U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/84-04(DPRP); 50-265/84-03(DPRP)

Docket No. 50-254; 50-265 License 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, IL

Inspection Conducted: April 2 through May 19, 1984

Inspectors: A. L. Madison
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Approved by: for N. J. Chrissotimos, Chief
Projects Section 2C

May 29, 1984
Date

Inspection Summary

Inspection on April 2 through May 19, 1984 (Reports No. 50-254/84-04(DPRP); 50-265/84-03(DPRP))
Areas Inspected: Routine, unannounced inspection by the resident inspectors of previous inspection findings; operational safety; maintenance; surveillance; Licensee Event Reports; IE bulletin followup; reactor scrams; review of licensee's monthly performance report; procedures; refueling; TMI action plan followup; special reports, regional requests; meetings with local officials; and independent inspection. The inspection involved a total of 413 inspector-hours onsite by three NRC inspectors including 83 inspector-hours onsite during off shifts.
Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

*N. Kalivianakis, Superintendent
T. Tamlyn, Assistant Superintendent for Operations
D. Bax, Assistant Superintendent Maintenance
L. Gerner, Assistant Superintendent for Administration
*D. Gibson, Quality Assurance Supervisor
*G. Spedl, Technical Staff Supervisor

The inspector 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 May 19, 1984.

2. Action on Previous Inspection Findings

(Closed) Unresolved Item (254/83-05-01(DE) and 265/83-05-01(DE)): Adherence to Technical Specifications for audits. A policy statement has been issued concerning the performance of quality assurance audits covering all Technical Specification line items within prescribed time limits. The licensee had previously instituted a program that complies with this new policy.

No items of noncompliance or deviations were identified in this area.

3. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of April and May. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Unit 1 and 2 reactor buildings and turbine buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan.

The inspector observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the months of April and May, the inspector walked down the accessible portions of the standby liquid control system of Unit 1 and 2 to verify operability. The inspector also witnessed portions of the radioactive waste system controls associated with radwaste shipments.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, 10 CFR, and administrative procedures.

During this report period, Unit 1 remained in cold shutdown condition for a refueling outage. Unit 2 was in operation at the beginning of the report period. On April 28, 1984, Unit 2 was shutdown to perform surveillance on station batteries and repairs to the 2A circulating water discharge valve.

On May 2, 1984, while attending an outage meeting, the inspector was informed that the 125 volt batteries for the station were loaded in excess of 62.3 amperes each. The station superintendent, as well as the inspector, became concerned and further investigation ensued. It was determined that the Unit 2 battery had a steady-state draw of approximately 55 amperes and Unit 1 had approximately 85 amperes as a steady-state load.

The Final Safety Analysis Report (FSAR) states, in part: "The 125 volt battery discharge rating is 62.3 amperes for 8 hours (498 ampere hour). The battery is sized to carry its required connected load for 8 hours (without recharging)....."

The battery chargers were not installed as safety related nor were they installed to meet seismic requirements. However, the licensee has purchased replacement battery chargers as safety related and intends to install these chargers at some future date. At that time, they will also be installed to meet seismic requirements.

Since initial licensing, several modifications have been installed at Quad-Cities Station that have required a stable, safety related source of power. The 125v battery was selected. The inspector reviewed the onsite documentation for these modifications. It appears that the 10 CFR 50.59 review performed for these modifications did not address the effect these additional loads would have on the battery.

The inspector questioned the operability of the Unit 1 125v battery and therefore, the permissibility of startup for Unit 2 based upon Technical Specifications requiring both 125v batteries being operable before startup of either unit. The Office of Nuclear Reactor Regulation (NRR) and Region III were contacted as well as Commonwealth Edison Corporate Offices. An agreement was reached and a Confirmatory Action Letter was issued on May 7, 1984, which required the licensee to provide written justification for interim operation based on a battery profile analysis which demonstrated that the actual capabilities of the batteries were within accident analysis capabilities. The licensee was to also implement procedures to reduce the 125v direct current loads below 62.3 amperes within 30 minutes following loss of the associated battery chargers.

The licensee responded immediately by implementing the required procedures. On May 11, 1984, the licensee submitted justification for interim operation.

