September 16, 2002

Mr. John L. Skolds, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION
INITIAL LICENSE EXAMINATION REPORT 50-461/02-301(DRS)

Dear Mr. Skolds:

On August 8, 2002, the NRC completed initial operator licensing examinations at your Clinton Power Station. The enclosed report presents the results of the examination.

Clinton Power Station training department personnel administered the written examination on August 8, 2002, and NRC examiners administered the operating examination during the weeks of July 29 and August 5, 2002. Six reactor operator and eleven senior reactor operator applicants were administered license examinations. The results of the examinations were finalized on August 28, 2002. All seventeen applicants passed all sections of their respective examinations resulting in the issuance of six reactor operator licenses and eleven senior reactor operator licenses.

In accordance with 10 CFR Part 2.790 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).

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

Sincerely,

/RA/

David L. Pelton, Acting Chief
Operations Branch
Division of Reactor Safety

Docket Nos. 50-461
License Nos. NPF-62

Enclosures:
1. Operator Licensing Examination Report 50-461/02-301(DRS)
2. Facility Comments and NRC Resolutions
3. Simulation Facility Report
4. Written Examinations and Answer Keys (RO & SRO)

cc w/encls 1 & 2:
Site Vice President - Clinton Power Station
Clinton Power Station Plant Manager
Regulatory Assurance Manager - Clinton
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 - Clinton and LaSalle
Senior Counsel, Nuclear, Mid-West Regional Operating Group
Document Control Desk - Licensing

cc w/encls 1, 2, 3 & 4: F. Tsakeres, Training Manager

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Senior Counsel, Nuclear, Mid-West Regional Operating Group
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cc w/encls 1, 2, 3 & 4: F. Tsakeres, Training Manager

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-461
License No:	NPF-62
Report No:	50-461/02-301(DRS)
Licensee:	Exelon Generation Company, LLC
Facility:	Clinton Power Station
Location:	Route 54 West Clinton, IL 61727
Dates:	July 29 through August 8, 2002
Examiners:	David L. Pelton, Chief Examiner Bruce B. Palagi, Examiner Rene Vogt-Lowell, Examiner
Approved by:	David L. Pelton, Acting Chief Operations Branch Division of Reactor Safety

SUMMARY OF FINDINGS

ER 05000461-02-301(DRS), on 07/29-08/08/2002, Exelon Generation Company, LLC, Clinton Power Station, Unit 1. 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 8, Supplement 1.

Examination Summary

Six reactor operator applicants and eleven senior reactor operator applicants were administered written and operating examinations for initial operator licensing. All seventeen applicants passed all sections of their respective examinations resulting in the issuance of six reactor operator licenses and eleven senior reactor operator licenses (Section 4OA5.1).

Report Details

1. OTHER ACTIVITIES (OA)

4OA5 Other

.1 Initial Licensing Examinations

a. Inspection Scope

The NRC examiners conducted announced operator licensing initial examinations during the weeks of July 29 and August 5, 2002. The facility's training staff used the guidance established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1, to prepare the examination outline and to develop the written and operating examinations. The facility's training staff administered the written examination on August 8, 2002. The NRC examiners administered the operating examination the weeks of July 29 and August 5, 2002. Six reactor operator applicants and eleven senior reactor operator applicants were examined.

b. Findings

Written Examination

The NRC examiners determined that the written examination, as originally submitted by the licensee, was within the range of acceptability expected for a proposed examination. Examination changes, agreed upon between the NRC and the licensee, were made according to NUREG-1021. The licensee provided post-examination comments on four written examination questions that were administered to the applicants. These questions appeared on both the reactor operator and senior reactor operator examinations. The licensee's specific comments and the NRC's resolution of those comments are included in Enclosure 2 to this report.

Operating Test

The NRC examiners determined that the operating test, as originally submitted by the licensee, was within the range of acceptability expected for a proposed examination. Examination changes, agreed upon between the NRC and the licensee were made according to NUREG-1021.

