

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION III**

Docket Nos: 50-254; 50-265  
License Nos: DPR-29; DPR-30

Report No: 50-254/99019(DRS); 50-265/99019(DRS)

Licensee: Commonwealth Edison Company

Facility: Quad Cities Nuclear Generating Station  
Units 1 and 2

Location: 22710 206th Avenue North  
Cordova, IL 61242

Dates: October 18 - 28, 1999

Inspectors: Hironori Peterson, Lead Inspector  
Ann Marie Stone, Reactor Inspector  
Laura Collins, Resident Inspector

Approved by: David E. Hills, Chief, Operations Branch  
Division of Reactor Safety

## **SUMMARY OF FINDINGS**

Quad Cities Nuclear Generating Station, Units 1 & 2  
NRC Inspection Report 50-254/99019(DRS); 50-265/99019(DRS)

This report covers the pilot baseline inspection for the biennial review of the licensed operator requalification training program used the risk informed baseline pilot inspection procedure 71111, Attachment 11, "Licensed Operator Requalification."

### **REACTOR SAFETY**

#### **Cornerstone: Mitigating Systems**

No significant findings identified.

#### **Cornerstone: Barrier Integrity**

No significant findings identified.

#### **Cornerstone: Emergency Preparedness**

No significant findings identified.

## Report Details

### 1. REACTOR SAFETY

#### 1R11 Licensed Operator Requalification

##### .1 Operator Knowledge and Performance

##### .1.1 Annual Evaluation of Operator Performance (Operator Requalification)

###### a. Inspection Scope (Inspection Procedure (71111.11))

The inspectors observed the performance of one operating shift crew during the annual licensed operator requalification operating examination. The crew consisted of four licensed reactor operators (RO) and seven licensed senior reactor operators (SRO). The operating shift crew was divided into two simulator crews for evaluation purpose.

###### b. Observations and Findings

No significant inspection findings were identified.

##### .2 Operator Training and Qualification

##### .2.1 Operating History

###### a. Inspection Scope (71111.11)

The inspectors reviewed the following documents to assess the licensed operator requalification training program's effectiveness in addressing operator performance deficiencies noted in the plant:

- Systematic Assessment of Licensee's Performance Report (50-254-97001; 50-265-97001).
- Licensed Operator Requalification Training Program Evaluation Report (50-254-97024-(OL); 50-265-97024-(OL)).
- Initial License Operator Examination report (50-254-98303-(OL); 50-265-98303-(OL)).
- Plant Performance Review Report, dated March 26, 1999.
- Plant Issue Matrix.
- Select Resident Inspector Observations and Reports.

b. Observations and Findings

No significant inspection findings were identified.

.2.2 Regualification Examination Material

a. Inspection Scope (71111.11)

The inspectors reviewed the annual requalification examinations, which consisted of the dynamic scenarios, job performance measures, and written examinations to evaluate general quality, construction, and difficulty level. The inspectors assessed the examination material quality and content using IP 71111, Attachment 11 checklists. The inspectors also reviewed the methodology for developing the requalification examinations, including incorporation of probabilistic risk assessment insights. The inspectors compared both the current year and last year's annual requalification cycle examination material to assess the level of examination material duplication. The inspectors also discussed various aspects of the examination development with members of the licensee's training and operations staff.

b. Observations and Findings

No significant inspection findings were identified.

.2.3 Regualification Examination Administration Practices

a. Inspection Scope (71111.11)

The inspectors observed the administration of all aspects of the requalification examination to determine the evaluators' ability to administer an examination and assess adequate performance through measurable criteria. The inspectors also observed the performance of the simulator to support the examinations. The inspectors observed one operating shift crew (divided into two simulator crews) during the dynamic simulator scenarios and job performance measure evaluations. Six licensed operators or staff trainers were observed administering the examinations, including pre-examination briefings, observations of operator performance, individual and crew evaluations of observations, techniques for job performance measure cuing, and final evaluation briefing and documentation for twelve licensed operators. The inspectors reviewed the licensee's overall examination security program. In addition, the inspectors interviewed operators and key staff members from training and operations departments to assess their understanding of the requalification training process.

b. Observations and Findings

No significant inspection findings were identified.

## .2.4 Requalification Training Program Feedback Process

### a. Inspection Scope (71111.11)

The inspectors verified the methods and effectiveness of the licensed operator requalification training program to ascertain whether assessments of operator performance were effectively incorporated into the requalification training. The inspectors performed interviews with key licensee personnel (operators, instructors, training management, and quality assurance) and reviewed the following documents to assess the licensee's training program feedback system effectiveness.