Based upon a battery profile analysis and the accident events analyzed in the FSAR (small break and large break loss of coolant accident 'LOCA' with loss of offsite power 'LOOP'), the batteries appear to have sufficient capacity to reduce reactor water temperatures to 280°F, at which time RHR could be initiated and maintained without DC power. However, a more conservative accident (not considered in the FSAR), the LOOP with no break, was evaluated and the batteries were found to have insufficient capacity without reducing loads to lower than 62.3 amperes within 30 minutes. With the implementation of procedures to reduce loads, the batteries appear adequate to reach this safe condition.

This information was submitted to NRR for review and resolution. Further action by Region III, including regulatory action, will be based upon the results of that review and the determination of the adequacy of existing 125v battery capacity and the adequacy of the 10 CFR 50.59 reviews performed on the modifications which added electrical loads to these batteries. Until such time, this will be tracked as an Unresolved item (50-254/84-04-01(DPRP) and 50-265/84-03-01(DPRP)).

Telephonic confirmation of battery capacity was received by Region III prior to Unit 2 startup on May 8, 1984, and the unit was allowed to startup.

While at power on May 8, 1984, a manual scram was inserted. This is discussed in paragraph 8 of this report. On May 9, 1984, Unit 2 returned to power operation and remained there throughout the remainder of this report period.

No items of noncompliance or deviations were identified in this area.

4. Monthly Maintenance Observation

Station maintenance activities of safety 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; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and, fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activities were observed/reviewed:

Unit 1

Modification to RHR service water pumps

Unit 2

Repair 2A circulating water discharge valve

No items of noncompliance or deviations were identified in this area.

5. Monthly Surveillance Observation

The inspector observed portions of the reactor low water level ECCS initiation calibration, 2/3 core level RHR containment spray permissive surveillance, and the 125v battery discharge test and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements and 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.

The inspector also witnessed portions of the following activities associated with the Unit 1 refueling outage:

IHSI of recirculation system piping
ISI of recirculation system piping

No items of noncompliance or deviations were identified in this area.

6. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with technical specifications.

a. Unit 1

(i) RO 84-01, dated March 5, 1984, Electromatic relief valve 3E failed to open and high pressure coolant injection (HPCI) system inoperable.

The failure of the valve was traced to a coil in the valve controller having become disconnected due to vibration experienced during normal operation. The method of cable connection was reviewed to assure a more positive means of connection. The valve will be tested prior to reactor startup.

HPCI was declared inoperable when water was discovered in the oil system. The water originated from a leak in the oil cooler system of the HPCI pump. The pump oil cooler O-rings and gaskets were replaced and the cooler was tested for leaks. None were found. The HPCI pump and cooler will be tested during startup of Unit 1.

Satisfactory completion of testing of the above components will be tracked as an open item. (254/84-04-02(DPRP)).

(ii) RO 84-03, dated March 6, 1984, Spurious low water level scram with reactor in cold shutdown.

The deficient procedure (QGP 2-1 Normal Unit Shutdown) has been revised.

(iii) RO 84-04, dated March 16, 1984, Main steam isolation valves (MSIV) failed local leak rate tests (LLRT).

MSIVs 1B, 2B, 1C, 2C and 2D failed normally scheduled LLRTs. Causes have not yet been determined. Repairs are to be completed prior to startup and a supplemental report is to be issued at that time. Completion of these repairs will be tracked as an open item (254/84-04-03 (DPRP)).

Deviation 4/1/84-24. Potential secondary containment problem. The licensee has identified a potential method of violating secondary containment during maintenance activities: having both a main steam isolation valve and a stop valve or bypass valve disassembled or open. This has happened twice during this outage and although plastic bags filled with rags were jammed into the openings, this is not considered an acceptable method of maintaining secondary containment. Fortuitously, secondary containment was not required either time.

The licensee has initiated temporary procedures and is looking at permanent methods to prevent this occurring in the future. The determination and implementation of a permanent method will be tracked as an open item (254/84-04-04(DPRP)).

b. Unit 2

(i) 83-15/03L-0, dated September 12, 1983, Excessive combined leakage during local leak rate testing. See (ii) below.