Examination Results

Six reactor operator applicants and eleven senior reactor operator applicants were administered written and operating examinations for initial operator licensing. All seventeen applicants passed all sections of their respective examinations resulting in the issuance of six reactor operator licenses and eleven senior reactor operator licenses.

.2 Examination Security

a. Scope

The examiners reviewed and observed the licensee's implementation of examination security requirements during the examination preparation and administration.

b. Findings

The NRC examiners determined that the licensee's examination security practices associated with the development and administration of the operator license examinations were satisfactory.

4OA6 Meeting(s)

Exit Meeting

The chief examiner presented the examination team's preliminary observations and findings to Mr. Keith Polson and other members of the licensee management on August 8, 2002. The licensee acknowledged the observations and findings presented and did not identify any proprietary information.

KEY POINTS OF CONTACT

Licensee

M. Carey, Initial License Training Lead
A. Darelius, Nuclear Oversight Department
C. Dieckmann, Shift Operations Supervisor
W. Iliff, Regulatory Assurance Director
W. Lipscomb, Assistant to the Site Vice Prersident
K. Polson, Plant Manager
R. Price, Initial License Examination Lead
S. Russell, Midwest Regional Operating Group Examination Coordinator
T. Shortell, Operations Training Manager
R. Svaleson, Operations Director
E. Tiedemann, Regulatory Assurance Department
F. Tsakeres, Training Director

NRC

Carey Brown, Clinton Resident Inspector

LIST OF ACRONYMS USED

ADAMS	Agency-Wide Document Access and Management System
ALARA	As Low As Reasonably Achievable
CPS	Clinton Power Station
DBA	Design Basis Accident
DRS	Division of Reactor Safety
EOP	Emergency Operating Procedure
HVAC	Heating, Ventilation, and Air Conditioning
LOCA	Loss Of Coolant Accident
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
RFPT	Turbine Driven Reactor Feedwater Pump
RHR	Residual Heat Removal
RO	Reactor Operator
RW	Radioactive Waste
RWCU	Reactor Water Cleanup
SRO	Senior Reactor Operator

Facility Comments and NRC Resolutions

Written Examination Record Number 22 (RO Examination Question Number 22, SRO Examination Question Number 21):

Comment: The question required the applicant to determine which one of a list of four possible components promoted steam condensation during a DBA [Design Basis Accident] LOCA [Loss of Coolant Accident]. The original correct answer provided for the question was answer "A " (Horizontal Vents). Upon further review, the facility believed that answer "B" (Spargers) would also have been correct. The facility believed that the residual heat removal (RHR) system would be running in containment spray mode under the given conditions. When the RHR is running in the containment spray mode, it discharges to the containment via a system of spargers.

NRC Resolution: Clinton Instructor Handbook LP85205-05 discusses the fact that during a LOCA, the containment spray mode of the RHR system provides a means of promoting the condensation of any steam present. Additionally, CPS 3312.01, "Residual Heat Removal (RHR)," indicates that when the RHR system is in the containment spray mode, it discharges to containment via containment spray spargers. Therefore, answers "A" and "B" were considered correct.

Written Examination Record Number 42 (RO Examination Question Number 42, SRO Examination Question Number 40):

Comment: The question required the applicant to determine which of an included list of concerns applied while transferring water to the radioactive waste (RW) system from RHR "A" vice RHR "B" during shutdown cooling operation. The original correct answer provided for the question was answer "C" (ALARA). Upon further review, the facility believed that the stem of the question contained too little information to preclude answer "B" (High Temperature) from also being correct. The facility believed that station procedures for placing the RHR system in shutdown cooling mode included temperature-related precautions specifically concerning the "A" loop of RHR.

NRC Resolution: Procedure CPS 3312.03, "Shutdown Cooling (SDC)," Step 8.1.4.12, contains a caution which states that unless required by emergency conditions or unique plant conditions, RHR "A" should not be used for shutdown cooling until the plant is in Mode 4. Given that the stem of the question does not state that there are any emergency or unique conditions and given that the stem conditions include having RHR "A" in shutdown cooling operation, the reactor plant must be in either Mode 4 or Mode 5. Procedure CPS 3312.03, Step 8.1.4.12 also contains a note which states that if in Mode 4 or 5, it is not necessary to warm RHR

loop “A.” Therefore, an RHR loop “A” high temperature condition would not be a concern under the conditions given in the stem and answer “B” would not be considered correct.

