

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/89028(DRP); 50-265/89028(DRP)

Docket Nos. 50-254, 50-265

Licenses No. DPR-29; DPR-30

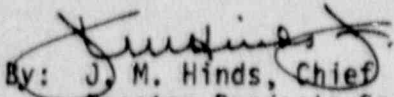
Licensee: Commonwealth Edison Company  
Post Office Box 767  
Chicago, IL 60690

Facility Name: Quad Cities Nuclear Power Station, Units 1 and 2

Inspection At: Quad Cities Site, Cordova, Illinois

Inspection Conducted: December 17, 1989 through January 27, 1990

Inspectors: R. L. Higgins  
J. M. Shine  
R. Bocanegra

Approved By:  J. M. Hinds, Chief  
Reactor Projects Section 1B

FEB 13 1990

Date

Inspection Summary

Inspection on December 17, 1989 through January 27, 1990 (Reports No. 50-254/89028(DRP); 50-265/89028(DRP))

Areas Inspected: Routine, unannounced safety inspection by the resident and regional inspectors of licensee actions on previous items, plant operations, radiological controls, maintenance/surveillance, emergency preparedness, security, engineering/technical support and safety assessment/quality verification.

Results: During the inspection period, one violation involving improper procedure review was noted (refer to Paragraph 9.a), but since it satisfied the five criteria of 10 CFR Part 2, Appendix C, no Notice of Violation will be issued. Other than this violation, licensee performance was good, especially in the areas of maintenance and operations. A short outage was taken on each unit, and both outages were completed on schedule with no complications or errors. Unit 1 was shutdown to plug leaking condenser tubes in order to maintain reactor water purity far in excess of that required by Technical Specifications. Unit 2 experienced an abnormally high drywell floor drain sump leakage rate, and this parameter was given enhanced scrutiny by the licensee. As soon as the leakage rate approached the Technical Specification limit, Unit 2 was promptly shutdown and the leaking components repaired.

9002260346 900213  
PDR ADOCK 05000254  
G PNU

## DETAILS

### 1. Personnel Contacted

- \*R. Bax, Station Manager
- \*R. Robey, Technical Superintendent
- \*R. Hopkins, Quality Assurance
- \*T. Barber, Regulatory Assurance

\*Denotes those present at the exit interview on January 29, 1990.

The inspectors also contacted and interviewed other licensee and contractor personnel during the course of this inspection.

### 2. Action on Previous Items (92701 and 92702)

#### Open Items

- a. (Closed) Open Item 254/89026-02: Untested Local Leak Rate Test (LLRT) Volumes.

This issue is addressed by LER 254/90001 and is discussed in Paragraph 9.b.(7) of this report. This item is considered closed.

- b. (Closed) Open Item 265/89026-04: HPCI Deluge and HPCI Steam Isolation.

This issue is addressed by LER 265/90001 and is discussed in Paragraph 9.b.(8) of this report. This item is considered closed.

### 3. Plant Operations (71707)

The inspectors, through direct observation, discussions with licensee personnel, and review of applicable records and logs, examined plant operations. The inspectors verified that all activities were accomplished in a timely manner using approved procedures and drawings and were inspected/reviewed as applicable; and that procedures, procedure revisions and routine reports were in accordance with Technical Specifications, regulatory guides, and industry codes or standards. Additionally, the inspectors verified that approvals were obtained prior to initiating any work; activities were accomplished by qualified personnel; the limiting conditions for operation were met during normal operation and while components or systems were removed from service; functional testing and/or calibrations were performed prior to returning components or systems to service; and independent verification of equipment lineup and review of test results were accomplished. Also verified were quality control records for being properly maintained and reviewed, and parts, materials and equipment for proper certification, calibration, storage, and maintenance as applicable. The inspectors conducted frequent tours of plant facilities to observe any adverse plant conditions such as equipment malfunctions, potential fire hazards, radiological hazards,

fluid leaks, excessive vibrations, and personnel errors. The inspectors' review ensured that any such issues were addressed in a timely manner with sufficient and proper corrective actions and reviewed by appropriate management personnel.

a. Engineered Safety Features System Walkdown (71710)

During plant tours of Units 1 and 2, the inspectors walked down some of the accessible portions of the High Pressure Coolant Injection (HPCI), Reactor Core Isolation Cooling (RCIC), Core Spray (CS), Residual Heat Removal (RHR), RHR Service Water, Standby Liquid Control (SLC) Systems, and Standby Gas Treatment (SGT) Systems. The inspectors also walked down the Emergency Diesel Generators (EDG) and the Station Batteries. No violations or deviations were noted.

b. Summary of Operations

Unit 1

Unit 1 operated at power until it was shutdown on January 20, 1990, to plug leaking main condenser tubes (refer to Paragraph 3.c.(3) of this report). Unit 1 restarted on January 21, 1990, and operated at power throughout the inspection period.