(ii) 83-15/03L-1. This supplement to the above report specifies which valves and penetrations had excess leakage and the repairs performed to reduce containment leakage to within Technical Specification limits. The repairs were completed and testing was satisfactory prior to startup following the refueling outage.

No items of noncompliance or deviations were identified in this area.

7. IE Bulletin Followup

For the IE Bulletins listed below the inspector verified that the written response was within the time period stated in the bulletin, that the

written response included the information required to be reported, that the written response included adequate corrective action commitments based on information presentation in the bulletin and the licensee's response, that licensee management forwarded copies of the written response to the appropriate onsite management representatives, that information discussed in the licensee's written response was accurate, and that corrective action taken by the licensee was as described in the written response.

(Closed) IEB 80-05, "Vacuum Condition Resulting in Damage to Chemical Volume Control System Holdup Tanks." This is not applicable to boiling water reactors.

(Closed) IEB 83-03, "Check Valve Failures in Raw Water Cooling Systems of Diesel Generators."

(Closed) IEB 84-01, "Cracks in Boiling Water Reactor Mark I Containment Ventheaders. This bulletin was closed out in inspection report 50-265/84-02(DPRP). Subsequent to that report, the licensee physically inspected the Unit 2 torus as additional verification action pursuant to the bulletin requirement.

(Closed) IEB 83-08, "Electrical Circuit Breakers with an Undervoltage Trip Feature in use in Safety Related Applications Other Than the Reactor Trip System." The subject breakers are not utilized in safety related applications, outside the reactor trip system at Quad Cities Station. Further, circuit breakers that use an undervoltage trip feature are not used in safety related applications.

No items of noncompliance or deviations were identified in this area.

8. Reactor Scrams

Unit 2

On May 8, 1984, the unit was manually scrammed during startup in response to indications that the "C" and "E" relief valves were leaking. The reactor was at approximately 1 per cent power and 30 psi. The reactor was placed in cold shutdown, the valves were repaired, and the unit was returned to power on May 9, 1984.

No items of noncompliance or deviations were identified in this area.

9. Review of Licensee's Monthly Performance Report

The inspector reviewed the licensee's monthly performance reports of Units 1 and 2 for the month of April 1984.

Areas covered by the report were amendments to Technical Specifications, summary of corrective maintenance performed on safety related equipment, Licensee Event Reports, operating data tabulations, and refueling

information. The report was reviewed for compliance with Technical Specification 6.6.A.3.

No items of noncompliance or deviations were identified in this area.

10. Procedures

For the procedures listed below, the inspector verified that they were in accordance with Technical Specifications and changes were made to reflect both licensee revisions and NRC requirements.

QAP 200-2, Rev. 5	Operating assistant superintendent
QAP 200-4, Rev. 3	Operating engineers
QAP 300-1, Rev. 9	Operations Department Organization
QAP 300-2, Rev. 10	Conduct of shift operations
QAP 300-3, Rev. 8	Shift Manning
QAP 300-6, Rev. 7	Shift change for shift foremen
QAP 300-T7, Rev. 3	Shift foreman turnover checklist
QAP 900-2, Rev. 4	Quality receipt inspection
QAP 1290-1, Rev. 12	Reporting requirements procedure
QAP 400-2, Rev. 8	Surveillance program responsibilities
QAP 400-10, Rev. 3	Procedure deleted (See QTP 600-12)
QAP 400-13, Rev. 1	Receipt and processing of General Electric Company vendor information
QAP 1120-9, Rev. 1	Entering a locked high radiation area with an R-Key access controller
QAP 1120-10, Rev. 1	R-Key access controller
QAP 1120-S1, Rev. 2	R Key log
QAP 1120-S3, Rev. 1	R Key access control log
QCP 700-7, Rev. 3	Determination of chromium Nalco-38 using the Hitachi 110A UV spectrophotometer
QIS 5-1, Rev. 2	Reactor high pressure scram calibration
QTS 150-6	Short duration integrated primary containment leak rate test

In reviewing QAP 300-3, the inspector noted that the shift engineer was authorized to authorize overtime beyond the guidelines of the Commission's policy statement on working hours. This is contrary to the statement in Generic Letter 82-12 that only the plant manager or his deputy or higher levels of management shall authorize overtime beyond the guidelines. Further, a memo from the Director of the Division of Licensing in the Office of Nuclear Reactor Regulation, clarifying the term "Deputy Plant Manager," states that "In most cases, this would be the Assistant Plant Manager." The intent is that only senior levels of management should be able to authorize overtime beyond the guidance given by the Commission. Revision of QAP-300-3 to correct this discrepancy will be tracked as an open item (50-254/84-04-05(DPRP) and 50-265/84-03-02(DPRP)).