- Nuclear Oversight Assessment Report, NOA-04-99-OP03, "Licensed Operator Requalification Program," September 28, 1999.
- Nuclear Generation Group Quad Cities Requalification Examinations Self-Assessment Report, October 4, 1999.
- Quad Cities Operations Comprehensive Training Assessment, September 20-24, 1999.
- Licensee's training critique forms.

### b. Observations and Findings

No significant inspection findings were identified.

## .2.5 Remedial Training Program

### a. Inspection Scope (71111.11)

The inspectors reviewed documentation of the licensed operator requalification remedial training program and program procedures, and conducted interviews with key staff members. The following documents were reviewed to assess the licensee's remedial training program effectiveness:

- Current year's five individual licensed operators' unsatisfactory performance evaluations (four SROs and one RO).
- Remediation training plans and results for the current year's five individual licensed operators' unsatisfactory performance.

### b. Observations and Findings

No significant inspection findings were identified.

.2.6 Conformance with Operator License Condition

a. Inspection Scope (71111.11)

The inspectors reviewed a sample of licensed operators' records to ascertain whether the facility and the operator licensee's were maintaining license conditions in accordance with 10 CFR 55.53. The following records were reviewed:

- Licensed operator requalification training records.
- A sample of the biennial medical history for 11 individuals maintaining RO and SRO licenses in accordance with 10 CFR 55.21.
- All control room watch standing records for Active License Maintenance for 1<sup>st</sup> and 3<sup>rd</sup> Quarter of 1999.
- Partial records for control room watch standing for Active License Maintenance for 4<sup>th</sup> Quarter 1999.
- Shift Scheduler notes for control room watch standing for Active License Maintenance for 2<sup>nd</sup> Quarter 1999 (no records were kept).
- Seven individual licensed operator reactivation records for 1999.

b. Observations and Findings

The inspectors noted that the licensee's technical specification was inconsistent and non-conservative with respect to the minimum manning requirements of 10 CFR 50.54(m). The licensee's present control room manning practices was one US and two NSOs per unit, and one SM, for a total control room shift complement of four ROs and three SROs. Technical Specification 6.2.B, "Administrative Controls - Unit Staff," item 2 only described the minimum control room watch standing positions as one RO and one SRO per unit. Therefore, in accordance with the technical specifications, the total control room shift complement required for two units was two ROs and two SROs. The inspectors noted that 10 CFR 50.54(m), "Conditions of Licenses," required a minimum of five watch standing positions for the control room complement, two SROs and three ROs. The discrepancy between Technical Specification 6.2.B and 10 CFR 50.54(m) was of low safety significance because the licensee's actual control room manning exceeded both requirements. The licensee planned to evaluate a future technical specification change to address this issue.

No significant inspection findings were identified.

#### 4.0 OTHER ACTIVITIES

##### 4OA5 Management Meetings

##### .1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on October 28, 1999. The licensee acknowledged the observations and findings and did not identify any information as proprietary.

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

G. Barnes, Station Manager  
J. Bartlett, Licensed Operator Requalification Training Supervisor  
S. Butler, Licensing Engineer, Regulatory Assurance, Braidwood  
K. Giadrosich, Nuclear Oversight Manager  
M. McDowell, Operations Manager  
C. Peterson, Regulatory Assurance Manager  
J. Sirovy, Nuclear Oversight  
C. Symonds, Operations Training Superintendent  
F. Tsakeres, Training Manager

### Illinois Department of Nuclear Safety

R. Ganser, Resident Engineer  
B. Schulz, Section Chief

### NRC

D. Hills, Chief, Operations Branch, DRS  
K. Walton, Resident Inspector, Quad Cities

## INSPECTION PROCEDURES USED

IP 71111.11 (draft) Reactor Safety - Initiating Events, Mitigating Systems, Barrier Integrity,  
Attachment 11, Licensed Operator Requalification

## ITEMS OPENED, CLOSED AND DISCUSSED

### Opened

None

### Closed

None

### Discussed

None



## LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
DRS	Division of Reactor Safety
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
NSO	Nuclear Station Operator
OL	Operator Licensing
RO	Reactor Operator
SM	Shift Manager
SRO	Senior Reactor Operator
STA	Shift Technical Advisor
US	Unit Supervisor

## LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion on this list does not imply that NRC inspectors reviewed the documents in their entirety, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort.

