

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-254/80-27; 50-265/80-28

Docket No. 50-254; 50-265

License No. DPR-29; DPR-30

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

Facility Name: Quad-Cities Unit 1 and 2

Inspection At: Cordova, IL

Inspection Conducted: November 25, 1980 through January 7, 1981

Inspectors: *R. L. Spessard*
N. J. Chrissotimos *for*

1/20/81

R. L. Spessard
S. G. DuPen *for*

1/20/81

Approved By: *R. L. Spessard*
R. L. Spessard, Chief
Projects Section 1

1/20/81

Inspection Summary

Inspection on November 25, 1980 through January 7, 1981 (Report No. 50-254/80-27; 50-265/80-28)

Areas Inspected: Licensee action on previous inspection findings; meeting with local officials; refuel activities; licensee event reports; followup on Headquarters request; operational safety verification; monthly maintenance observation; surveillance observation and plant scrams. The inspection involved a total of 287 inspector-hours onsite by two NRC inspectors including 69 inspector-hours onsite during off-shifts.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

- *N. Kalivianakis, Superintendent
- T. Tamlyn, Assistant Superintendent Operations
- *J. Heilman, Quality Assurance, Operations
- D. Bax, Assistant Superintendent Maintenance
- *L. Gerner, Technical Staff Supervisor
- G. Conschack, Senior Operating Engineer
- *J. Heilman, Quality Assurance, Operations

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 January 7, 1981.

2. Licensees Action on Previous Inspection Findings

(Closed) OII 254/79-07-01: Review and revise the control rod drive leak test checklist. The inspector verified that the checklist had been revised to more clearly identify acceptance criteria.

(Closed) OII 254/79-12-01; 265/79-10-01: Operating training in response to IEB 79-08. The inspector verified that the training has been completed.

3. Meeting with Local Officials

On December 9, 1980, the Senior Resident Inspector was invited to speak at the Sterling, Illinois Rotary Club. The major topics of discussion included safety, waste disposal and nuclear energy as one of the alternatives to meet energy needs.

4. Refuel Activities

During refuel of Quad-Cities Unit 1 Reload 5 gadolinia rods, the licensee was informed by General Electric of an occurrence at their Wilmington Fuel Fabrication Facility regarding the prepressurization of gadolinia fuel rods.

During routine destructive product auditing of gadolinia fuel rods in mid-October, 1980, it was discovered that a gadolinia rod did not meet specification requirements on helium fill-gas concentration and pressure. Followup investigation of this observation revealed that the cause was the malfunction of the final weld station in the gadolinia fuel rod fabrication line.

An engineering review of the potential impact of placing bundles containing some gadolinia rods with less than specification fill-gas in operation was performed. It was concluded that no significant impact on plant operation was expected nor would a substantial safety hazard exist. The NRC was informed of this review. The Office of Nuclear Reactor Regulation, based on information obtained, had no further questions regarding this matter and has issued an operating license for Quad-Cities 1 Reload 5.

No items of noncompliance were identified.

5. 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.

Unit One

RO 80-28 dated 10/23/80, Diesel Generator Cooling Water Pump inoperable.

RO 80-29 dated 11/3/80, excessive movement of Relief Valve Pipe during modifications resulted in a 4-inch long crack.

The event was discussed with the Senior Resident Inspector and a regional construction specialist. The repair methods were discussed and found to be acceptable. Repairs and non-destructive testing were completed on November 4, 1980.

RO 80-30 dated 11/4/80, one-half Diesel Fire Pump taken out of service.

RO 80-31 dated 11/24/80, Pressure Switch tripped at lower than required setting during surveillance.

Unit Two

RO 80-23 dated 10/10/80, MO Valve 2-1001-29A failed to open during surveillance.

RO 80-26 dated 10/17/80, Relief Valve 2-203-3C failed to open. The cause was determined to be excessive leakage between the main disc and the main disc guide.

RO 80-29 dated 10/27/80, Pressure Switch actuated in excess of limits during surveillance.

RO 80-25 dated 10/7/80, RCIC Valve did not respond properly during surveillance.

RO 80-30 dated 10/31/80, SBTG Valve Suction Vent required 30 seconds to respond.

RO 80-31 dated 11/16/80, RCIC Valve would not open from Control Room during test.

RO 80-32 dated 11/16/80, oil leak discovered on HPCI Stop Valve Cover.

RO 80-34 dated 12/15/80, HPCI Injection Valve failed to open fully.

No items of noncompliance were identified.

6. Followup on Headquarters Request

The inspector verified by direct observation and document review some additional information requested on Category "A" Task Action Plan Requirements. Inspection effort on this subject was previously documented in IE Reports No. 50-254/80-25 and 50-265/80-26.

The following information was provided to the Region III office via facsimile in accordance with this request and 10 inspector-hours were expended to complete this task.

<u>NUREG 0578 Number</u>	<u>TAP Number</u>	Has it been determined that the licensee did <u>WHAT</u> he committed to do <u>WHEN</u> he committed to do <u>it</u> ?	Who made that determination? (IE or NRR)
2.2.1.a	I.A.1.2	Yes	IE
2.2.1.b	I.A.1.1	Yes	NRR
	I.C.1	Yes	IE
2.2.1.c	I.C.2	Yes	IE
2.2.1.a	I.C.3	Yes	IE
2.2.2.a	I.C.4	Yes	IE
2.1.8.a	II.B.3	Yes	NRR
2.1.3.a	II.D.3	Yes	NRR
2.1.7.a	II.E.1.2	NA	NA
2.1.7.b	II.E.1.2	NA to BWR	
2.1.1	II.E.3.1	Yes	NRR
2.1.5.c	----	NA	NA
2.1.4	II.E.4.2	Yes	NRR
2.1.3.b	II.F.2	Evaluation by NRC Bulletins & Orders Task Force NUREG-0645	
2.1.1	II.G.1	NA	NA
2.2.2.b	III.A.1.2	Yes	IE
2.2.2.c	III.A.1.2	Yes	IE
2.1.6.a	III.D.1.1	Yes	NRR
2.1.8.b	II.F.1	Yes	NRR
2.1.8.c	III.D.3.3	Yes	NRR & IE

No items of noncompliance were identified.

7. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of November and December, 1980. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Units 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 November and December, 1980, the inspector walked down the accessible portions of all ECCS Systems on Unit 1 including valves in the Drywell to verify alignment. The inspector also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling. The inspector also conducted tours of the Torus prior to its filling and just prior to closure in preparation for startup.

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.

No items of noncompliance were identified.

8. 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 reviewed:

Unit One - WR Q07176 CRD RPLS Probe
WR Q09274 CRD Accumulator

Unit Two - WR Q08778 LPRM Indication

The following maintenance activities were witnessed:

Ultrasonic examination of LPRM's Unit 2
Acoustic Monitor Maintenance Unit 2
IRM Drive Motor Maintenance Unit 2
Recirculation Suction Valve Maintenance Unit 2
Torus/Drywell Vacuum Breakers Unit 1
Reactor Feedpump Check valve Unit 1
CRD Rebuild Unit 1
Hanger Installations Unit 1
Turbine Inspections Unit 1
Installation of SDV Monitoring Unit 1
Torus Modifications Unit 1
Core Spray Pipe Repairs Unit 1
SRV Line Repair Unit 1
UT Examination of C.S. Pipe Unit 1

No items of noncompliance were identified.

9. Surveillance Observation

The inspector witnessed technical specifications required surveillance testing on the systems/components listed below 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.

Unit 1 - ECCS Logic Tests for HPCI, RCIC, Core Spray, RHR and Diesels; Operability tests of ADS, HPCI, RCIC and Core Spray; and, Containment Isolation Tests for Groups I and II.

Unit 2 - Diesel.

Unit 1/2 - Shared Diesel.

No items of noncompliance were identified.

10. Plant Scrams

The following plant scrams which occurred during the inspection period were followed up by the inspector:

- a. On December 3, 1980, Unit 2 experienced a reactor scram from 100% power. The apparent cause was an erroneous signal indicating high main steam line flow. This signal resulted in a scram and Group I isolation (all 8 main steam isolation valves simultaneously closing). Following verification of no steam line breaks, the operators then immediately equalized pressure around the main steam lines to reopen them (outboard valves). However, when the operators opened a main steam isolation valve (inboard), reactor pressure had increased and the EHC pressure regulator (set at operating pressure) responded in attempting to control pressure by opening all nine bypass valves. This action resulted in a high main steam line flow and initiated a Group I isolation again.

Following the second isolation, the operators manually aligned the RCIC and HPCI Systems to control the increasing pressure. Water level was being controlled manually by an operator at the feedwater control station (feed pump was operating). During alignment, the HPCI Discharge Valve was found to be inoperable (RO 80-34/01T).

During this increase in pressure, the target rock relief valve automatically cycled 3 times to control pressure. This operation caused drywell pressure to increase to 1.6 psig. (Normal drywell pressure is maintained at 1.4 psig.)

Following the third intermittent target rock operation, the operator manually opened an electromatic relief valve to control pressure. The valve was opened at 1096 psig reactor pressure and was being held open (approximately 95 seconds) when drywell pressure increased to 2 psig. This caused a Group II isolation (LPCI Pump running, Core spray pump running, diesel generator on, RBCCW pump and drywell cooler trips). Water level at this time had increased to +64 inches. (Due to feed pump operation and depressurization of the reactor caused by electromatic valve operation.) At no time during the event was the core ever in danger of being uncovered.

The licensee, after determining that there was no steam line break, decided to bypass the interlock for drywell cooler operation. Once this was accomplished, drywell pressure decreased below 2 psig. This allowed the licensee to utilize the Torus cooling mode of the RHR System to cool the Torus (This system could not be used with the Group II isolation signal present.)

After Torus cooling was established, reactor pressure was still being controlled by manual operation of the electromatic relief valves. During these operations, one electromatic failed to operate (RO 80-26).

The licensee equalized pressure across the main steam lines, established a vacuum and reopened the MSIV's.

No release of radioactive material to the environment occurred as a result of this event. The licensee shut the unit down to repair the affected systems.

- b. During the startup of Unit 2 on December 7, 1980, the reactor scrambled. The cause was determined to be the drifting close of a bypass valve which caused an IRM Hi Flux trip. All systems functioned as required.
- c. On December 11, 1980, Unit 2 experienced a reactor scram from an erroneous low steam line pressure indication resulting in another Group I isolation from 100% power.

The operators after determining that the signal was erroneous, equalized pressure around the steam lines. Then the operators turned down the maximum combined flow controller on the EHC panel (This maintained all turbine bypass and control valves closed.)

The operators then opened the Main Steam Isolation Valves. The operators, by using the maximum combined flow controller, opened the Bypass Valves in a controlled manner thus dumping steam to the condenser.

The licensee then began to return the unit back to service and was on line the same morning.

The December 3 and 11, 1980 events were discussed in detail via telephone calls with Region III, IE Headquarters, NRR and other interested NRC personnel to ensure a thorough understanding of these events and actions taken or planned by the licensee. One of these calls involved a conference call between the interested NRC parties and the licensee on December 12, 1980. The licensee was responsive to the questions raised during these discussions, and the NRC parties had no further questions or concerns.

No items of noncompliance were identified.

11. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on January 7, 1981, and summarized the scope and findings of the inspection activities. The licensee acknowledged the inspectors comments.