other automatic plant systems function as designed

What would be the expected Reactor PEAK Pressure?

- A. 1070
- B. 1110
- C. 1144
- D. 1250

Answer: C

Applicant Comment:

Per GE-NE-A22-00103-10-01 (Dresden and Quad Cities Extended Power Uprate), MSIV closure direct scram transient results are listed in Table 3-2. Peak steam dome pressure for 100% power and 95% recirculation flow is listed as 1140.6 psig and peak vessel pressure as 1173.0 psig.

Facility Proposed Resolution:

Remove the question from the exam as none of the four possible answers reflects the current value. The original question was written using the UFSAR Revision 3 for Dresden Station, Section 15.2.4.1.3. The correct answer per this document is 1144 psig. During the exam it was identified that General Electric had performed a new analysis, Extended Power Uprate. Per GE-NE-A22-00103-10-01 Dresden and Quad Cities Extended Power Uprate table 3-2 Peak Steam Dome Pressure for the conditions given would be 1140.6 psig. This was not one of the possible answers for the candidates.

NRC Resolution:

The Chief Examiner reviewed the Dresden UFSAR Revision 5 and GE-NE-A22-00103-10-01 Dresden and Quad Cities Extended Power Uprate table 3-2. The answer given in the exam was for the previous power level. For the current licensed power level the values given in the General Electric report are valid and were not one of the choices given in the question. Therefore the Chief Examiner concurs with the licensee's conclusion that there was no correct answer available and the question will be removed from the examination.

**WRITTEN EXAMINATIONS AND ANSWER KEYS (RO/SRO)**

RO/SRO Initial Examination ADAMS Accession # ML060760307.