No items of noncompliance or deviations were identified in this area.

11. Refueling

During the onsite inspection of new fuel, one bundle was found to have a defective spacer and two other bundles had rods that did not meet minimum acceptance criteria. All three bundles were repaired by a General Electric representative and reinspected as satisfactory.

During fuel sipping of fuel from Unit 1, one bundle was found to have a leaking rod. Bundle LJU 084 had been through two cycles and was scheduled to be reused in the upcoming cycle. The bundle was located adjacent to a 'control cell' in the last cycle.

The licensee intends to 'sip' all bundles with particular attention to symetric bundles and other bundles that were adjacent to the same 'control cell.' Results to date have not shown any additional leaking rods. The effect this has on reload of Unit 1 has yet to be determined.

No items of noncompliance or deviations were identified in this area.

12. TMI Action Plan Followup

Item II.B.3, Post-accident sampling system. The Office of Nuclear Reactor Regulation (NRR) has partially reviewed the post-accident sampling system, based on the licensee's submittal of December 12, 1982.

NRR has determined that seven of the eleven criteria are met. However, additional information is required before a determination can be made concerning criteria (2), (3), (7), and (10).

No items of noncompliance or deviations were identified in this area.

13. Review of Special Report

a. The inspector reviewed the licensee's report on Units 1 and 2 secondary containment capability. Areas covered by the report were the secondary containment capability test, the test results and the results corrected to zero wind conditions. The report was reviewed for compliance with Technical Specifications.

b. The inspector also reviewed the licensee's report on Unit 2 startup testing. The report discussed scram timing, shutdown margin, initial critical, TIP reproducibility, and core power symetry testing. The report was reviewed for compliance with Technical Specifications.

No items of noncompliance or deviations were identified in this area.

14. Followup on Regional Requests

a. The Commission was informed by General Electric that the use of Loctite-242 (a thread locking material) in scram solenoid pilot valves could lead to malfunction of the valves.

The resident inspector discussed this matter with the licensee and determined that Loctite-242 has never been used in this system. To preclude its use, electrical maintenance procedures for these valves will add a precaution against using Loctite-242.

b. The Commission was informed by NPS Industries, Inc. that certain Pacific Scientific snubbers had defective capstan springs.

The resident inspector discussed this matter with the licensee and determined that the snubbers in question have been removed from the plant.

No items of noncompliance or deviations were identified in this area.

15. Meetings with Local Officials

The senior resident inspector contacted the Chairman of the Rock Island County Board and the Mayor of Cordova, Illinois, on April 10 and 9, 1984, respectively, to ascertain the need of holding informational meetings with them or the governmental units they represent. It was agreed that meetings were not required but that the resident inspectors would be available to answer questions in the future.

16. Independent Inspection

During the refueling outage, Unit 1 was under Commission orders to inspect all stainless steel welds on pipes greater than four inches in diameter. To reduce radiation levels (and therefore dose levels), it was decided that decontamination of the recirculation system prior to this inspection would be prudent.

The company chosen to perform the decontamination was London Nuclear. The resident inspector attended the decontamination meetings, toured the decontamination setup, observed that ALARA procedures were in effect during the decontamination and was present during the transfer of the spent resin.

The decontamination, which lasted a week, went without incident and removed approximately 125 curies of radioactivity. This resulted in a substantial dose reduction during the weld inspection.

No items of noncompliance or deviations were identified in this area.

17. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 6.a., and 10.

18. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 3.

19. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on May 18, 1984, and summarized the scope and findings of the inspection activities. The licensee acknowledged the inspectors concerns.