CWPI-NSP-TQ-2-1, Revision 2, "Conduct of Training Manual of Common Work Practice Instructions, Conduct of Training - Instruction One, Examination Security and Administration"  
CWPI-NSP-TQ-1-6, Revision 1, "Conduct of Training Manual of Common Work Practice Instructions, Instruction Six, Licensed Operator Requal Training"  
CWPI-NSP-OP-1-16, Revision 0, "Conduct of Operations Manual of Common Work Practice Instructions, Instruction Sixteen, Administrative Process for NRC License and Medical Requirements"  
NTAFT JLOR01, Revision 1, "Nuclear Generation Group, Licensed Operator Requal Training, Simulator Training Practices Job Aid"  
NTAFT JLOR02, Revision 2, "Nuclear Generation Group, Licensed Operator Requal Training, Simulator Training Scenario Development Job Aid"  
NTAFT JLOR03, Revision 2, "Nuclear Generation Group, Licensed Operator Requal Training, Job Performance Measure Development Job Aid"  
NTAFT JLOR04, Revision 1, Nuclear Generation Group, "Licensed Operator Requal Training, Examination Development Job Aid"  
NTAFT JLOR05, Revision 1, "Nuclear Generation Group, Licensed Operator Requal Training, Examination Administration Job Aid"  
NTAFT JLOR06, Revision 2, "Nuclear Generation Group, Licensed Operator Requal Training, Accelerated Requalification Program Job Aid"  
NTAFT JLOR09, Revision 1, "Nuclear Generation Group, Licensed Operator Requal Training, Crew and Individual Self-Evaluation Forms"  
NTAFT JLOR13, Revision 1, "Nuclear Generation Group, Simulator Demonstration Examination, Individual Competency Evaluation Forms"  
NTAFT JLOR14, Revision 1, "Nuclear Generation Group, Simulator Demonstration Examination, Crew Competency Evaluation Forms"  
NTAFT JLOR15, Revision 1, "Nuclear Generation Group, Simulator Demonstration Examination, Shift Manager Competency Evaluation Forms"  
NTAFT JLOR16, Revision 1, "Nuclear Generation Group, Simulator Demonstration Examination, JPM Evaluation Forms"  
OP-AA-101-701, Revision 0, "NRC Active License Maintenance"  
OP-AA-101-702, Revision 1, "Administrative Process for NRC License and Medical Requirements"  
Classroom Sample Plan for training years 1998 through 1999  
Full Simulator Sample Plan for training years 1998 through 1999  
1999 RO Written Examinations, administered September 20 through October 22, 1999  
1999 SRO Written Examinations, administered September 20 through October 22, 1999  
1998 RO Written Examinations, administered July 13 through August 14, 1998  
1998 SRO Written Examination, administered July 13 through August 14, 1998  
Operating Examination Number Four, Revision 12, "LPRM [Local Power Range Monitor] Failure, Recirculation Seal Failure, and Small LOCA-ATWS [Loss of Coolant Accident with Anticipated Transient Without a Scram]"

Operating Examination Number Five, Revision 11, Inadvertent HPCI [High Pressure Coolant Injection], Steam Leak with a Group I Isolation Failure, Reactor Building Ventilation Failure to Isolate, and Blowdown Radiation Levels"  
LP-003-I-F, Revision 9, "Locally Start a Diesel Generator with a Failure of the Vent Fan to Start"  
LP-022-I, Revision 11, "Locally Start Up the Safe Shutdown Makeup Pump System"  
LS-025-I, Revision 7, "Change over CRD [control rod drive] Pumps"  
LS-049-I, Revision 3, "Run RCIC [Reactor Core Isolation Cooling] for Pressure Control with Drywell Pressure > 2.5 psig"  
LS-005-II, Revision 12, "Transfer Auxiliary Power from XFMR11 to XFMR12"  
QCOP 6600-11, Revision 13, "Diesel Generator Local Operation"  
QCOP 2900-02, Revision 8, "Safe Shutdown Makeup Pump System Start-Up"  
QCOP 0300-23, Revision 4, "CRP Pump Change Over"  
QCOP-1300-02, Revision 15, "RCIC System Manual Start-up (Injection/Pressure Control)"  
QCOP-6500-09, Revision 3, "Energizing 4 KV Switchgear and Transferring Auxiliary Power  
Nuclear Oversight Assessment Report, NOA-04-99-OP03, "Licensed Operator Requalification Program," September 28, 1999  
Nuclear Generation Group, Quad Cities Requalification Examinations Self-Assessment Report, October 4, 1999  
Quad Cities Operations Comprehensive Training Assessment, September 20-24, 1999

#### **LIST OF BASELINE INSPECTIONS PERFORMED**

The following inspectable-area procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

Licensed Operator Requalification                      Inspection Procedure 71111.11

SIMULATION FACILITY REPORT

Facility Licensee: Quad Cities Nuclear Station

Facility Licensee Docket Nos: 50-254; 50-265

Operating Tests Administered: October 19 through 21, 1999

The following documents observations made by the NRC examination team during the license requalification 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
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1. None