Unit 2

Unit 2 operated at power until it was shutdown on January 13, 1990, to repair leaks in the drywell (refer to Paragraph 3.c.(1) of this report). Unit 2 restarted on January 14, 1990, and operated at power throughout the remainder of the inspection period.

c. Onsite Followup of Events at Operating Power Reactors (93702)

(1) Unit 2 Shutdown and Startup

On January 13, 1990, Unit 2 was shutdown because drywell floor drain sump leakage had increased from 3.3 gpm to 4.0 gpm (the Technical Specification limit is 5.0 gpm). Repairs were made to the 2-220-58A feedwater check valve (seal ring leak), the 2-1402-6B core spray valve (seal ring leak), and to the 2-263-2-39B jet pump instrumentation tap drain isolation valve (packing leak). Unit 2 restarted on January 14, and was reconnected to the electrical grid on January 15, 1990.

After startup, the drywell floor drain sump leakage equalized at 3.7 gpm due to a packing leak on the inboard RCIC containment isolation valve (2-1301-16). The monitoring frequency for drywell floor drain sump leakage has been increased from every four hours to every two hours, and contingency plans have been made to shutdown should the leakage rate approach the Technical Specification limit.

(2) Unit 1C Reactor Feedpump Leak

On January 17, 1990, with Unit 1 near full power, an unisolable through wall leak developed on the 1C reactor feed pump. Since the 1A reactor feed pump was out of service, only the 1B reactor feed pump was available. A rapid power reduction to 50% power was made in order to stay within the capacity of one reactor feed pump. On January 15, 1990, the 1C reactor feed pump was repaired and returned to service, and Unit 1 was returned to full power.

(3) Unit 1 Shutdown and Startup

On January 20, 1990, Unit 1 was shutdown in order to plug leaking tubes in the main condenser (reactor water conductivity had increased over a one month period from its normal value of .08 micromhos/cm to .2 micromhos/cm; the Technical Specification limit is 10 micromhos/cm), repair leaks on the "B" and "C" electromatic relief valves, and perform other minor maintenance. Unit 1 restarted on January 21, and was reconnected to the electrical grid on January 22, 1990.

4. Radiological Controls (71707)

Observations by the inspectors indicated that the licensee's performance in the area of radiological controls was good. Management remains committed to an aggressive ALARA program. Personnel exposure has been higher than budgeted during the inspection period because of an unforeseen outage on each unit.

5. Maintenance/Surveillance

a. Monthly Maintenance Observation (62703)

Station maintenance activities of safety-related and nonsafety-related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with Technical Specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable. Additional items reviewed included verification that functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; and activities were accomplished by qualified personnel. Also, the inspectors verified that parts and materials used were properly certified; radiological controls were implemented; and fire prevention procedures were followed. Work requests were reviewed to determine the status

of outstanding jobs and to assure that priority is assigned to the maintenance of safety related equipment which may affect system performance.

Portions of the following activities were observed/reviewed:

- (1) Painting and labeling of plant components.
- (2) Backseating the Unit 2 inboard RCIC containment isolation valve.

No violations were identified in this area.

b. Monthly Surveillance Observation (61726)

The inspectors observed surveillance testing required by the Technical Specification and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, and that limiting conditions for operation were met. Additionally, the inspectors observed/verified the removal and restoration of the affected components, and that test results conformed with Technical Specifications and procedure requirements. Also, the inspectors verified that the results were reviewed by personnel other than the individual directing the test and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

Portions of the following activities were observed/reviewed:

- (1) New fuel receipt inspection.
- (2) Shipment damaged unirradiated fuel.
- (3) Unit 2 RCIC steam supply isolation valves operability test.

No violations or deviations were identified in this area.

6. Emergency Preparedness (71707)

During the inspection period, the Resident Inspectors inspected the Quad Cities Technical Support Center (TSC) and monitored a test of the Emergency Notification System (ENS) phone.

No violations or deviations were noted.