Written Examination Record Number 48 (RO Examination Question Number 48, SRO Examination Question Number 46):

Comment: The question stated that one turbine driven reactor feed pump (RFPT) had tripped with the reactor plant at 90% power. The applicant was then required to determine the concern associated with the given conditions and predict the effect on the plant of this condition. The original correct answer provided for the question was answer “C.” Upon further review, the facility believed that answer “D” was also correct. The difference between answers “C” and “D” was that answer “C” cited excess moisture impinging on the blades of the main turbine as the effect on the plant and answer “D” cited a reduction in the margin to transition boiling as the effect on the plant.

NRC Resolution: Based on a review of Clinton Student Handbook LP877570 and on data gathered by the facility after having recreated the stem conditions on the facility simulator, several conditions occur simultaneously when a RFPT is tripped from 90% power:

- When the RFPT trips, feedwater flow to the reactor decreases. With the reactor steaming rate remaining generally constant, reactor vessel water level will decrease;
- Once reactor water level decreases to Level 4, a recirculation flow control valve runback will occur reducing power and reducing the rate of steaming to within the makeup capability of one RFPT;
- During the event, reactor water level will decrease to below the bottom of the separator/drier allowing the water and steam mixture to bypass the separator/drier (i.e., carryunder);
- Carryunder results in excess water in the steam going to the turbine and possibly impinging on the blades;
- Carryunder will also results in water and steam being routed to the downcomer reducing subcooling in both the downcomer and in the core inlet plenum; and
- Reducing subcooling in the core inlet plenum reduces the margin to transition boiling within the core region.

Based on the above, the effect on the plant could be either excess moisture impinging on the blades of the main turbine or a reduction in the margin to transition boiling. Therefore, both answer “C” and “D” were considered correct.

Written Examination Record Number 32 (RO Examination Question Number 32, SRO Examination Question Number 31):

Comment: The question stated that the reactor was at 90% power and that a tube was leaking inside the reactor water cleanup (RWCU) non-regenerative heat exchanger. The applicant was required to determine what alarm would actuate on process radiation monitor 1RIX-PR037 due to the leakage in the heat exchanger and determine the appropriate procedure to use to mitigate the event. The original correct answer provided for the question was answer "B." Upon further review, the facility believed that answer "D" was also a correct answer. The difference between answers "B" and "D" was that answer "B" stipulated the use of procedure CPS 4979.05, "Abnormal Release of Radioactive Liquids," to mitigate the event and answer "D" stipulated the use of procedure CPS 4979.02, "Abnormal High Area Radiation Levels," to mitigate the event. The facility believed that either procedure could be used to mitigate the event.

NRC Resolution: The examiners reviewed the conditions provided in the stem, procedure CPS 4979.02, "Abnormal High Area Radiation Levels," and procedure CPS 4979.05, "Abnormal Release of Radioactive Liquids." Although both procedures contain general guidance that could be used to mitigate the event, the entry conditions (symptoms) for CPS 4979.02 would not be satisfied. Entry into CPS 4979.02 requires that an ALERT or HIGH alarm be noted on the applicable radiation monitor. With the reactor at 90% power, reactor coolant chemistry parameters within their normal ranges, and an otherwise properly functioning RWCU system, the leakage described in the stem of the question would not result in area radiation levels in the vicinity of the RWCU heat exchanger exceeding the ALERT or HIGH level. As a result, answer "D" would not be considered a correct answer.

Enclosure 3

Simulation Facility Report

Facility Licensee: Clinton Nuclear Power Plant, Unit 1

Facility Docket No.: 50-461

Operating Tests Administered: July 29 - August 8, 2001

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 items were observed:

ITEM	DESCRIPTION
None	

Enclosure 4

Written Examinations and Answer Keys (RO/SRO)

Reactor Operator/Senior Reactor Operator Examination ADAMS Accession No. ML022560555.