

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/85-04(DRP); 50-265/85-04(DRP)

Docket Nos. 50-254; 50-265

Licenses No. DPR-29; DPR-30

Licensee: Commonwealth Edison Company  
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Chicago, IL 60690

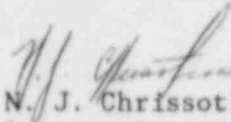
Facility Name: Quad Cities Nuclear Power Station, Units 1 and 2

Inspection At: Quad Cities Site, Cordova, IL

Inspection Conducted: January 20, 1985 through February 23, 1985

Inspectors: A. L. Madison

A. D. Morrongiello

Approved By:  N. J. Chrissotimos, Chief  
Reactor Projects Section 2C

3-11-85  
Date

Inspection Summary

Inspection on January 20, 1985 through February 23, 1985  
(Reports No. 50-254/85-04(DRP); 50-265/85-04(DRP))

Areas Inspected: Routine, unannounced inspection by the resident inspectors of operations; radiological controls; maintenance/modifications; surveillance; fire protection; emergency preparedness; security; quality assurance; quality control; administration; routine reports; cold weather preparations; and independent inspection. The inspection involved a total of 307 inspector-hours onsite by two NRC inspectors, including 25 inspector-hours onsite during offshifts.

Results: No items of noncompliance or deviations were identified.

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## DETAILS

### 1. Persons Contacted

- \*N. Kalivianakis, Superintendent
- \*T. Tamlyn, Assistant Superintendent for Operations
  - D. Bax, Assistant Superintendent for Maintenance
- \*L. Gerner, Assistant Superintendent for Administration
  - D. Gibson, Quality Assurance Supervisor
  - G. Spedl, Technical Staff Supervisor
  - R. Roby, Senior Operating Engineer
- \*N. Griser, Senior Quality Assurance Specialist

The inspectors also interviewed several other licensee employees, including shift engineers and foremen, reactor operators, technical staff personnel, and quality control personnel.

\*Denotes those present at the exit interview on February 22, 1985.

### 2. Routine Inspection

The resident inspectors, through direct observation, discussions with licensee personnel, and review of applicable records and logs, examined the areas stated in the inspection summary and accomplished the following inspection modules:

60170	Refueling activities
61726	Monthly surveillance observations
62703	Monthly maintenance observations
71707	Operational safety verification
71710	ESF system walkdown
90713	Review of periodic and special reports
92700	Onsite review of LERs
92701	TMI Action Item followup
92703	IE Bulletin followup
92705	Regional requests
92706	Independent inspection
93702	Onsite followup of events
25519B	Fire protection critical area review

The inspectors verified that activities were accomplished in a timely manner using approved procedures and drawings and were inspected/reviewed as applicable; procedures, procedure revisions and routine reports were in accordance with Technical Specifications, regulatory guides and industry codes or standards; 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; independent verification of equipment lineup and review of test results were accomplished; quality control records and logs were properly maintained and reviewed; parts, materials, and equipment were properly certified, calibrated, stored, and/or maintained as applicable; and adverse plant conditions including equipment malfunctions, potential fire hazards, radiological hazards, fluid leaks, excessive vibrations, and personnel errors were addressed in a timely manner with sufficient and proper corrective actions and reviewed by appropriate management personnel.

Further, additional observations were made in the following areas:

a. Plant Operations

Unit 1 was in operation at the beginning of the report period and, experienced minor reductions in power to accommodate testing and load dispatcher requests.

During HPCI Valve Operability testing on Unit 1, the Turbine Stop Valve would not open from the control room. At 0238 on February 5, 1985, a decision was made to shut down and an Unusual Event was declared. The problem identified that two solenoids (original equipment) had experienced fatigue failure. The solenoids were repaired and tested (the resident inspectors observed the testing of one solenoid). The solenoids were installed and the turbine stop valve was successfully tested, terminating the Unusual Event on February 5, 1985.