7. Security (71707)

During the inspection period, the inspectors toured the plant and the Central Alarm Station to assure that security programs were being properly implemented. The inspectors verified that security barriers were in place, security doors were operable, the security force was alert, personnel correctly displayed their identification badges and visitor access was being properly controlled. During the inspection period, the licensee implemented a more rigorous procedure for issuing badges to personnel in the gate house to ensure that station personnel do not get issued someone else's badge.

No violations or deviations were noted.

8. Engineering/Technical Support

Installation and Testing of Modifications (37826)

The feedwater hydrogen addition modification for both units is continuing. The feedwater hydrogen addition modification for Unit 2 will not be completed prior to the Unit 2 outage due to a combination of engineering problems and management priorities.

9. Safety Assessment/Quality Verification

a. Evaluation of Licensee Quality Assurance Program Implementation (35502)

During the inspection period, the inspectors met frequently with members of the licensee's Quality Assurance staff to discuss the licensee's Quality Assurance program. The inspectors also monitored Quality Assurance and Quality Control personnel auditing the backseating of the Unit 2 inboard RCIC containment isolation valve.

Improper Procedure Review

On December 19, 1989, the licensee discovered QAP 1100-7, Approval and Authorization of Temporary Procedures and Temporary Changes to Permanent Procedures, to be in violation of Technical Specification (TS) 6.2.C.1 for Temporary Procedure Changes involving a change in intent. QAP 1100-7 did not require signatures from both the Department Head and Assistant Superintendent as stated in Technical Specification 6.2.C.1. This is considered to be a Severity Level IV violation (254/89028-02).

The cause of this event was management oversight in the preparation and review of a previous change to Technical Specification 6.2.C.1. The change mistakenly added the Assistant Superintendent in the review process when the intent was only to replace the Department Head Review.

QAP 1100-7, and the associated procedures, QAP 1100-7-T1 and T6, have been revised to comply with Technical Specification 6.2.C.1.

Because this violation satisfied the criteria of 10 CFR 2, Appendix C, Section V.G (it was licensee-identified, was promptly reported and corrected, was Severity Level IV or V, and could not have been prevented by the licensee's corrective action for a previous violation) no Notice of Violation will be issued. This item is considered closed.

b. In-Office Review of Written Reports of Nonroutine Events at Power Reactor Facilities (90712) and Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities (92700)

During the inspection period, the resident inspectors reviewed incidents such as scrams, ESF actuations and component failures which occurred at other plants. The resident inspectors informed the licensee of the details of all events which potentially had applicability to components or activities at Quad Cities.

LER Review

- (1) (Open) LER 265/89020, Revision 01: ECCS Initiation Due to Valving Error.

This revision updates the original LER (discussed in Inspection Reports No. 254/88029; 265/88029) by specifying the corrective actions which the licensee commits to implement. This LER will remain open pending the implementation of the specified corrective actions.

- (2) (Closed) LER 254/89021, Revision 00: HPCI Fire Protection Technical Specification Surveillance Functional Test Not Completed on Time.

This event is discussed in Paragraph 6.b.(3) of Inspection Report No. 254/89026. All event-specific corrective actions have been completed. This LER is considered closed.

- (3) (Open) LER 254/89022, Revision 00: Unit 1 HPCI Inoperable Due to Inadvertent Deluge System Actuation.

This event is discussed in Paragraph 3.c.(5) of Inspection Report No. 254/89025. It will remain open pending the installation of a preaction system to replace the current fire nozzles.

- (4) (Open) LER 254/89023, Revision 00: Violation of Technical Specifications Concerning Review of Temporary Procedures.

This event is discussed in Paragraph 9.a. of this report. It will remain open pending: (1) The revision of Technical Specification 6.2.C.1 to replace the Department Head with the Assistant Superintendent in the procedure review process; and (2) The implementation of a procedure to review procedures when a Technical Specification change is implemented.

- (5) (Open) LER 254/89025, Revision 00: Potential Damage to New Fuel Bundle From Impact of Reactor Building Crane Auxiliary Hook.

On December 14, 1989, the reactor building overhead crane auxiliary hoist was accidentally lowered onto new fuel bundle

LYU325 during fuel receiving activities. On December 20, 1989, the licensee determined that damage to the new fuel bundle may exceed \$2,000.00.

The cause of this event was personnel error involving an inadvertent action due to inattention. The fuel handler operating the overhead crane lowered the hoist without a signal man and inadvertently continued to lower the hoist until the hook had contacted the fuel bundle.

Corrective action included temporarily removing the fuel handler from operating the crane. The fuel bundle was shipped back to General Electric for inspection and replacement of any possibly damaged parts. This LER will remain open pending further review of the procedures for crane operation, heavy load movement and lifting and rigging.