At the beginning of the report period, Unit 2 was in startup following repairs to a Reactor building torus vacuum breaker. While Technical Specifications would have allowed a startup with one vacuum breaker out of service, the licensee conservatively chose to repair the vacuum breaker prior to startup. The resident inspectors observed that a unit operator/trainee rolled the turbine under the direct supervision of a licensed unit operator and the proper procedures were being implemented.

At 0128 on January 25, 1985, Unit 2 experienced a high APRM scram during routine surveillance on the Turbine Control Valves. During the test, the No. 4 Control Valve failed closed, thus causing the high APRM scram. All systems operated as expected during the scram. No ECCS actuations occurred. The cause of the control valve failure was attributed to a broken actuator arm on the control valve. The actuator arm was replaced and the reactor was returned to criticality at 1745.

On January 30, 1985, during a Unit 2 panel check, the Unit 2 operator noticed that the High Pressure Coolant Injection (HPCI) Motor Governing Unit (MGU) was not at its normal High Speed Stop (HSC) position. The MGU was bypassed and an operability test on HPCI was

initiated. During this procedure the pump discharge valve was declared inoperable rendering HPCI inoperable. The licensee decided to shut down the reactor and an Unusual Event was declared at 0315. Compensatory equipment testing was initiated as required. Repairs were completed and the Unusual Event terminated before the Unit was placed in shutdown.

During performance of the bi-weekly Main Steam Isolation Valve closure test, the Unit 2 reactor scrammed from approximately 790 MWE at 0024, February 19, 1985. The cause of the scram was the 2B MSIV going fully closed when a limit switch failed, resulting in a high pressure scram. The high pressure also resulted in a reactor low water level scram which led to an auto start of the Standby Gas Treatment System. The primary train started; however, due to a timer malfunction the train was tripped and the standby train auto initiated. All other systems operated as required and the NRC was notified via the ENS. The affected limit switch was replaced and the SBGTS timer was repaired. The reactor was returned to criticality at 1712 on February 19, 1985.

The senior resident inspector had the following comments regarding this event: first, after the test button was pushed on the 2BMSIV, the unit operator went over to perform a visual check on the reactor panel; this check lasted approximately 20 seconds; secondly, poor judgement was demonstrated in that this test was performed at high power level. It should be noted that the Quad Cities Scram Reduction Committee has decided to change the test procedure. Testing will be allowed at high power provided the operator remains at that panel during the test; however, if the operator anticipates not being at this panel for complete valve stroking then the test will be performed at a lower power with reliance on the limit switch.

Except for the above event, the unit experienced minor reductions in power to accommodate testing and load dispatcher requirements.

The resident inspectors have observed an improvement in communications during events. An improvement in communications between maintenance and operations departments has also been observed as witnessed by the decrease in personnel errors associated with maintenance. Also, in regard to operations, the inspectors have observed that operations have been conducted in a more conservative manner and that an increase in verification of component position prior to operation is being performed.

During plant tours of Units 1 and 2, the inspectors walked down the accessible portions of the Standby Gas Treatment Systems.

No items of noncompliance were identified.

b. Maintenance

The following maintenance activities were observed/reviewed:

- (1) Removal of U-1 SBGTS motor prior to installation of new EQ motor.
- (2) Removal of U-2 SBGTS valve for EQ maintenance.

No items of noncompliance were identified.

c. Surveillance

The following surveillance activities were observed/reviewed:

- (1) The adjusting of low and high settings on a drywell pressure transmitter.
- (2) Portion of a surveillance test for High Drywell Pressure ECCS Initiation.
- (3) Part of weekly power operations test, and noted that good communication was in effect among the three people involved in the surveillance.
- (4) Weekly APRM functional test on U-2.
- (5) Unit 1 APRM calibration checks.

No items of noncompliance were identified.

d. Refueling

In preparation for the scheduled March 18, 1985 refueling outage and in response to the refueling cavity draindown event at Haddaw Neck nuclear power plant on August 2, 1984, the inspectors reviewed the licensee's refueling procedures and identified the following weaknesses:

- (1) No procedures for the refueling crew in the event of a dropped or otherwise damaged fuel bundle exist.
- (2) There are no requirements to assure adequate radiation monitoring during fuel movement.
- (3) There is no guidance given in the event of a loss of water level during refueling operations.

The licensee has committed to change appropriate procedures to address these weaknesses prior to refueling operations. These changes will be tracked as an open item (265/85-04-01[DRP]).

No items of noncompliance were identified.

e. Procedures

The following procedures were reviewed:

QAP 300-15, Revision 5	Operating Experience Feedback
QAP 300-S11, Revision 1	Quad Cities Station NRC Document Review Completion Record
QAP-1120-5, Revision 6	Entering a Locked High Radiation Area With a Timekeeper
QAP-1120-6, Revision 7	Entering a Locked High Radiation Area Without a Timekeeper
QAP 1120-S1, Revision 3	R Key Log
QCP 600-9, Revision 7	Determination of Sodium Pentaborate
QEP 340-5, Revision 6	Station Fire Fighting
QEP 340-S1, Revision 4	Fire Drill Worksheet
QMS 200-9, Revision 5	Molded Case Circuit Breaker Inspection and Test
QMS 200-S11, Revision 4	480 Volt Molded Circuit Breaker Log
QOA 1300-1, Revision 4	RCIC Fails to Start on Automatic Initiation Signal
QOP 207-2, Revision 6	Declaring Rod Worth Minimizer Computer Inoperable
QOS 1300-S1, Revision 7	Reactor Core Isolation Cooling Flow Rate Test (Operations Quarterly)
QOS 1300-2, Revision 4	RCIC Pump Operability Test Data Sheet (Operations Monthly)
QOS 1500-S4, Revision 7	Standby Gas Treatment System Monthly Operability

No items of noncompliance were identified.

f. LER Review

- (1) (Closed) LER 84-005, Revision 1: Linear indications on Reactor Recirculation System welds.

The original LER was closed in IR 84-06 by K. Ward and this supplement contains no new information that was not already known to the inspectors.

- (2) (Closed) LER 84-004, Revision 1: Unit 1 MSIVs fail local leak rate test.

The original LER was assigned an open item that was closed in IR 84-14 and this supplement contains no new information that was not already known to the inspectors.

- (3) (Closed) LER 83-24/03L-1: Snubbers fail test.

The original LER was closed in IR 84-08/07 and this supplement contains no new information that was not already known to the inspectors.

- (4) (Closed) LER 84-007, Revision 2: RHR Service Water Door leaks.

The original LER was closed in IR 84-14/12 and this supplement contains no new information that was not already known to the inspectors.

- (5) (Closed) LER 85-03: Scram on Low Condenser Vacuum.

The loss of vacuum was caused by failure of the rubber expansion joint connecting the condenser and the turbine casing (see paragraph 2a, IR 84-25). The failed boot was replaced and the two other boots will be replaced during the March refueling outage.

- (6) (Closed) LER 84-14: HPCI isolated due to tripped temperature switch.

While HPCI was being run at low speed for turbine warming, HPCI isolated on high temperature. The cause of the isolation was a small intermittent steam leak from a steam seal on the turbine. The isolation was reset and the HPCI operability tests were successfully completed. The seal leak present at low turbine speed is not present at higher speeds, thus had HPCI been auto initiated it would have operated successfully. The licensee will repair the steam leaks that caused the elevated temperature in the room and will also overhaul the turbine during the March refueling outage.

While this report was made late, it was discovered by the licensee's normal review process. A noncompliance will not be written

since it was discovered by the licensee and it is considered an isolated event.

No items of noncompliance were identified.

g. Review of Routine and Special Reports

The inspectors reviewed the monthly performance report for Units 1 and 2 for the month of January 1985.

No items of noncompliance or deviations were identified in these areas.

h. Regional Requests

- (1) A request for information regarding the safety classification and electrical separation of the reactor building torus vacuum breakers was forwarded to the resident inspectors.

The resident inspectors, after conversations with the licensee, forwarded the following information:

- ° These vacuum breakers were installed and are maintained as a safety related system.
- ° The air operated solenoid valves are supplied with instrument air.
- ° The check valves are mechanically operated.
- ° A common sensing line is used.
- ° Control and indication electrical cable routing is not entirely separated.

- (2) The senior resident inspector was requested to clarify the requirement for licensees to report an event or condition that results in multiple failure of the reactor protection system.

The reason for the this clarification was the event at Susquehanna Unit 1 where multiple failures occurred in the scram system and the licensee did not consider it necessary to report the failures under 10 CFR 50.72(g)(2)(iiii). (The event occurred while performing single control rod scram time testing with the unit at power.) The need to report multiple failures of the Reactor Protection System was reemphasized to the licensee at the exit interview.



i. Unresolved Items

On February 8, 1985, HPCI was declared inoperable due to a ground on the room cooler fan motor. The fan motor was subsequently replaced and HPCI was returned to service. During the review of this event the inspectors determined that the fan motor was not required to be environmentally qualified, unlike similar fan motors for Core Spray, Low Pressure Coolant Injection, and Reactor Core Isolation Cooling. The inspectors questioned the reason for this difference and the licensee agreed to investigate. This will be tracked as an unresolved item pending the results of the licensee's investigation (254/85-04-01([DRP]; 265/85-04-02[DRP])).

j. Independent Inspection

- (1) The licensee was informed by the resident inspectors about an occurrence at the Shoreham Facility where a tripped breaker inhibited the auto start of the emergency diesel generators because the tripped breaker had no annunciation associated with it.

The licensee reviewed annunciator panel logic and could not find any breaker that would inhibit an auto start of the diesels without annunciating first.

- (2) The licensee was informed by the resident inspectors of a potential leakage path, that could exist in some Rosemount Series B pressure transmitters, that were identified at Limerick Unit 1.

The licensee identified that these transmitters were in use at the site in the HPVI system. Spare transmitters were sent to the factory to be reconditioned and have been installed on Unit 1. The transmitters removed from Unit 1 will be sent to the factory for reconditioning and installed on Unit 2 during the next refueling outage.

- (3) The licensee was informed by the resident inspectors regarding non-safety grade HEPA filters shipped by a distributor of American Air Filter.

The licensee checked the stock numbers involved and determined that none of those filters were onsite.

- (4) The licensee was informed by the resident inspectors regarding the seal damaging effects of Mobil 28 (a lubricant) when used in a prolonged irradiated environment. This situation was identified at Vogtle Units 1 and 2.

The licensee's Environmental Qualification program specifies lubricant for use when special requirements are needed.

- (5) The licensee was informed by the resident inspectors regarding the proper mounting orientation for Barton Model 764 transmitters (the problem being identified by Arizona Public Service).

The licensee confirmed that the electrical connections were mounted facing down, the only qualified orientation for these transmitters.

k. TMI

NUREG-0737, Item II.B.3, Post Accident Sampling System, contains eleven criteria to be met by the licensee. In a letter dated January 14, 1985, the NRC staff approved ten of these criteria as being met. The remaining criteria has been approved on an interim basis pending receipt of more information from the licensee.

l. Bulletin

(Closed) IE Bulletin 79-26, Revision 1: Boron Loss from BWR Control Blades.

A review of the operating history of Quad Cities Station control rod blades determined that no blade has exceeded the 25% B<sup>10</sup> depletion (Item 1). No control rod blades are expected to exceed 34% B<sup>10</sup> depletion by the specified outage (Item 2). Prior to Cycle 5 on Quad Cities 1 and 2, sufficient blades were individually withdrawn to verify subcriticality (Item 3a). Local shutdown margin tests were performed and the shutdown margin was shown to be in excess of the Technical Specification requirements (Item 3b). The results of the tests performed by General Electric indicate agreement between post irradiation examination data and GE's model (Item 4).

No further actions are required and no items of noncompliance were identified.

m. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspectors, and which involve some action on the part of the NRC or licensee or both. The open item disclosed during the inspection is discussed in Paragraph 2d.

n. Unresolved Items

Unresolved items are matter about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. The unresolved items disclosed during the inspection are discussed in Paragraph 2i.

3. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on February 22, 1985, 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.