- (6) (Open) LER 254/89026, Revision 00: Control Room HVAC Isolation Due to Dried Out Chlorine Probe.

On December 25, 1989, a High Chlorine Concentration signal was noted on the Toxic Gas Monitoring portion of the Control Room Heating, Ventilation, and Air Conditioning System. This resulted in a Control Room HVAC Engineered Safety Feature (ESF). A four hour Emergency Notification System (ENS) Phone Notification was made in accordance with 10 CFR 50.72(b)(2)(ii). On December 26, 1989, the monitor's chlorine analyzer probe was injected with an electrolytic solution in accordance with QIP 5700-2, Filling Procedure for the Chlorine Analyzer Probe. On December 27, 1989, the chlorine circuit of the Toxic Gas Analyzer was calibrated in accordance with QIS 79-S1, Gas Analyzer Calibration and Functional Test Data Sheet, and the system was returned to normal operating mode.

The apparent cause of the event was a drying out of the chlorine probe which resulted in a false reading. This event was determined to be an isolated incident, however, the inspection of the electrolyte level during cold, dry weather will be increased.

This LER will remain open pending the revision of QIP 5700-2 to increase surveillance requirements to weekly intervals during the months of November through March.

- (7) (Open) LER 254/90001, Revision 00: Additional valves added to Local Leak Rate Testing Program due to Self Assessment Audit (Voluntary LER).

A licensee study to improve the Type B and C Local Leak Rate Testing (LLRT) Program at Quad Cities Station concluded that seven pathways should be added to the LLRT Program (refer to Paragraph 6.b.(1) of Inspection Reports No. 254/89026; 265/89026). These test volumes included: The Reactor



Building Closed Cooling Water (RBCCW) inlet/outlet; the Core Spray Discharge lines; the Instrument Air to the Drywell; the Service Air to the Drywell; the Standby Liquid Control System; the Clean Demineralized Water to the Drywell; and the Drywell Air Sampling lines. These pathways were excluded from the licensee's LLRT Program due to an interpretation of 10 CFR 50 Appendix J which did not consider these test volumes applicable to the Type C testing requirements. Due to a recent interpretation of 10 CFR 50 Appendix J with respect to licensing design criteria, these volumes shall be added to the licensee's Type B and C LLRT program. Modification of the systems will be performed as necessary to install the required vents and test taps to perform the Type C testing.

This LER will remain open pending the implementation of its corrective actions.

- (8) (Open) LER 265/90001, Revision 00: Unit 2 HPCI Fire Protection Out of Service Greater Than 14 Days.

On December 25, 1989, the number of days the High Pressure Coolant Injection (HPCI) Fire Protection Deluge System had been inoperable exceeded the 14-day reporting requirement of Technical Specification 3.12.C.4.

The HPCI fire Protection Deluge System had conservatively been declared inoperable on December 11, 1989 with it was decided that the function of the steam leak detection high temperature, Group IV, isolation of the HPCI turbine may be delayed (refer to Paragraph 3.c.(5) of Inspection Reports No. 254/89026; 265/89026). A fire watch was initiated in accordance with Technical Specification 3.12.C.3. The cause of this event is a result of conservative action due to the possibility of the actuation delay of the steam leak detection.

As part of the corrective actions, the HPCI Fire Suppression System will remain inoperable until a modification is installed to correct the problem. In the interim, the fire watch frequency has been increased and a temporary procedure has been written on how to manually operate the fire suppression system.

This LER will remain open pending the implementation of Modification M4-2-84-21A which will reduce the steam leak isolation setpoint from 185 degrees Fahrenheit to 155 degrees Fahrenheit.

c. Evaluation of Licensee Self-Assessment Capability (40500)

During the inspection period, the inspectors attended a procedure upgrade meeting and an Onsite Review Committee meeting. Both meetings were properly staffed and conducted in a professional manner.

The inspectors also attended the exit meeting of the corporate Performance Assessment Department's Maintenance Assessment Team. The meeting was business-like and the team's findings were well-received by station management. Among the more significant findings were problems in the areas of System Engineer training, maintenance scheduling, work package detail and the use of maintenance programs by ENC.

One violation was identified, but since it satisfied the criteria of 10 CFR 2, Appendix C, Section V.G no Notice of Violation will be issued.

10. Management Meetings - Entrance and Exit Interviews (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the inspection period and at the conclusion of the inspection on January 29, 1990, and summarized the scope and findings of the inspection activities.

The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary.